CALIFORNIA
Water Boards

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State Water Resources Control Board

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Comments of State Water Resources Control Board and San Diego Regional Water Quality Control Board on Test Claim No. 14-TC-03, San Diego Region Order No. No. R9-2013-0001 County of San Diego, Claimant.

Dear Ms. Halsey:

The State Water Resources Control Board (State Water Board) and the San Diego Regional Water Quality Control Board (San Diego Water Board) (collectively, "Water Boards") jointly submit this Opposition to Test Claim No. 14-TC-03 (Test Claim). The Test Claim, originally filed with the Commission on State Mandates (Commission) on June 29, 2015[1] by the County of San Diego, seeks reimbursement of estimated and other unspecified costs of implementing or complying with requirements set forth in a federal permit issued by the San Diego Water Board on May 8, 2013 pursuant to the National Pollutant Discharge Elimination System (NPDES) Permit Program.[2] According to Claimant, many of the requirements at issue in this particular permit (the "2013 Permit") are unfunded state mandates that require subvention. For the reasons set forth below, the Commission should deny the Test Claim in its entirety.

I. INTRODUCTION

The federal Clean Water Act (CWA)[3] prohibits discharges of pollutants to waters of the United States except in compliance with a NPDES permit. The San Diego Water Board issued the 2013 Permit[4] pursuant to the CWA, its implementing regulations, and guidance from the United States

[1] The original Test Claim was submitted to the Commission on June 29, 2015, and a revised Test Claim was submitted on July 15, 2015.

[2] San Diego Region Order No. R9-2013-0001 and National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0109266. The Permit was later amended by Orders Nos. R9-2015-0001 and R9-2015-0100 to include dischargers in Orange and Riverside Counties among other revisions.

[3] Federal Water Pollution Control Act (FWPCA; 33 U.S.C.A. §§ 1251 et seq.) The federal Act is referred to herein by its popular name, the Clean Water Act (CWA) and the code sections used are those for the CWA.

[4] References to the 2013 Permit or the Regional Permit or Regional MS4 Permit are interchangeable.

Environmental Protection Agency (U.S. EPA) on May 8, 2013.[5] Broadly, the Permit regulates the discharge of storm water (wet weather) and non-storm water (dry weather) discharges from the municipal separate storm sewer systems (MS4s) within the San Diego Region, which drain into the watersheds of the San Diego Region, in the following ways:

- By prohibiting the discharge of non-stormwater discharges *into* the Copermittees'[6] MS4s;
- By requiring controls to reduce the discharge of pollutants to the "maximum extent practicable," or MEP;[7]
- By including numeric effluent limitations to implement federally-approved Total Maximum Daily Loads (TMDLs) required under Section 303(d) of the CWA to ensure that applicable wasteload allocations (WLAs) established in TMDLs are achieved over time;[8] and
- By requiring that Copermittees take actions, known as Best Management Practices (BMPs), to reduce the flow of pollutants into waters in the San Diego Region in order to improve water quality.[9]

Claimant brings this Test Claim to determine who must pay for many of the 2013 Permit's provisions. Specifically, Claimant invokes California Constitution article XIII B § 6, arguing that the Regional MS4 Permit imposes unfunded State mandates that require subvention. In order to obtain reimbursement, the Claimant must show as a threshold matter that the state has imposed new programs or higher levels of service on it.[10] It must prove, too, that either (1) the program carries out a governmental function of providing services to the public, or (2) the requirements, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.[11] Conversely, Claimant is not entitled to subvention if it voluntarily proposed the permit provisions, if the costs are imposed as a result of federal mandates rather than state mandates, or if any additional costs beyond a federal mandate are *de minimis*. Finally, Claimant must establish that it is required to use tax monies to pay for permit implementation of permit provisions before receiving reimbursement.[12] If Claimant has the "authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service," no subvention is required.[13]

As explained in detail below, Claimant's challenges must be rejected. There are several reasons for this. First, for many of the programs or requirements at issue, there is no evidence that the mandates impose new programs. To the contrary, the San Diego Water Board issued the first municipal storm water permit to Claimant and others in 1990, pursuant to the CWA amendments

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[5] The State Water Board and San Diego Water Board have been authorized by the U.S. EPA to issue NPDES permits—which are mandated by the CWA—in lieu of issuance of these permits by U.S. EPA. See, discussion, *infra,* at Background Section II.

[6] Copermittees used herein refers to all 21 entities regulated under Order No. R9-2013-0001. Claimant as used herein refers only to San Diego County.

[7] CWA § 402(p)(3)(B)(ii).

[8] CWA § 303(d).

[9] 40 CFR § 122.2.

[10] Cal. Const., Art. XIII B, § 6, subd. (a).

[11] Cal. Const., Art. XIIIB, § 6, subd. (a).

[12] See Cal. Gov. Code § 17556.

[13] Cal. Gov. Code § 17556 subd. (d).

of 1990. In August 1996, and again in 2001 and 2007, the San Diego Water Board renewed the Claimant's permit.[14] The Permit that is the subject of this test claim is the fifth such permit, and many (if not all) of the programs and requirements at issue here are not new.

Second, there is no evidence suggesting that any of the programs or requirements imposed upon Copermittes a higher level of service. As a general matter, the Regional Permit carries over and builds on the prior permit programs and implements independent federal requirements, all with a focus on water quality outcomes. Innovations included in the Permit are a part of the iterative process and applied technological advances, both of which are contemplated by federal law.[15]

Third, Claimant has not (and cannot) shown that the challenged provisions constitute State (versus federal) mandates. Indeed, when it considered the Permit, the San Diego Water Board specifically found that its provisions and requirements were necessary to meet the MEP standard, and that they were based exclusively on federal law.[16] The factual findings supporting this legal conclusion are entitled to deference by the Commission, and should not be disturbed.[17]

Fourth, even if there were substantial evidence supporting Claimant's challenges to the Permit (and there is not), one or more exceptions under mandates law applies to each provision, precluding a finding that subvention of funds is required.

Finally, and to the extent that Claimant may invoke the California Supreme Court decision *Department of Finance v. Commission on State Mandates* (2016) 1 Cal.5th 749, *as modified on denial of rehearing* (Nov. 16, 2016) (*Department of Finance*), in favor of its position, Claimant's challenges here are distinguishable. The Supreme Court's opinion was limited to a narrow issue: whether four conditions concerning trash receptacles and inspections in the 2001 Los Angeles County MS4 Permit required controls that would reduce the discharge of pollutants to the MEP, as required by the CWA.[18]

By contrast, the 2013 Permit here reflects the San Diego Water Board's findings that each of the challenged permit terms was *necessary* to comply with the federal requirement that MS4 permits impose controls that reduce the discharge of pollutants to the MEP,[19] and were based entirely on federal authority. The Supreme Court noted the absence of these findings in the LA Permit and further opined that such findings would be entitled to deference.[20] In addition, the Supreme Court's primary focus was the construction of MEP. But as set forth below, this Test Claim raises

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[14] San Diego Water Board Order No. R9-2007-0001, NPDES Permit CAS0108758 (hereafter, the "2007 Permit"); San Diego Water Board Order No. R9-2001-0001, NPDES Permit No. CAS0108758 (hereafter, the "2001 Permit").

[15] See, e.g., 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999 ("EPA envisions application of the MEP standard as an iterative process."); and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.")

[16] 2013 Permit, Attachment F, Fact Sheet (hereafter, "Fact Sheet"), p. F-35.

[17] *Department of Finance v. Comm'n on State Mandates* (2016) 1 Cal.5th 749, *as modified on denial of rehearing* (Nov. 16, 2016) (*Department of Finance*).

[18] *Department of Finance,* 1 Cal.5th at p. 757, citing CWA § 402(p)(3)(B).

[19] Regional MS4 Permit, Attachment F, Fact Sheet, p. F-35.

[20] *Department of Finance*, 1 Cal.5th at p. 768.

the following legal questions or factually distinct circumstances that the Supreme Court did not address:

1. Unlike the Los Angeles Regional Water Quality Control Board in the *Department of Finance* case, the San Diego Water Board found the permit requirements at issue in this test claim were federal mandates. "Had the Regional Board found when imposing the disputed permit conditions, that those conditions were the only means by which the maximum extent practicable standard could be implemented, deference to the board's expertise in reaching that finding would be appropriate."[21] Such findings are "case specific, based among other things on factual circumstances."[22]

2. The LA MS4 permittees and Los Angeles Water Board did not dispute that each of the four challenged requirements were a new program or higher level of service[23] and none were contained in previous permits.[24] That is not the case in this Test Claim as San Diego Water Board contends that none of the challenged requirements is a new program or higher level of service.

3. There was no evaluation of whether the contested provisions were required under a TMDL or other independent federal mandate such as the mandate to effectively prohibit non-storm water discharges into their MS4s. These are critical issues in this test claim.

4. Unlike here, none of the four requirements evaluated by the Supreme Court were terms U.S. EPA included in any EPA-issued MS4 NPDES permits.[25]

5. The Supreme Court did not evaluate whether the local government had the authority to levy fees or assessments pursuant to Government Code section 17556, subdivision (d).[26]

6. The Supreme Court did not consider the exception to unfunded state mandates for generally applicable requirements. The Permit's discharge requirements are generally applicable and do not impose "unique" obligations on municipal entities.[27]

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[21] *Ibid.*

[22] *Ibid.*, fn. 15.

[23] *Ibid.*, at p. 762.

[24] *Ibid.* at pp. 760-61.

[25] *Ibid.* at pp. 761 and 771-72.

[26] *Ibid.* at p. 761 (acknowledging that the Commission found that the local governments were not entitled to reimbursement because they had authority to levy fees to pay for the required inspections, an issue the Supreme Court did not review).

[27] The Water Boards note that in several instances Claimant relies upon the Commission's prior findings in Statement of Decisions in *In re Test Claim on: Los Angeles Regional Water Quality Control Board Order No. 01-182, Case Nos. 03-TC-04, 03-TC-19, 03-TC-20, 03-TC-21* (July 31, 2009) and *In re Test Claim on San Diego Regional Water Quality Control Board Order No. R9-2007-0001, Case No. 07-TC-09* (March 26, 2010) as support for the arguments in the Test Claim. In considering the challenged Permit provisions, the Water Boards urge the Commission to recognize factual distinctions between the permits and the fact that challenges to the Commission's findings on mandates law matters in the Statement of Decisions have not yet been resolved by the courts. Specifically, the courts have not yet determined how, if at all, the *Department of Finance* decision affects that matter and numerous other issues were raised but not addressed by *Department of Finance.* See *Department of Finance et al. v. Commission on State Mandates,* Third District Court of Appeal, Case No. C070357 (oral argument and case submitted, November 20, 2017).

Accordingly, and because the Supreme Court's November 16, 2016, modifications to its opinion underscore that the determination of whether a particular requirement exceeds the federal standards is a case-specific, factual determination, the *Department of Finance* decision is largely, if not wholly, inapplicable to this case.

In summary, Claimant's Test Claim must be denied in its entirety. The Water Boards' reasoning is set forth below.

II. BACKGROUND

In this section, the Water Boards provide an overview of the legal and regulatory context for the Water Boards' decisions, and the issuance of MS4 permits, under federal law generally, and for the 2013 Permit in particular.

A. Regulatory Overview of the Clean Water Act MS4 Program

In 1972, Congress extensively amended the CWA to implement a permitting system for all discharges of pollutants from "point sources" to waters of the United States.[28] The permits are known as "NPDES permits," and the 1972 amendments allowed U.S. EPA to authorize states to issue these permits.[29] California was the first state in the nation to obtain such authorization.[30] In order to obtain this authorization, the California Legislature amended the Water Code, finding that the state should implement the federal law in order to avoid direct regulation by the federal government.[31] The California legislature mandated that California's permit program must ensure consistency with federal law.[32]

The State Water Board and the nine regional water boards are the state agencies charged with implementing the federal NPDES program.[33] The State Water Board's regulations incorporate the U.S. EPA regulations implementing the federal permit program.[34] Therefore, both the CWA and U.S. EPA regulations are applicable to the permit program in California.[35] In California, permits to

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[28] CWA §§ 301 and 402. "The term 'point source' means any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged. This term does not include agricultural stormwater discharges and return from irrigated agriculture." (CWA § 502(14).) The Claimant's MS4 is a point source. (40 C.F.R. § 122.26(b)(4).)

[29] CWA § 402(b).

[30] Since that time, forty-six other states have received U.S. EPA's approval to issue NPDES permits. The list of states with the U.S. EPA's approval to issue NPDES permits can be found at https://www.epa.gov/npdes/npdes-state-program-information. Idaho, Massachusetts, New Hampshire, New Mexico, the District of Columbia, and many U.S. territories do not have approved NPDES programs.

[31] Wat. Code, § 13370 *et seq.*, adding Chapter 5.5 to the Porter-Cologne Water Quality Control Act.

[32] *Id.*, § 13372.

[33] *Id.*, § 13370.

[34] Cal. Code Regs., tit. 23, § 2235.2.

[35] The permits *may* also include additional state requirements. (Cal. Code Regs., tit. 23, § 2235.3; *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613.)

allow discharges into state waters are termed "waste discharge requirements."[36] When issuing permits for discharges to waters of the United States, the term "waste discharge requirements" is equivalent to the term "permit" in the CWA.[37] Thus, waste discharge requirements that the Water Boards issue for discharges to waters of the United States are NPDES permits under federal law. When the San Diego Water Board, a state agency, issues an NPDES permit in lieu of U.S. EPA, it must adopt as stringent a permit as the federal agency would have.[38]

To ensure that state-authorized programs comply with the U.S. EPA's mandates and federal law, the U.S. EPA maintains oversight and supervision of these programs. The state must provide the U.S. EPA with proposed permits and notice of any action related to a discharger's permit application.[39] The U.S. EPA may object to a permit, finding that it violates the CWA's requirements.[40] Should the U.S. EPA determine that a state program does not comply with federal NPDES program guidelines, it may withdraw approval for the state program.[41]

The CWA prohibits the discharge of pollutants from point sources to waters of the United States, except in compliance with an NPDES permit.[42] In 1973, U.S. EPA issued regulations that exempted certain types of discharges from NPDES permit requirements that it determined at that time were administratively difficult to regulate, including stormwater runoff. The reason that such regulation was deemed difficult is that stormwater runoff is much more diffuse, discharging at numerous points across the landscape. It runs off urban streets, into gutters and drainage ways, and flows directly into streams, lakes, and the ocean.[43] This exemption was overruled in *Natural Resources Defense Council v. Costle* (1977),[44] which held that the exemption was illegal, and ordered U.S. EPA to require NPDES permits for stormwater discharges. In *Costle*, the court suggested innovative methods for permitting, including using general permits for numerous sources and issuing permits that "proscribe industry practices that aggravate the problem of point source pollution."[45] Where permits prescribe actions that dischargers must implement to prevent or reduce pollutant discharges, these requirements are commonly called "best management practices" (BMPs).[46]

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[36] Wat. Code, § 13263.

[37] *Id.*, § 13374.

[38] CWA § 402(b).

[39] *Ibid.*, subd. (d)(1).

[40] *Ibid.*, subd. (d)(2).

[41] *Ibid.*, subd. (c)(3).

[42] CWA § 301(a). In general, "navigable waters" or "waters of the United States," includes all surface waters, such as rivers, lakes, bays and the ocean. (CWA § 502.)

[43] The chief traditional categories of discharges subject to NPDES permits are industrial process wastewater and sanitary sewer effluent. Both of these discharges are typically processed in a treatment plant before they are discharged to surface waters.

[44] *Natural Resources Defense Council v. Costle* (1977) 568 F.2d 1369.

[45] *Id.*, at 1380.

[46] 40 C.F.R. § 122.2 ("Best management practices ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.").

Controlling MS4 discharges is important, because stormwater and non-stormwater discharges are one of the most significant sources of water pollution in the nation.[47] When stormwater flows over urban environs, it collects heavy metals, sediments, nutrients (nitrogen and phosphorus), trash and debris, petroleum products, untreated sewage, pesticides, and other toxic pollutants, which are then discharged to creeks, rivers, estuaries, and oceans.[48] In addition to stormwater, the MS4 collects non-stormwater runoff from urban activities such as street and vehicle washing, potable water system testing, and discharges from groundwater treatment programs. In addition to urban activities, illicit discharges and connections to MS4 are another source of non-stormwater discharges.[49] These non-stormwater discharges can also contain pollutants that impair the beneficial uses (e.g., recreation, habitat protection, etc.) of the nation's waters. While non-stormwater discharges are most obvious during dry periods and are seen as the water flowing in the gutters, they can and do occur year round.

Following the *Costle* decision, in 1987, Congress amended the CWA, specifically requiring stormwater permits for industrial and municipal stormwater runoff.[50] The amendments require NPDES permits for a discharge from a MS4 serving a population of 100,000 or more.[51]

The CWA contains three provisions specific to permits for MS4s: (1) permits may be issued on a system- or jurisdiction-wide basis; (2) permits must include a requirement to effectively prohibit non-stormwater discharges into storm sewers; and (3) permits must require controls to reduce the discharge of pollutants to the maximum extent practicable (MEP), including management practices, control techniques and system, design and engineering methods, and such other provisions as the [permitting agency] determines appropriate for the control of such pollutants.[52] The state is required, by federal law, to select the BMPs.[53]

On November 16, 1990, U.S. EPA published regulations addressing discharges of stormwater and non-stormwater from MS4s.[54] The regulations establish minimum requirements for MS4 permits and generally focus on the requirement that MS4s implement programs to reduce the amount of pollutants found in stormwater discharges to the MEP. However, the regulations also require the MS4's program to include an element to detect and remove illicit discharges and improper disposal into the storm sewer.[55] "Illicit discharges" defined in the regulations is the most closely applicable definition of "non-storm water" contained in federal law, and the terms are often used interchangeably. The State Water Board has concluded that "U.S. EPA added the illicit

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[47] *Environmental Defense Center, Inc. v. EPA* (9th Cir. 2003) 344 F.3d 832, 840.

[48] *Id.* at pp. 840-841.

[49] *Ibid.*

[50] CWA § 402(p).

[51] *Id.*, subd. (p)(2)(C). U.S. EPA defines MS4s that serve a population over 250,000 as "large" MS4s. U.S. EPA issued regulations in 1999 extending permit requirements to small MS4s (those serving a population of less than 100,000).

[52] *Id.*, subd. (p)(3)(B).

[53] *NRDC v. USEPA* (9th Cir. 1992) 966 F.2d 1292.

[54] 55 Fed. Reg. 47990 *et seq.* (Nov. 16, 1990).

[55] 40 C.F.R. § 122.26(d)(2)(iv)(B).

discharge program requirement with the stated intent of implementing the CWA's provision requiring permits to 'effectively prohibit non-storm water discharges.'"[56]

B. Overview of Legal Standards for MS4 Permits

The CWA does not provide a specific set of permit terms that the permitting agency must include in each MS4 permit. Rather, the CWA and U.S. EPA's regulations require a permitting agency to determine what controls are necessary to meet federal requirements in a particular MS4 permit. The applicable legal standards that permitting authorities must meet when issuing MS4 permits are set forth in CWA section 402(p)(3)(B)(ii) and (iii) and require that MS4 permits:

> (ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers, and
>
> (iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

Federal and state permitting agencies must comply with these legal standards.[57]

To obtain coverage under an NPDES permit, federal regulations specify the information that applicants for MS4 permits must include in their applications that the permitting agency will be considering in issuing the permit.[58] For the large and medium MS4s, the application requirements are extensive. Applications:

> shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. Separate proposed programs may be submitted by each coapplicant. Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. Proposed programs will be considered by the Director when

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[56] State Board Order WQ 2009-0008, p. 4 (withdrawn on other grounds); see also State Water Board Order WQ 2015-0075, p. 63 ("the illicit connection and illicit discharge elimination program is a means to implement the non-storm water prohibition and [is] independently implementable and enforceable").

[57] CWA § 402(b). Included in this federal standard is the requirement that MS4 permits "shall . . . includ[e] . . . such other provisions as the Administrator or the State determines appropriate for the control of pollutants." (CWA § 402(p)(3)(B)(iii).) The word "shall" modifies compliance with MEP as well as this latter clause. Thus, in addition to requiring controls to reduce the discharge of pollutants to the MEP, this provision requires the Los Angeles Water Board, when appropriate, to include provisions that go beyond MEP. The provisions contested in this Test Claim, however, concern only the non-stormwater discharge prohibition and the MEP standard.

[58] 40 C.F.R. § 122.26(a)(4). U.S. EPA regulations have varied requirements depending on the size of the population served by the MS4. As stated earlier, a "large" MS4 serves a population of 250,000 or more. (40 C.F.R. § 122.26(b)(4).) Claimant (and collectively the other entities regulated by the Permit) exceeds the minimum population for a large MS4.

> developing permit conditions to reduce pollutants in discharges to the maximum extent practicable.[59]

Among other things, the federal regulations also require that a proposed management program must address oversight of discharges into the MS4 from the general population, and from industrial and construction activities within its jurisdiction and shall include "[a] description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls."[60] Permit applications must also describe programs for education and outreach to the general public, and to certain categories of municipal workers.[61] U.S. EPA has made clear that permit terms must be "clear, specific, and measurable."[62]

1. The Federal MEP Standard

The maximum extent practicable or "MEP" standard is akin to a technology-based standard and was first established in the CWA in 1987. The fundamental requirement that municipalities reduce pollutants in MS4s to the MEP remains a cornerstone of the mandate imposed on municipalities by the federal CWA and implementing NPDES regulations. Meeting the MEP standard is generally a result of emphasizing robust pollution prevention through various programs and structural measures, with treatment methods serving as additional lines of defense. These pollution prevention methods require municipalities to take actions that will lessen the incidence of pollutants entering the storm drains by regulating the behavior and practices of the municipalities, their residents, and their businesses.

The MEP approach is an ever-evolving, flexible and advancing concept, which considers technical and economic feasibility. As knowledge and technology regarding controlling stormwater runoff continues to evolve, so too must the actions that are taken to comply with the standard. In addition to regulations, U.S. EPA has issued guidance documents that discuss the type of BMPs that should be included in MS4 permits in order to reduce the discharge of pollutants in stormwater to the MEP.[63] Successive permits issued to MS4 dischargers thus require greater levels of specificity over time in defining what constitutes MEP. This is consistent with Congress' intent that state management programs evolve based on changing conditions from program development and implementation and corresponding improvements in water quality.[64] This is also consistent with

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[59] *Id.*, subd. (d)(2)(iv).

[60] *Id.*, subd. (d)(2)(iv)(A).

[61] *Id.*, subds. (v)(A)(6), (B)(6), (C)(4); see also, 40 C.F.R. § 122.34(b)(1), establishing public education and outreach as a minimum control measure for small MS4s. The initial requirements for small MS4s were considered to be less stringent than those for Phase I MS4s, such as Permittees. (64 Fed. Reg. 68722 (Dec. 8, 1999).)

[62] See generally 81 Fed. Reg. 89320 (Dec. 9, 2016).

[63] See, e.g., MS4 Permit Improvement Guide (Apr. 2010). Prior to issuance of the MS4 Permit Improvement Guide, U.S. EPA provided BMP "menus" for the required elements of a MS4 permittee's stormwater management program as required by 40 C.F.R. § 122.26(d)(2)(iv).

[64] Federal regulations and companion U.S. EPA guidance convey the expectation that the level of specificity in a permit reconsidered and reissued every five years will increase over time whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. E.g., 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999) ("EPA envisions application of the MEP standard as an iterative process."); and Interim

the U.S. EPA's guidance that successive permits for the same MS4 must become more refined and detailed. The MEP standard, which the San Diego Water Board found the permit provisions necessary to meet in this case, is discussed in more detail below as relevant to challenged permit provisions.

2. The Federal Prohibition on Non-Stormwater Discharges

Wholly independent from the MEP standard is the CWA requirement that MS4 permittees effectively prohibit non-stormwater discharges to their MS4s.[65] Under CWA section 402(p)(3)(B)(ii), permitting agencies must ensure that permits for MS4 discharges include requirements necessary to "effectively prohibit non-stormwater discharges into the storm sewers." U.S. EPA has defined "storm water" to mean "stormwater runoff, snow melt runoff and surface runoff and drainage."[66] While "non-stormwater" is not defined in the CWA or federal regulations, the federal regulations define "illicit discharge" as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water and that is not covered by an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer and discharges resulting from firefighting activities)."[67] This definition is the most closely applicable definition of "non-stormwater" contained in federal law. Non-stormwater discharges are generally considered dry weather discharges. In general, the requirement to "effectively prohibit" non-stormwater discharges requires MS4 owners and operators to prohibit flows to the MS4s by implementing a program to detect and remove illicit discharges, or by requiring a discharger to obtain a separate NPDES permit for the non-stormwater discharge into the storm sewer.[68]

3. The Federal TMDL Requirements

The CWA requires states to adopt TMDLs for surface waters in which federal water quality standards are not being attained. A TMDL, which must be approved by U.S. EPA, establishes the amount of certain pollutants a water body may receive and still achieve federal water quality standards.[69] For point source dischargers, including MS4 dischargers, the TMDL will determine wasteload allocations (WLAs) to limit pollutant discharges to the impaired receiving water. Federal law specifically requires the permit writers such as the San Diego Water Board to incorporate in NPDES permits of all types, including MS4 permits or other non-municipal NPDES permits, effluent limitations that are "consistent with the assumptions and requirements of any available wasteload allocations."[70] This is another independent ground upon which certain provisions of the 2013 Permit are based.

Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.").)

[65] State Water Board Order WQ 2015-0075 (2012 LA County MS4 Permit), pp. 62-63, confirming that non-stormwater discharges through the MS4s under the Clean Water Act are not subject to the MEP standard applicable to stormwater discharges.

[66] 40 C.F.R. § 122.26(b)(13).

[67] *Id.*, subd. (b)(2).

[68] *Id.*, subd. (d)(2)(iv)(B). See also 55 Fed. Reg. 47990, 47995 ["Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit."].

[69] See CWA, § 303(d) and 307.

[70] 40 CFR § 122.44(d)(1)(vii)(B).

C. Overview of San Diego County MS4 Permit Development

In 1990, pursuant to the CWA amendments of 1987, the San Diego Water Board issued the first MS4 permit to the County of San Diego and other Copermittees (together, and for the purposes of this discussion, referred to as Copermittees). In 1996, and again in 2001 and 2007, the San Diego Water Board renewed the MS4 permit. The MS4 Permit that is the subject of this test claim is the Fifth Term (and fourth)[71] such permit.

Many of the Claimant's challenges center around the argument that the Permit imposes upon them either new "programs" or "higher levels of service" than those required in the past. But prior to 2013, Copermittees were bound by provisions that were very similar or equivalent to those in earlier permits. Accordingly, it is necessary to include an overview of the general development of the San Diego Regional Permit and prior, relevant permit provisions.[72]

1. First and Second Term Permits

The First Term Permits were issued prior to November 1990, before the promulgation of the final federal NPDES storm water regulations. By issuing these First Term Permits before the federal regulations took effect, the San Diego Water Board was able to provide the Copermittees with flexibility in addressing and managing stormwater discharges. But while the First Term Permits contained the essentials of the 1990 regulations and required the Copermittees to develop and implement runoff management programs, they provided little specificity about what was required to be included in or actually achieved by those programs.[73] The flexibility and lack of specificity was generally continued through the Second Term Permits.[74]

The combination of the lack of specificity generally in the First and Second Term MS4 Permits, a general lack of meaningful action by the Copermittees and a general lack of corresponding reaction (i.e. enforcement) by the San Diego Water Board during the first ten years of the storm water program, resulted in few substantive steps towards achieving improvements in the quality of receiving waters or storm water discharges from the MS4s. This changed in the Third Term Permits.[75]

2. Third Term Permit

The Third Term Permit for the San Diego Copermittees (including Claimant in this case) were issued in 2001 ("2001 Permit").[76] The regulatory approach incorporated into Third Term Permit represented a significant departure from the regulatory approach of the First and Second Term Permits and coincides with the issuance of final, federal NPDES regulations. The Third Term Permit included more detailed requirements that outlined the minimum level of implementation required for the Copermittees' programs to meet the MEP standard for storm water. For example,

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[71] For a variety of reasons, the San Diego Water Board did not renew the 1990 Permit until 2001.

[72] Prior to 2013 when the current MS4 Permit issued, the San Diego Water Board issued separate permits for all Copermittees and other permittees within its jurisdiction in Riverside and Orange Counties.

[73] 2013 Permit Fact Sheet, p. F-8.

[74] 2013 Permit Fact Sheet, p. F-8.

[75] 2013 Permit Fact Sheet, pp. F-8-F-9.

[76] San Diego Water Board, Order No. R9-2001-0001.

the Third Term Permit prohibited "[d]ischarges from MS4s containing pollutants which have not been reduced to the [MEP]" and "[d]ischarges from the MS4s which cause or contribute to exceedences of receiving water quality objectives for surface water or groundwater," in Discharge Prohibitions A.2 and A.3[77] They also included more detail to emphasize and enhance the jurisdictional runoff management programs developed by Copermittees and introduced requirements for developing and implementing watershed-based programs.[78]

The Third Term Permit also incorporated two precedential decisions by the State Water Board: Order WQ 99-05, concerning water quality standards in receiving waters, and Order WQ 2000-11, concerning design standards for structural post-construction BMPs for new development and significant redevelopment. The Third Term Permit was subsequently modified in State Water Board Order WQ 2001-0015. These Orders are discussed briefly below.

a. State Board Order WQ 99-05

First, in Order WQ 99-05, the State Water Board established precedential receiving water limitation language to be included in all MS4 permits, making it clear that municipal storm water permits must include provisions requiring discharges to be controlled to attain water quality standards in receiving waters. Order WQ 99-05 specifically requires language in MS4 permits to comply with water quality standards based discharge prohibitions and receiving water limitations through timely implementation of best management practices (BMPs), control measures and other actions to reduce pollutants in discharges.[79] Order WQ 99-05 reflects U.S. EPA's requirement that California include receiving water limits in MS4 Permits.[80] It was a change from the First and Second Term Permits, which stated instead that (a) "*violations of water quality standards are not violations of the municipal storm water permit under certain conditions*," and (b) the "*implementation of best management practices is the 'functional equivalent' of meeting water quality standards.*"

b. State Board Order WQ 2000-11

Second, in Order WQ 2000-11, the State Water Board found that numeric design standards used to develop BMPs to meet receiving water quality standards, and which require that runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the federal MEP standard. The State Water Board also found that the post-construction BMP provisions, or Standard Storm Water Mitigation Plan (SSMP) provisions, constitute MEP for addressing storm water pollutant discharges resulting from specific development categories.[81]

c. State Board Order WQ 2001-15 And Legal Challenges Thereto

Finally, State Water Board Order WQ 2001-15 was the result of two challenges to the Third Term Permit, R9-2001-001, brought by third parties Building Industry Association of San Diego County

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[77] 2001 Permit, p. 9, § A.2, A.3.

[78] 2013 Permit Fact Sheet, p. F-9

[79] 2013 Permit Fact Sheet, p. F-9.

[80] State Water Board Order WQ 99-05.

[81] 2013 Permit Fact Sheet, p. F-9.

(BIA) and Western States Petroleum Association (WSPA).[82] In Order WQ 2001-15, the State Water Board made certain modifications to the Third Term Permit. Specifically, the State Water Board removed the prohibition of storm water discharges *into* the MS4 that cause or contribute to exceedances of water quality standards The revision allows for treatment of pollutants in storm water runoff after the pollutants have entered the MS4, and allows room for the iterative process in Discharge Prohibition A.2 to include source control.[83] State Water Board Order WQ 2001-15 otherwise upheld all the other requirements of the Third Term Permit.[84]

In addition to the modification to the discharge prohibition, Order WQ 2001-0015 further refined Order WQ 99-05 by making clear that the Copermittees may use an iterative approach to achieving compliance with water quality standards that involves ongoing assessments and revisions. Thus, the language for the discharge prohibitions and receiving water limitations was revised to explicitly require the Copermittees to implement an iterative process of assessments and revisions to comply with the discharge prohibitions and receiving water limitations. The San Diego Water Board retained the authority to enforce receiving water limitations and discharge prohibitions even if the Copermittee is engaged in the iterative process.[85] The iterative process is a federal standard for MS4 programs that acknowledges the ever-evolving nature of BMPs to provide for the attainment of water quality standards.[86]

Following the State Water Board's ruling in WQ 2001-15 and its clarification of WQ 99-05, BIA challenged the Third Term Permit in court, alleging that the permit violated federal law because they allowed the Water Boards to "impose municipal storm sewer control measures more stringent than a federal standard known as 'maximum extent possible [or MEP].'"[87] BIA also challenged the prohibition against "discharging pollutants 'which cause or contribute to exceedances of receiving water quality objectives,' and/or that 'cause or contribute to the violation of water quality standards...' This second category of restrictions ... essentially provide that a [m]unicipality may not discharge pollutants if those pollutants would not discharge pollutants if those pollutants would cause the receiving water body to exceed the applicable water quality standard."[88] The Court of Appeal rejected both challenges, concluding that the "Permit's Water Quality Standards provisions are proper under federal law;" and upholding the approach of the Third Term San Diego County Permit to regulating discharges into the MS4. The California Supreme Court subsequently

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[82] State of California, State Water Resources Control Board Order WQ 2001-15, consolidating WSPA and BIA challenges.

[83] WQ 2001-15, at p. 10.

[84] 2013 Permit Fact Sheet p. F-9.

[85] 2013 Permit Fact Sheet pp. F-9-10.

[86] See, e.g., Letter from U.S. EPA, Alexis Strauss, to State Water Board, April 10, 2008, concerning Los Angeles County Copermittee Test Claims Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21 (AR, pp. A003789-91), citing 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999 ("EPA envisions application of the MEP standard as an iterative process."); and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.").

[87] *Building Industry Ass'n of San Diego County v. State Water Resources Control Board* (2004) 124 Cal.App.4th 866, 871 (modified on denial of reh'g, Jan. 4, 2005), rev. denied, 2005.

[88] *Id.* at 876.

denied review.[89] The water quality standards, and receiving water limitations provisions in the Third Term Permits, were upheld. Thus, by 2005, Claimant already had to comply with critical components (albeit earlier iterations) of the current Permit, including water quality standards, receiving water limitations limitations and development of BMPs for specific development categories (post construction, new development).

3. Fourth Term Permits

The Fourth Term Permits began with the adoption of Order No. R9-2007-0001 ("2007 Permit") issued to Claimant in this case in January 2007. Order Nos. R9-2009-0002 and R9-2010-0016 were subsequently issued to the copermittees of Orange County and Riverside County.

The Fourth Term Permits continued to include more detailed requirements to be implemented by each copermittee's jurisdictional runoff management program.[90] The requirements of the Fourth Term Permits issued to the copermittees (here, the Claimant) in each county within the San Diego Region have substantively the same core requirements such as discharge prohibitions, receiving water limitations, jurisdictional runoff management program components, and monitoring program requirements.

Claimant here (and other copermittees) challenged certain provisions of the 2007 Permit before the Commission in 2008. The many test claims included challenges to the watershed activities and collaboration in the Watershed Urban Runoff Management Program (WURMP) (part E.2.f and E.2.g of the Fourth Term Permit); a challenge to the Regional Urban Runoff Management Program (parts F.1, F.2, and F.3 of the Fourth Term Permit); and a challenge to the hydromodification management plan (part D.1.g of the Fourth Term Permit).[91] Although the Commission decided in favor of the Claimants there on the WURMP and the Regional Urban Runoff Management Program, the Commission ruled against them on the challenge to the hydromodification plan. The significance of this decision, adopted as a Statement of Decision on March 26, 2010, is explained in further detail below, but it is important to note that this case was recently argued in the Court of Appeal on November 20, 2017.[92] As of the date of this submission, the Court of Appeal has not yet issued its decision.

4. The Current 2013 Permit

In November 2010, the San Diego Water Board notified the public of its intent to develop and issue a single Regional MS4 Permit for San Diego, Riverside and Orange Counties. The first milestone in the regional permitting process was the 2013 Permit issued only to San Diego County copermittees.

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[89] *Id.* at 880.

[90] 2013 Permit Fact Sheet, at p. F-10.

[91] *In re Test Claim on San Diego Regional Water Quality Control Board Order No. R9-2007-001,* Case No. 07-TC-09, Statement of Decision (March 26, 2010).

[92] *Department of Finance et al. v. Commission on State Mandates,* Third District Court of Appeal, Case No. C070357 (oral argument and case submitted, November 20, 2017).

Claimant has challenged eight specific parts of the 2013 Permit, including:

- The Receiving Water Limitations Language (Permit Provision A.2);
- Numeric Effluent Limitations and Related TMDL Provisions (Provisions A.3b and Attachment E);
- Development, Implementation and Update of Water Quality Improvement Plans (WQIPs) (Permit Provisions B and F);
- Jurisdictional Runoff Management Programs (JRMP), Provision E.3.c(2);
- The BMP Design Manual Update: Provision E.3.d in the JRMP, and the corresponding Reporting Provision F.2.b;
- Residential Inventory and Inspections (Provisions E.5.a; E.5.c.(1)(a); E.5.c.(2)(a); and E.5.(c).(3));
- The Requirement to Retrofit and Rehabilitate Streams in Provision E.5.e;
- The Requirement to Update JRMP to Incorporate New Permit Provisions in Provision F.2.a; and
- The Requirement to Periodically Appear Before the Regional Board, to Provide Progress Reports on WQIP implementation and JRMPs, Provision F.3.a.

The Fifth Term Permit, or Regional MS4 Permit, represents an important paradigm shift in the procedural approach for MS4 permits issued within the San Diego Region.[93] Many of the actual substantive programs or Permit requirements themselves, however, are continued from previous permits. These facts are important, not least of all because, "[t]o determine whether the permit [provision] is a new program or higher level of service, the permit is compared to the legal requirements in effect immediately before its adoption, in this case, the 2001 permit."[94] A more detailed description of the challenged sections of the current Permit, together with any historical permitting requirements that required the same or similar performance from Claimant prior to the issuance of the Fifth Term Permit in 2013, is set forth in the Argument sections (Sections VI and V), together with the specific arguments that are relevant to each part of the challenged Permit.

III. OVERVIEW OF MANDATES LAW

Article XIIIB, Section 6, of the California Constitution provides, "Whenever the Legislature or any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse that local government for the costs of the program or increased level of service." Implementing statutes clarify that no subvention of funds is required if: (1) the mandate imposes a requirement that is mandated by a federal law or regulation and results in costs mandated by the federal government, unless the statute or executive order mandates costs that exceed the mandate in that federal law or regulation;[95] or (2) the local agency proposed the mandate;[96] or (3) the local agency has the authority to levy service charges, fees, or assessments sufficient to pay.[97]

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[93] 2013 Permit Fact Sheet, at pp. F-11-F-12.

[94] *In re Test Claim on San Diego Regional Water Quality Control Board Order No. R9-2007-001,* Case No. 07-TC-09, Statement of Decision at p. 37 (March 26, 2010).

[95] Govt. Code, § 17556, subd. (c).

[96] *Id.*, subd. (a).

[97] *Id.*, subd. (d).

Numerous judicial decisions have further defined limitations on the requirements for subvention of funds. Specifically, subvention is only required if expenditure of tax monies is required, and not if the costs can be reallocated or paid for with fees.[98] In addition, reimbursement to local agencies is required only for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general application are not entitled to subvention.[99] The fact that a requirement may single out local governments is not dispositive; where local agencies are required to perform the same functions as private industry, no subvention is required.[100]

IV. ARGUMENT: THE CHALLENGED PERMIT PROVISIONS DO NOT IMPOSE NEW PROGRAMS OR REQUIRE HIGHER LEVELS OF SERVICE AND APPLICABLE MANDATES EXCEPTIONS PRECLUDE SUBVENTION—GENERAL RESPONSES

Claimant contends that the 2013 Permit imposes numerous new programs or requires higher levels of service than previously required and that all of the activities for which it seeks reimbursement exceed federal law. It also asserts that the provisions are uniquely imposed on local government and it is unable to assess a fee to recover the costs of the mandated activities. Claimant is wrong.

As a threshold matter, almost all of the challenged programs fail to constitute either a new program or a higher level of service within the context of mandates law.[101]

But, even assuming *arguendo* that the Commission finds that some of the challenged provisions do impose a new program or higher level of service, the challenged provisions are nonreimbursable because of applicable mandates exceptions. For example:

- All of the programs are federal mandates. The San Diego Water Board found that all of the challenged provisions were adopted entirely under federal law and are necessary to implement the MEP standard and other independent federal law requirements. Therefore none of the costs are for activities exceeding federal requirements.
- Copermittees are not *required* to use taxes to pay for the costs for the programs. They can be paid for by levying fees enacted for storm water programs.[102] The local agencies

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[98] *County of Los Angeles v. Commission on State Mandates* (2003) 110 Cal.App.4th 1176; *Redevelopment Agency v. Commission on State Mandates* (1997) 55 Cal.App.4th 976.

[99] *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46.

[100] *City of Richmond v. Commission on State Mandates* (1998) 64 Cal.App.4th 1190.

[101] No appellate court has addressed what constitutes a new program or higher level of service in the context of MS4 permits. The issue was raised in the State Water Board, San Diego Regional Water Quality Control Board, and Department of Finance's Petition for Writ of Mandate regarding the Commission's Statement of Decision in Test Claim No. 07-TC-09 (re: San Diego Regional Water Quality Control Board Order No. R9-2007-0001), which is currently on appeal (oral argument and case submitted, November 20, 2017).

[102] The Claimant generally states that it is unaware of authority to raise fees or impose surcharges to fund the modifications to their Permit. Claimant refers to limitations on assessing fees and surcharges under California law. The referenced law concerns only the percent of voters who must approve the assessment. The Cities of Palo Alto, San Clemente, San Jose, Alameda and Santa Cruz have storm water fee funded programs. Claimant's contention also ignores the clear authority granted to them to actually raise such fees

have not established that tax monies are required.[103] But even if the Commission determines that a portion of the MS4 operators' activities exceed federal law requirements and would otherwise qualify for subvention, the costs are *de minimis* and therefore not reimbursable.

- Compliance with NPDES permits, and specifically permits regulating stormwater discharges, is required of private industry as well as state and federal government agencies. Local government is not singled out. In fact, the requirements for industrial entities are more stringent than for local government dischargers because industrial entities are required to strictly comply with water quality standards.
- Claimant proposed some of the challenged permit requirements in their permit application, or report of waste discharge (ROWD) or in the permitting process for their requested permit.

Because many of the Water Boards' responses concerning applicable mandates law apply to all of the challenged provisions, the San Diego Water Board has endeavored to avoid repetition by responding generally to Claimant's assertions below. These general responses alone support denial of each of Claimant's challenges. Where appropriate, the Water Boards provide additional support for the conclusion that exceptions apply to specific challenged provisions, in Argument Section V, *infra*.

A. The Contested Provisions Do Not Impose New Programs or Higher Levels of Service

As an initial matter, Claimant has not established that the contested provisions impose a new program or higher level of service. Thus, California Constitution article XIII section 6 is inapplicable.

1. The 2013 Permit Does Not Impose a New Program

Under mandates law, a program is defined as "a program which carries out the 'governmental function of providing services to the public, or laws which, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.'"[104] A program is "new" if the local government had not previously been required to institute it.[105] Here, even if each of the challenged provisions could be considered a "program,"

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in Proposition 218 and their enabling acts. Thus, Claimant has not shown it is *required* to rely on using tax money to fund challenged activities.

[103] As mentioned in the Introduction, what constitutes fee authority in the context of municipal storm water permits, particularly with consideration of Proposition 218, remains unresolved. In their petition for writ of mandate in *State of California, Department of Finance, et al., v. Commission on State Mandates,* Sacramento County Superior Court, Case No. 34-2010-80000604, the Water Boards and Department of Finance challenged the Commission's conclusion in the underlying Statement of Decision in 07-TC-09 that the requirement for voter approval as a prerequisite to raising fees precluded finding that a local agency has fee authority to pay for some permit-related activities. Likewise, Claimants there in a cross-petition for writ in the same matter challenged the sufficiency of the evidence supporting the Commission's underlying determination that local agencies have authority to fund hydromodification and low impact development programs through their land development programs. These issues remain unresolved pending a determination by the Court of Appeal.

[104] *County of Los Angeles v. Comm'n on State Mandates* (2003) 110 Cal.App.4th 1176, 1189, citing *County of Los Angeles v. State of California* (1987) 43 Cal. 3d 46, 56.

[105] *Ibid.*

none meets the definition of "new." Claimant had been permitted under the NPDES program implementing storm water programs for more than two decades at the time the 2013 Permit was adopted. Prior permits, like 2013 Permit, included management plan requirements, monitoring programs, annual reporting requirements, land development requirements, enforcement obligations, and the requirement to comply with receiving water limitations and prohibitions through an iterative process.[106]

2. The 2013 Permit Does Not Impose Higher Levels of Service

The term "higher level of service" "must be read in conjunction with the predecessor phrase 'new program' to give it meaning. Thus read, it is apparent that the subvention requirement for increased or higher level[s] of service is directed to state mandated increases in the services provided by local agencies in existing 'programs.' "[107] Specifically, this means an increase in the services provided in either "programs that carry out the governmental function of providing services to the public," or "laws which, to implement a state policy, impose unique requirements on local governments *and* do not apply generally to all residents and entities in the state."[108]

The changes to the requirements of prior permits (e.g., increased detail or specificity) also do not amount to a higher level of service, both because equivalent changes are applicable to non-municipal NPDES permittees, discussed in Section V below, and because they are merely refinements of existing requirements, most of which are a result of the iterative process expressly contemplated by federal law.[109] A higher level of service is not simply any increase in costs. "If the Legislature had intended to continue to equate 'increased level of service' with 'additional costs,' then the provision would be circular: 'costs mandate by the state' are defined as 'increased costs' due to an increased level of service, which, in turn would be defined as 'additional costs.'"[110] Costs for purposes of Article XIIIB, Section 6 do "not equal every increase in a locality's budget resulting from compliance with a new state directive."[111]

Nor does every increase in specificity about where to direct costs amount to a higher level of service.[112] That the level of specificity in a permit reconsidered and reissued every five years may have changed over time is consistent with U.S. EPA's guidance that MS4 permitting follow an

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[106] See, Orders/Permits Nos. R9-2001-0001, R9-2007-0001.

[107] *County of Los Angeles v. State of Califomia* (1987) 43 Cal.3d 46, 56 (emphasis added).

[108] *Ibid.*

[109] See *County of Los Angeles v. Comm'n on State Mandates, supra,* 110 Cal.App.4th at pp. 1189-1190; see, also, e.g., Letter from U.S. EPA, Alexis Strauss, to State Water Board, April 10, 2008, concerning Los Angeles County Copermittee Test Claims Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21 (AR, pp. A003789-91), citing 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999 ("EPA envisions application of the MEP standard as an iterative process."); and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.").

[110] *County of Los Angeles, supra,* 110 Cal.App.4th at p. 1191.

[111] *Ibid.,* at p. 1194; accord *San Diego Unified School Dist. v. Comm'n on State Mandates* (2004) 33 Cal.4th 859, 876-877.

[112] See *Id.,* at p. 1194 [requiring local law enforcement agencies devote some of their training budgets to domestic violence training was not a higher level of service].

iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit.[113]

Rather, the costs incurred must involve programs previously funded exclusively by the state.[114] The "state must be attempting to divest itself of its responsibility to provide fiscal support for a program, or forcing a new program on a locality for which it is ill equipped to allocate funding."[115]

In certain instances set forth in Section V, *infra,* Claimant contends that the state has shifted costs to local government and that they have been saddled with entirely new obligations to control pollution in stormwater. As explained below, these claims are simply not true. In other cases, though, Claimant does not contend that the state has shifted any costs to them, or saddled them with entirely new obligations to control pollution in stormwater. Without any burden shifting from the state to municipalities, mere direction from the San Diego Water Board that the municipalities reallocate some of their resources in a particular way does not amount to a higher level of service.[116] "Loss of flexibility does not, in and of itself, require the [local agencies] to expend funds that previously had been expended by the State."[117]

In this case, any costs arising from the 2013 Permit's requirements do not result from a "new" program. Nor do they result from a "higher level of service," because the state has not shifted its own responsibilities to local agencies and the Claimant is not "ill-equipped" to allocate funding to control MS4 discharges. And, as explained below, Claimant has been subject to the same federal standards (the requirement to effectively prohibit non-stormwater discharges into the MS4 and implement controls to reduce the discharge of pollutants in stormwater to the MEP, and other controls determined appropriate by the permitting agency) for decades. Whether Claimant must implement different approaches in an effort to achieve the required federal standards does not mean the state has imposed a new program or required performance of a higher level of service.

B. Mandates Exceptions Preclude Finding That Subvention is Required

Assuming *arguendo* that the Commission concludes that the 2013 Permit requires new programs or imposes higher levels of service, the following mandates exceptions apply to the contested provisions such that subvention is not required.

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[113] See, e.g., 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999 ("EPA envisions application of the MEP standard as an iterative process."); and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.").

[114] See *City of San Jose v. State of California* (1996) 45 Cal. App.4th 1802, 1812 [citing *Lucia Mar Unified School Dist. v. Honig* (1988) 44 Cal.3d 830, 836]; see also *County of Sonoma v. Comm'n on State Mandates* (2000) 84 Cal. App.4th 1264, 1288 [state law requiring reallocation of school funds from one local government entity to another, where local government generally had always had a substantial role in funding schools, did not impose a higher level of service].

[115] See *County of Los Angeles v. Comm'n on State Mandates, supra,* 110 Cal.App.4th at p. 1194; accord *Dept. of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 771 [agreeing that state had shifted responsibility for some industrial inspections to local government agency].

[116] See *County of Los Angeles v. Comm'n on State Mandates, supra,* 110 Cal.App.4th at p. 1194.

[117] *Ibid.;* accord *Dept. of Finance v. Comm'n on State Mandates* (2003) 30 Cal.App.4th 727, 748 [requirement that school districts allocate some of their grant funds in a particular way did not transform those costs into a reimbursable state mandate].

1. The 2013 Permit Provisions Are Required by Federal Law

a. The San Diego Water Board Determined That the 2013 Permit Provisions Meet the MEP Standard - And Such Findings Are Entitled To Deference

Federal law specifically requires that permits be issued to the local governments that operate MS4s and that permits must require programs and actions that will result in reducing the pollutants that discharge from the MS4 to waters of the United States to the maximum extent practicable. If the Water Boards had not been authorized to issue the permit in lieu of U.S. EPA, the MS4 discharges would be prohibited unless U.S. EPA itself issued a similar permit directly to the local governments. Therefore, in issuing the permit provisions necessary to comply with federal law, the San Diego Water Board exercised its duty under federal law. As the Ninth Circuit Court of Appeals held in *Natural Resources Defense Council v. U.S. EPA*, "Congress did not mandate a minimum standards approach."[118] Rather, Congress mandated that the permitting entity, here the San Diego Water Board, determine appropriate provisions designed to control pollutants.[119]

The Court of Appeal in *City of Rancho Cucamonga v. Regional Water Quality Control Board, Santa Ana Region,* succinctly addressed the federal mandate on the regional water boards to prescribe requirements that meet the federal MEP standard:[120]

> In creating a permit system for dischargers from municipal storm sewers, Congress intended to implement actual programs. (*Natural Resources Defense Council, Inc. v. Costle* (D.C.Cir.1977) 568 F.2d 1369, 1375.) The Clean Water Act authorizes the imposition of permit conditions, including: "management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." (33 U.S.C. § 1342, subd. (p)(3)(B)(iii).) The Act authorizes states to issue permits with conditions necessary to carry out its provisions. (33 U.S.C. § 1342, subd. (a)(1).) The permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants. (*NRDC v. EPA* (9th Cir.1992) 966 F.2d 1292, 1308.) That is what the Regional Board has created in the 2002 permit.[121]

As in *Rancho Cucamonga*, the 2013 Permit comprises requirements to implement BMPs to meet the MEP standard for storm water discharges. The federal law mandates that permits issued to MS4s must require management practices, control techniques and system, design and engineering methods, and other provisions that will result in reducing pollutants to the MEP. The fact that the San Diego Water Board exercised its discretion, as required by federal law, to impose requirements that it determined were necessary to implement federal law and meet the MEP standard in this Permit supports the conclusion that the permit provisions are federal, not

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[118] (9th Cir. 1992) 996 F.2d 1292, 1308.

[119] *Id.*

[120] *City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region* (2002) 135 Cal.App.4th 1377.

[121] *Rancho Cucamonga, supra,* at 1389.

state mandates. Under the factual circumstances here, *Department of Finance* does not require a different result.

An essential underpinning of *Department of Finance* is the Supreme Court's determination that the LA MS4 Permit had as its roots both federal and State law. In that case, the Los Angeles Water Board made no finding that the permit requirements were necessary to implement the MEP standard.[122] Instead, the Los Angeles Water Board found only that the permit was consistent with or within the federal standard. The Supreme Court explained that, "[h]ad the Regional Board found when imposing the disputed permit conditions, that those conditions were the only means by which the maximum extent practicable standard could be implemented, deference to the board's expertise in reaching that finding would be appropriate."[123]

By contrast, the San Diego Water Board here made specific findings that the Permit was based on federal law in every section of the Permit and the Fact Sheet under the factual circumstances presented.[124] Examples of this include, but are not limited to:

- "This Order implements federally mandated requirements under CWA section 402 (33 USC section 1342(p)(3)(B))."[125]

- The requirements of this Order, taken as a whole rather than individually, are necessary to reduce the discharge of pollutants to the MEP and to protect water quality. . . . These findings are the expert conclusions of the principal state agency charged with implementing the NPDES program in California.[126]

- This Order prescribes conditions to assure compliance with the CWA requirements for owners and operators of MS4s to effectively prohibit non-storm water discharges into the MS4s, and require controls to reduce the discharge of pollutants in storm water from the MS4s to the MEP.[127]

- The authority exercised under this Order is not reserved state authority under the CWA's savings clause (cf. Burbank v. State Water Resources Control Bd. (2005) 35 Cal.4th 613, 627-628 [relying on 33 U.S.C. § 1370, which allows a state to develop

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[122] *Department of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 768.

[123] *Department of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 768.

[124] The finding that the permit terms are necessary to satisfy the federal MEP standard under the factual circumstances presented means the San Diego Water Board did not impose more stringent terms under the Porter-Cologne Water Quality Control Act, which it is authorized to do. (See *City of Burbank v. State Water Resources Control Board* (2005) 35 Cal.4th 613, 626-629.)

[125] R9-2013-0001 at p. 10, Finding 31.a.

[126] R9-2013-0001 at Permit Fact Sheet, p. F-30.

[127] Regional Permit, Finding 3. "The MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (*Building Ind. Ass'n., supra,* 124 Cal.App.4th at pp. 873-874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management (55 FR 47990, 48052 (Nov. 16, 1990)). Accordingly, a determination of whether the conditions contained in this Order exceed the requirements of federal law cannot be based on a point by point comparison of the permit conditions and the minimum control measures that are required "at a minimum" to reduce pollutants to the maximum extent practicable and to protect water quality (40 CFR 122.34). Rather, the appropriate focus is whether the permit conditions, as a whole, exceed the MEP standard." Regional Permit, R9-2013-001 at pp. F-29 – F-30.

> requirements which are not 'less stringent' than federal requirements]), but instead, is part of a federal mandate to develop pollutant reduction requirements for municipal separate storm sewer systems. To this extent, *it is entirely federal authority that forms the legal basis to establish the permit provisions.* (See, *City of Rancho Cucamonga v. Regional Water Quality Control Bd.-Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389; *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 882-883.)[128]

The Water Boards understand the Supreme Court to mean that, to be entitled to deference, regional boards must make an express finding that the particular set of permit conditions finally embodied in a given permit is required to meet that federal standard, and must support that finding with evidence. The opinion is consistent with the Boards' reading of the CWA: where a regional board has devised a set of conditions necessary to ensure local governments' compliance with federal law (that is, a set of conditions that is federally mandated), the regional board does not have a choice to impose some other, less rigorous, set of conditions.

Department of Finance addressed the narrow question of whether the federal MEP standard and certain implementing regulations[129] mandated both the trash can and inspection requirements contained in the LA Permit. In reaching its decision, the Supreme Court's analysis necessarily turned on whether, and to what extent, the MEP standard and the specific implementing regulations compelled the Los Angeles Regional Board to impose the challenged permit conditions.[130] Consequently, the Supreme Court decision has limited application when the federal standard compelling a challenged permit provision is wholly separate from the MEP standard and those specific implementing regulations. One of the exceptions to the subvention requirements is if the mandate imposes a requirement that is mandated by a federal law or regulation and results in costs mandated by the federal government, unless the statute or executive order mandates costs that exceed the mandate in that federal law or regulation.[131]

In this case, the Regional MS4 Permit also contains provisions required by TMDLs and to implement non-storm water prohibitions. These are separate, independent federal requirements the Supreme Court did not analyze in the *Department of Finance* decision.

b. U.S. EPA Has Required Similar Provisions in Permits it Has Issued

The Supreme Court in *Department of Finance* observed that U.S. EPA-issued permits did not contain requirements to place trash receptacles at transit stops (a requirement of the 2001 LA County MS4 Permit), and found that the absence of such conditions in EPA-issued permits "undermines the argument that the requirement was federally mandated."[132] The Court's modifications to its original opinion underscore that determining what constitutes MEP is a case-specific, factual determination and the absence of similar conditions in U.S. EPA-issued permits

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[128] Permit Fact Sheet, p. F-29 (emphasis added).

[129] The Supreme Court considered Title 40 of the Code of Federal Regulations, parts 122.26(d)(2)(iv)(A)(3), (B)(1), (C)(1),and (D)(3) in reaching its decision. (*Department of Finance v. Comm'n on State Mandates*, *supra*, 1 Cal.5th at p. 749.)

[130] *Id.* at p. 767 ("The federal CWA broadly directed the board to issue permits...designed to reduce the pollutant discharges to the maximum extent practicable").

[131] Gov. Code, § 17556, subd. (c).

[132] *Department of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at p. 772.

is not fatal to the argument that a particular requirement is necessary to meet the federal standard.[133] U.S. EPA has, however, issued permits requiring either equivalent or substantially similar provisions to the contested provisions of this Permit.[134] If the State had not issued the Permit, the U.S. EPA would have done so. If the State had issued a permit that failed to meet federal standards, U.S. EPA could have objected to the permit, which effectively vetoes the permit and triggers U.S. EPA's obligation to issue the permit itself.[135] The inclusion of equivalent or substantially similar provisions by U.S. EPA in other permits demonstrates that the San Diego Water Board effectively administered federal requirements concerning permit requirements.

To the extent the provisions are more detailed or provide more specificity than past iterations of the Permit, this is consistent with U.S. EPA's guidance that successive permits for the same MS4 must become more refined and detailed:

> The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 67722, 68754 (Dec. 8, 1999 ("EPA envisions application of the MEP as an iterative process.") Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round stormwater permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.")[136]

The permit provisions are, as the San Diego Water Board concluded, federal mandates.

c. The 2013 Permit Implements The Independent, Federal CWA Requirements (a) To Prohibit Non-Storm Water Discharges Into Storm Sewers and (b) To Create TMDLs

In addition to the MEP standard, the 2013 Permit, like its predecessors, implements two wholly separate CWA requirements.

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[133] The Court stated:

> The opinion in this matter filed on August 29, 2016, and appearing in the California Official Reports at 1 Cal.5th 749, is modified as follows: On page 768 of the published opinion, a footnote is inserted at the end of the sentence that reads: "The board's legal authority to administer the CWA and its technical experience in water quality control would call on sister agencies as well as courts to defer to that finding." The new footnote, which is numbered as footnote 15, reads: "Of course, this finding would be case specific, based among other things on local factual circumstances." On page 771 of the published opinion, current footnote 15 is renumbered as footnote 16. On page 772 of the published opinion, the word "fatally" is deleted from the sentence that reads: "The fact the EPA itself had issued permits in other cities, but did not include the trash receptacle condition, fatally undermines the argument that the requirement was federally mandate."

[134] *See,* State Water Board Order WQ 2015-0075, citing to Modified NPDES Permit No. DC0000221 for the MS4 for the District of Columbia, p. 14. See, also, DC0000221, modified October 25, 2012, p. 5 ("[The permittee must] [e]ffectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the Ms4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS).")

[135] 33 U.S.C.A. § 1342(d)(2), (4); 40 C.F.R. 123.44.

[136] Letter from U.S. EPA, Alexis Strauss, to State Water Board, April 10, 2008, concerning Los Angeles County Copermittee Test Claims Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.

First, the 2013 Permit implements the federal requirement that local agencies effectively prohibit non-storm water discharges into their storm sewers. Specifically, the CWA provides that permits for discharges from municipal storm sewers "shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers."[137] The San Diego Water Board found specifically that the "provisions in this Order to effectively prohibit non-storm water discharges are also mandated by the CWA (33 USC section 1342(p)(3)(B)(ii))."[138] This finding is entitled to deference. Moreover, 2013 Permit provisions crafted to compel compliance with this federal mandate have been applicable since the first MS4 permit in 1990. Therefore, portions of the 2013 Permit do not constitute imposition of a new program or require that Copermittees perform a higher level of service.

Second, the 2013 Permit implements TMDLs, which are specifically required under the CWA.[139] To this end, the San Diego Water Board specifically found that, "[t]he provisions of this Order to implement TMDLs are federal mandates. The CWA requires TMDLs to be developed for water bodies that do not meet federal water quality standards (33 USC section 1313(d)). Once the USEPA or a state develops a TMDL, federal law requires that permits must contain water quality based effluent limitations consistent with the assumptions and requirements of any applicable wasteload allocation (40 CFR section 1222.44(d)(1)(vii)(B))."[140] This issue is discussed further in Section V(B), *infra,* but it is important to note here that the independent requirements to craft TMDLs are federal requirements, and that the finding is again entitled to deference. Thus any "mandate" to comply with TMDLs is federal, and not imposed by the State.

2. The Permit Does Not Impose Requirements Unique to Local Agencies

None of the challenged provisions is subject to subvention because the Permit is not imposed uniquely upon local government. In order to obtain reimbursement, a Claimant must demonstrate either that: (1) the program must carry out a governmental function of providing services to the public, or (2) the requirements, to implement a state policy, implement unique requirements on local governments and do not apply generally to all residents.[141] "[T]he intent underlying section 6 was to require reimbursement to local agencies for the costs involved in carrying out functions peculiar to government, not for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities."[142]

Laws of general applicability are not entitled to subvention because they do not "force" programs on localities.[143] The fact that a requirement may single out local governments is not dispositive;

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[137] CWA § 402(p)(3)(B)(ii).

[138] 2013 Permit Fact Sheet at p. F-30.

[139] 40 CFR § 122.44(vii)(B); 40 CFR § 130.7

[140] 2013 Permit at p. 10, Finding 31.f. TMDLs are separately addressed in Attachment E, which makes it clear when and how they were adopted and subsequently approved by U.S. EPA.

[141] Cal. Const. Art. XIIIB, § 6, subd. a; see also *City of Richmond v. Comm'n on State Mandates* (1998) 64 Cal.App.4th 1190, 1199.

[142] *City of Richmond v. Comm'n on State Mandates, supra,* 64 Cal.App.4th at p. 1197.

[143] *Ibid.*; *County of Los Angeles v. State of California, supra,* 43 Cal.3d at pp. 56-57.

where local agencies are required to perform the same functions as private industry, no subvention is required.[144]

U.S. EPA requires both municipal and non-municipal stormwater discharges to be controlled.[145] Moreover, numerous provision of the 2013 Permit are "laws of general applicability" and therefore fail to constitute an unfunded state mandate.[146] Compliance with NPDES regulations, and specifically with stormwater requirements, is required by private industry as well as state and federal government agencies.[147] Local government is not subject to "unique" requirements. In fact, municipal stormwater discharges are not managed as stringently as industrial and construction stormwater discharges.[148] Likewise, WLAs developed in federally required TMDLs are applied to identified sources of pollutants, whether MS4 operators, private industry, or government agencies.[149] Thus, while the permit provisions in this Regional Permit apply only to the municipalities and counties enrolled in the permit, the substantive actions required by the permit's provisions are by no means unique to this class of permittee. That other NPDES permits impose similar requirements on non-local agencies demonstrates that the storm water program is not unique to local government.

3. Claimant Has Authority to Raise Fees for the Contested Provisions

Claimant must establish that it is required to use tax monies to pay for implementation of the contested provisions.[150] Subvention is not required if the costs can be reallocated or funded through service charges, fees, assessments, or other means.[151]

In the Commission's Statement of Decision concerning certain provisions of the 2001 LA County MS4 Permit that were considered in *Department of Finance*, the Commission found that all but one of the challenged provisions issued by the Los Angeles Water Board did not qualify as unfunded state mandates as they did "not impose costs mandated by the state within the meaning of Article XIII B, Section 6 of the California Constitution because the claimants have fee authority

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[144] *Ibid.; City of Richmond v. Comm'n on State Mandates, supra,* 64 Cal.App.4th at p. 1197.

[145] 40 C.F.R. § 122.26, subd. (a)(vi)(6).

[146] See *City of Richmond v. Comm'n on State Mandates, supra,* 64 Cal.App.4th at pp. 1197-1198.

[147] See e.g., State Water Board Caltrans MS4 Order (*NPDES Statewide Storm Water Permit, Waste Discharge Requirements for State of California, Department of Transportation* (State Water Board Order WQ 2012-0011)), State Water Board Industrial General Storm water Permit (State Water Board Order WQ 2014-0057), Naval Base San Diego NPDES Permit (San Diego Water Board Order No. R9-2016-0163), Naval Base Coronado NPDES Permit (San Diego Water Board Order No. R9-2015-0117) and NPDES Permit for National Steel and Shipbuilding Company (NASSCO) (San Diego Water Board Order No. R9-2016-0116) containing storm water and non-storm water requirements.

[148] *Defenders of Wildlife v. Browner, supra*, 191 F.3d at pp. 1164-1165 [distinguishing "strict compliance" required of industrial storm water dischargers to MEP standard applicable to municipal storm water dischargers.]

[149] See Section V.B., below, regarding TMDLs that are also applicable to agricultural dischargers and Caltrans.

[150] Gov. Code, § 17553, subd. (b)(1)(F) [test claim must identify funding sources, including general purpose funds available for this purpose, special funds and fee authority]; *Id.* § 17556, subd. (d).

[151] See Gov. Code, § 17556, subd. (d) [costs not mandated by the state when the local agency has "authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service"]; *County of Los Angeles v. Comm'n on State Mandates*, *supra*, 110 Cal.App.4th at p. 1189 ["in order for a state mandate to be found, the local governmental entity must be required to expend the proceeds of its tax revenues"]; *Redevelopment Agency v. Comm'n on State Mandates* (1997) 55 Cal.App.4th 976, 987 ["No state duty of subvention is triggered where the local agency is not required to expend its proceeds of taxes"].

(under Cal. Const. article XI, § 7) within the meaning of Government Code section 17556, subdivision (d), sufficient to pay for the activities in those parts of the permit."[152] Although the Supreme Court acknowledged the Commission's finding, it did not address the fee issue but remanded for further proceedings. *Department of Finance* is thus inapplicable on this issue.

Here, Claimant has not demonstrated that it is precluded from establishing or raising fees or lack another revenue source to pay for implementation of the contested provisions.[153] As an initial matter, Claimant is not *required* to use taxes to pay for the costs of the programs, and can levy fees. Like the Department of Finance, the Water Boards believe that Claimant possesses fee authority within the meaning of Government Code section 17566, subdivision (d), such that no reimbursement by the state is required. Such authority is undiminished by Propositions 218 or 26. Notably, Proposition 26 specifically excludes assessments and property-related fees imposed in accordance with Proposition 218 from the definition of taxes.[154]

Furthermore, Claimant also has the ability to charge fees or assessments to cover development program costs.[155] Claimant attempts to get around this fact by arguing that it is that it is impossible to develop a fee structure based on the benefits enjoyed or burdens imposed by prospective payors under the confines of Propositions 218 and 26. But the question is whether Claimant has the authority to impose fees or assessments, not whether the 218 process will be successful. Claimant has authority to impose property-related fees or assessments under their police power to pay for the costs of complying with the Permit, whether or not it is politically feasible to impose such fees via voter approval as may be required by Proposition 218. Local governments can choose not to submit a fee to the voters or voters can reject a proposed fee. Claimant provides no evidence whatsoever that it attempted to raise fees, but was prevented from doing so. A municipality's failure even to attempt the 218 process does not turn permit costs into state reimbursable mandates.[156] "Claimant can choose not to require" or even not to pursue "these fees, but not at the State's expense."[157]

Finally, Claimant's argument ignores the fact that municipalities can and do impose fees on their residents and businesses to fund aspects of their stormwater programs. For example, the cities of Culver City, Alameda, Palo Alto, San Clemente, San Jose, and Santa Cruz have all either adopted new fees for implementation of their programs, raised existing stormwater fees, or

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[152] Statement of Decision on Test Claim Nos. 03-TC-04, 03-TC-19, 03-TC-20, 03-TC-21, p. 2.

[153] Claimant must also demonstrate that the fees are more than *de minimis*. (*San Diego Unified School Dist. v. Commission on State Mandates, supra*, 33 Cal.4th at p. 889 ["incidental procedural requirements, producing at most de minimis added cost, should be viewed as part and parcel of the underlying federal mandate, and hence nonreimbursable under Government Code, section 17556, subdivision (c)"].) *Department of Finance* did not consider when a particular cost is *de minimis*. Except to the extent the Supreme Court affirmed prior holdings that *de minimis* costs do not create reimbursable mandates, *Department of Finance* does not apply to the Commission's determination on that issue.

[154] Art. XIIIC, § 1, subd. (e)(7).

[155] For a general overview of funding mechanisms that have been employed by municipalities, see Black and Veatch 2005 Stormwater Utility Survey, p. 2 (72% cited stormwater user fees as major [at least 90% of total income] revenue sources and the majority of utilities resported funding was adequate to meet all or most needs).

[156] *Connell v. Sup. Ct.* (1997) 59 Cal.App.4th 382, 398 [where statute on its face authorized water districts to levy fees sufficient to pay the costs associated with a regulatory change, there was no right to reimbursement]; *Clovis Unified School Dist. v. Chiang* (2010) 188 Cal.App.4th 794, 812 ["to the extent a local agency... 'has the authority' to charge for the mandated program or increased level of service, that charge cannot be recovered as a state mandated cost"].

[157] *Clovis Unified Sch. Dist. v. Chiang* (2010) 188 Cal.App.4th 794, 812.

adopted fee assessments.[158] Whether circumstances make it impractical to assess fees is not relevant to the inquiry (nor is the contention even factually correct).[159]

V. ARGUMENT: SPECIFIC RESPONSES TO CHALLENGED PROVISIONS

While the general discussion above in Section IV explains why it is appropriate for the Commission to reject the Test Claim in its entirety, the following elaboration on specific challenges provides additional justification in support of Test Claim rejection. For ease of reference, the specific responses below follow the organization format of the Test Claim.

A. Receiving Water Limitations Language (Provision A.2)

Provision A.2. of the Regional Permit implements the receiving water language that the State Water Board directed in 1999 that regional water boards to use in all MS4 permits.[160] The precedential receiving water limitations ("receiving water limitations language") generally requires that municipal storm water discharges shall not cause or contribute to exceedances of water quality objectives in the receiving waters.[161] The language was initially developed by U.S. EPA after it objected to receiving water limitations in two regional water board permits that effectively provided a safe harbor from enforcement during iterative process implementation. Since 1999, the State Water Board consistently has expected receiving water limitations to be complied with through the iterative process of employing successively improved BMPs.[162] This process satisfies the MEP standard, but does not provide any sort of "safe harbor" to Copermittees. Put differently, compliance with BMPs does not relieve Copermittees of the ultimate prohibition on causing or contributing to exceedances of water quality objectives in the receiving waters.[163]

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[158] See documentation of City of Alameda Storm Water Fee Ordinance, City of Palo Alto Storm Drainage Fee Ordinance, and storm water fees authorized in Cities of Culver City, San Clemente, San Jose and Santa Cruz, included as attachments to this response.

[159] *Connell v. Sup. Ct.* (1997) 59 Cal.App.4th 382, 398 [where statute on its face authorized water districts to levy fees sufficient to pay the costs associated with a regulatory change, there was no right to reimbursement]; *Clovis Unified School Dist. v. Chiang* (2010) 188 Cal.App.4th 794, 812 ["to the extent a local agency... 'has the authority' to charge for the mandated program or increased level of service, that charge cannot be recovered as a state mandated cost"].) Moreover, Claimant has not demonstrated that properly designed engineering report or study could not comply with Proposition 218's requirements to impose upon a person or property the particular fee at issue, which does not exceed the proportional cost of the service attributable to the parcel in question. (Cal. Const. art. XIII D, § 6(b)(3).) The nature of the fee at issue is what must be examined. So, by way of example, Claimant complains about Residential Inspections Programs (Test Claim, at pp. 5-41-42.) But residential inspections fees levied for business (versus property-related) reasons generally have been held not to violate Proposition 218. *Apartment Ass'n. of Los Angeles County, Inc. v. City of Los Angeles* (2001) 24 Cal.4th 830, 844-45. A fee for residential inspections to ensure compliance with MS4 Permit directives (e.g., compliance with laws related to conducting business) would be similar.

[160] State Board Order WQ 99-05 (*Environmental Health Coalition*), p.1.

[161] *Ibid.*

[162] See, State Water Board Order WQ 2015-0075, p. 11 ("We have previously exercised the discretion we have under federal law in favor of requiring compliance with water quality standards, but have required less than strict compliance. We have directed, in precedential orders, that MS4 permits require discharges to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters,[fn] *but have prescribed an iterative process whereby an exceedance of a water quality standard triggers a process of BMP improvements.*" (Emphasis added.)

[163] See, e.g., State Water Board Order WQ 2001-15, *In the Matter of the Petitions of BIA and WSPA*, at pp. 5-8.

Although it has been included in all permits issued to Claimant since 1999, Claimant argues that the San Diego Water Board's inclusion of the same mandatory language in the Regional Permit now imposes a new program in light of a Ninth Circuit Court of Appeals decision in *NRDC v. County of Los Angeles.*[164] Claimant also asserts that as a result of the *NRDC* decision, the precedential language now requires "strict compliance" with receiving water limitations and therefore exceeds federal law. Claimant is incorrect on both counts.

1. There Is No New Program or Higher Level Of Service

As discussed above, under mandates law, a program is "new" if the local government had not previously been required to implement it. *(County of Los Angeles v. Comm'n on State Mandates* (2003) 110 Cal.App.4th 1176, 1189 [citing *County of Los Angeles v. State of California* (1987) 43 Cal. 3d 46, 56].) Looking here to both the 2001 and 2007 Permits for the San Diego Copermittees, it is clear there is nothing "new" about this provision. Indeed, Claimant *admits this in its Test Claim.*[165] Both the 2001 and 2007 Permits contained virtually identical receiving waters language, implementing the State Water Board's precedential Order WQ 99-05.[166] Furthermore, the State Board has long "considered and upheld the requirement that municipal storm water discharges must not cause or contribute to exceedances of water quality objectives in the receiving water."[167] In WQ 99-05, the State Board "adopted an iterative procedure for complying with this requirement, wherein municipalities must report instances where they cause or contribute to exceedances, and then must review and improve BMPs so as to protect the receiving waters."[168] The challenged provision represents the most recent version of the iterative process, to be achieved through the implementation of better-tailored BMPs over time. This process has long been adopted and endorsed by the State and Regional Boards, as well as USEPA.[169] It is not a new program, nor is it a higher level of service.

Attempting to counter this clear conclusion, Claimant asserts the program is "new" because in *NRDC v. County of Los Angeles*, a court has interpreted the language to require permittees to strictly comply with receiving water limitations language where previously they were shielded from enforcement while engaged in the iterative process of implementing improved BMPs, allegedly for the first time.

Claimant is incorrect that compliance with the iterative process ever served to shield them from enforcement for violation of water quality standards. Claimant is also incorrect that *NRDC v. County of Los Angeles* altered the legal landscape. The provisions are not a state mandate. Indeed, the State Water Board explained the impacts of the *NRDC* case in a 2015 Water Quality order addressing the most recent Los Angeles MS4 Permit as follows:

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[164] (2013) 725 F.3d 1194.

[165] Test Claim Narrative, at p. 5-12.

[166] Permit R9-2001-0001 at p. 9(A)(2). This provision was never challenged by any of the Copermittees as an unfunded state mandate or otherwise; Permit R9-2007-0001, at pp. 11-12 Section A, "Prohibitions and Receiving Water Limitations." This provision in the 2007 Permit was never challenged with the Commission as an unfunded state mandate by any of the Copermittees.

[167] WQ 2001-15 at p. 5.

[168] WQ 2001-15 at pp. 5-6; WQ 99-05.

[169] WQ 99-05.

> The lack of a safe harbor in the iterative process of the 2001 Los Angeles Order was again acknowledged in 2011 and 2013, this time by the Ninth Circuit Court of Appeal. In these instances, the Ninth Circuit was considering a citizen suit brought by the Natural Resources Defense Council against the City of Los Angeles and the Los Angeles County Flood Control District for alleged violations of the receiving water limitations of that order. The Ninth Circuit held that, as the receiving water limitations of the 2001 Los Angeles MS4 Order (and accordingly, the precedential language in State Water Board Order WQ 99-05) was drafted, engagement in the iterative process does not excuse liability for violations of water quality standards.[fn] The California Court of Appeal has come to the same conclusion in interpreting similar receiving water limitations provisions in MS4 Orders issued by the San Diego Regional Water Quality Control Board in 2001 and the Santa Ana Regional Water Quality Control Board in 2002[fn].[170]

Case law is in harmony with the Water Boards' longstanding view on this issue:[171]

> [T]he iterative process, as established in our precedential orders and as generally written into MS4 permits adopted by the water boards, does not provide a 'safe harbor' to MS4 dischargers. When a discharger is shown to be causing or contributing to an exceedance of water quality standards, that discharger is in violation of the permit's receiving water limitations and potentially subject to enforcement by the water boards or through a citizen suit, regardless of whether or not the discharger is actively engaged in the iterative process.[fn][172]

Claimant here argued that in Order WQ 2001-15,[173] the State Water Board had established a policy to allow dischargers to "remain in compliance with [the receiving water limitations language] by implementing pollution control measures through an 'iterative process'[fn]."[174] The State Water Board rejected this very same argument by permittee petitions in Order WQ 2015-0075:

> Several Permittee Petitioners have argued that the State Water Board's opinion in State Water Board Order WQ 2001-15 must be read to endorse a safe harbor in the iterative process. We disagree. Regardless, the State Water Board's position that the iterative process of the subject permit did not create a 'safe harbor' from compliance with receiving water limitations was clearly established in subsequent litigation on that order. (See *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (Super. Ct. 2003, No. GIC780263), affd. *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866.)[175]

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[170] State Water Board Order WQ 2015-0075, p. 11.

[171] See *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 890; and *City of Rancho Cucamonga v. Regional Water Quality Control Bd.* (2006) 135 Cal.App.4th 1377.

[172] State Water Board Order WQ 2015-0075, p. 12, fn. 44.

[173] State Water Board Order WQ 2001-15 *(In the Matter of the Petition of Building Industry Ass'n of San Diego County)*.

[174] Test Claim Narrative Statement, p. 5-14.

[175] State Water Board Order WQ 2015-0075, p. 12, footnote 44.

Although it specifically considered whether to allow a safe harbor as requested by many copermittee petitioners, the State Water Board declined in 2015 to modify its interpretation of its precedential language.[176] In sum, engagement in the iterative process did not, as Claimant suggestd and may have perceived, afford them a safe harbor from enforcement under prior permits with comparable provisions. The Ninth Circuit Court of Appeals' conclusion that receiving water limitations provisions are independent from the provisions establishing the iterative process for purposes of enforcement is not new, but instead confirms the Water Boards' historical interpretation. Thus, not only is the receiving water limitations language not new—neither is the Water Boards' interpretation of the language with regard to enforceability. The holding of the Ninth Circuit in the *NRDC* decision does not transform the provisions into a new program or result in imposition of a higher level of service.[177] Provision A.2. is not mandated by the State because it is neither a new program nor imposes a higher level of service on Claimant.

2. The Provisions Are Necessary To Satisfy the Federal MEP Standard And Are Required Under Federal Law

If the Commission disagrees and finds the provisions nonetheless impose a new program or higher level of service, the Commission should defer to the San Diego Water Board's determination that this provision was necessary to satisfy the MEP standard in MS4 Permits.[178]

Claimant argues that the *NRDC v. County of Los Angeles* decision creates a strict liability regime where previously a safe harbor from enforcement existed. And because strict compliance with water quality standards is not required by the CWA, they assert that the provisions in the Regional Permit must exceed federal law. As explained above, Claimant is incorrect that the holding in *NRDC v. County of Los Angeles* removed a safe harbor from enforcement; no such safe harbor existed prior to the court's decision.[179] Instead, the San Diego Water Board determined that the provisions were necessary to satisfy the MEP standard for discharges of storm water.

The receiving water limitations language requires that storm water discharges from MS4s not cause or contribute to a violation of water quality standards. Compliance with water quality

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[176] In declining to modify the receiving water limitations language to establish a safe harbor as requested by many copermittees statewide, the State Water Board concluded: "We will not reverse our precedential determination in State Water Board Order WQ 99-05 that established the receiving water limitations provisions for MS4 permits statewide and reiterate that we will continue to read those provisions consistent with how the courts have: engagement in the iterative process does not excuse exceedances of water quality standards." (*Id.,* p. 15.)

[177] We note, as will be discussed in connection with the challenge to provision B.3.c, below, that Claimant and other San Diego Region MS4 permittees now have available to them an alternative compliance option that allows a copermittee to elect to take steps that will result in a "safe harbor" from enforcement, including citizen suits, under specified circumstances. Accordingly, even if the Commission somehow were to find provision A.2. to impose a new program by removing a safe harbor, the alternative available to copermittees demonstrates that the state has not *mandated* implementation of a new program.

[178] Permit R9-2013-0001 at p. 10, Finding 31.a.

[179] See also, e.g., San Diego Water Board Responses to Comments on Tentative Order No. R9-2013-0001, March 27, 2013, p. 40 ("While the State Water Board and San Diego Water Board in its recent MS4 permits have directed MS4 dischargers to achieve compliance with water quality standards through an 'iterative process,' using the State Water Board's precedential receiving water limitations language, the Water Boards have never interpreted the iterative process to provide a 'safe harbor' for MS4 dischargers. Thus, the Ninth Circuit's recent opinion[179] is consistent with the Water Boards' interpretation and does not create any new uncertainty or third party liability risks that did not previously exist.")

standards is expected to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs [through the water quality improvement plans] over time.[180] The San Diego Water Board reiterated that achieving compliance "will be accomplished through the implementation of water quality improvement strategies and runoff management programs [BMPs] that effectively prohibit non-storm water discharges into the Copermittees' MS4s, and reduce pollutants in storm water discharges from the Copermittees' MS4s to the MEP."[181] This approach is wholly consistent with the precedential language developed by U.S. EPA and established in 1999. The State Water Board explained in 2001 that the precedential receiving water limitations language requires less than strict compliance.[182] As explained above, the language does not exceed federal law by newly requiring "strict compliance' with water quality standards, as Claimant contends.

Moreover, and unlike in the LA MS4 Permit considered by the Supreme Court in *Department of Finance*, the San Diego Water Board found that all of the Permit's provisions are based entirely on federal law and necessary to meet the MEP. Indeed, with respect to Provision A, "Prohibitions and Limitations," the San Diego Water Board specifically found that, "Provision A includes the prohibitions and limitations requirements that are the foundation of all the subsequent requirements included in the Order. Compliance with the prohibitions and limitations will restore and protect receiving waters from impacts that may be caused by discharges into and from the Copermittees' MS4s and ultimately achieve the objective of the CWA."[183] Finally, as the San Diego Water Board found, Provision A.2 "specifies the condition of the receiving waters that much be achieved when there are discharges from [Claimants'] MS4s," and "receiving water limitations are included in all NPDES permits issued pursuant to .... CWA section 402."[184] Federal law requires controls to reduce discharges of pollutants to the MEP, water quality controls, allocations of pollutant loads established by TMDLs and timing requirements from TMDLs, among other things, to achieve these conditions.[185] These findings are entitled to deference under *Department of Finance.*[186]

Inclusion of similar requirements in U.S. EPA-issued permits likewise supports the San Diego Water Board's determination of federal necessity. The Supreme Court in *Department of Finance* observed that U.S. EPA-issued permits do not contain requirements to provide trash receptacles at transit stops (a requirement of the LA MS4 Permit), and found that the absence of such conditions in EPA-issued permits "undermines the argument that the requirement was federally mandated."[187] Here, U.S. EPA's MS4 permit issued to the District of Columbia in 2011 includes

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[180] 2013 Permit, Finding 33.

[181] *Id.*, Provision A.

[182] "While we will continue to address water quality standards in municipal storm water permits, we also continue to believe that the iterative approach, which focuses on timely improvement of BMPs, is appropriate. We will generally not require 'strict compliance' with water quality standards through numeric effluent limitations and we will continue to follow an iterative approach, which seeks compliance over time[fn]. The iterative approach is protective of water quality, but at the same time considers the difficulties of achieving full compliance through BMPs . . . ." (Order WQ 2001-15, p. 3.)

[183] R9-2013-001 Fact Sheet at p. F-32.

[184] 2013 Permit Fact Sheet at p. F-35.

[185] *Ibid.*

[186] *Department of Finance v. Comm'n on State Mandates, supra,* 1 Cal.5th at pp. 768-769.

[187] *Id.,* at pp. 771-772.

a substantially similar provision requiring compliance with water quality standards.[188] The State Water Board also recognized the District of Columbia's MS4 permit is reflective of U.S. EPA's "general practice" to also require compliance with water quality standards over time.[189] That the MS4 Permit issued by U.S. EPA to the District of Columbia also imposes comparable requirements demonstrates that the San Diego Water Board effectively administered federal requirements concerning permit requirements and further supports the Water Boards' view that the permit provisions are required by federal law.

In summary, the San Diego Water Board determined that the provisions in this Permit are necessary to meet MEP and implement federal law.[190] As discussed above, the Board's findings are entitled to deference under *Department of Finance*. And, where, as here a comparable permit provision exists in at least one U.S. EPA-issued permit such as for the District of Columbia, the Water Boards have established that the permit provisions are federally mandated and therefore costs to implement them are not subject to subvention.

3. Other Mandates Exceptions Apply

As discussed more fully above in Section IV, these provisions are not unique to local government. Finally, Claimant has not demonstrated that it *must* raise tax monies to fund the implementation of these provisions.

B. Numeric Effluent Limitations and Related TMDL Provisions (Prov. A.3.b. and Att. E)

Provision A.3.b incorporates water quality based effluent limitations (WQBELs) necessary to implement the federally-required wasteload allocations developed to control bacterial sources in the 2010 Revised TMDL for Twenty Beaches and Creeks in the San Diego Region ("2010 Revised TMDL").[191] Claimant appears to focus on the TMDLs for total nitrogen and total phosphorus in the Rainbow Creek Watershed;[192] and the revised TMDLs for indicator bacteria (e-coli), Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).[193] The Permit requires the Copermittees to achieve compliance with those WQBELs, expressed as numeric effluent limitations, in accordance with the schedule set forth in the approved TMDL and incorporated into the Permit. The details of the TMDL and compliance deadlines for controlling bacteria in dry and wet weather discharges (2021 and 2031 respectively) are set forth in Attachment E of the Regional Permit.

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[188] "[The permittee must] [e]ffectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the Ms4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS)." (DC0000221, modified October 25, 2012, p. 5.)"

[189] State Water Board Order WQ 2015-0075, citing to Modified NPDES Permit No. DC0000221 for the MS4 for the District of Columbia, p. 14.

[190] 2013 Permit Fact Sheet at pp. F-29-33.

[191] See San Diego Water Board Resolution No. R9-2010-0001, A Resolution Amending the *Water Quality Control Plan for the San Diego Basin (9)* to Incorporate Revised Total Daily Maximum Loads for Indicator Bacteria, Project 1-Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek) (Feb. 10, 2010), approved by U.S. EPA on June 22, 2011.

[192] Test Claim, at p. 5-13.

[193] Test Claim, at p. 5-18.

Claimant asserts that the requirement to achieve compliance with applicable numeric effluent limitations established for TMDLs, reflected in Attachment E of the Permit, as well as the reporting requirements associated with implementation of the TMDL requirements, subject permittees to several new state mandated programs. Although it is unclear, Claimant appears to be arguing as well that, because the specific TMDLs for total nitrogen and total phosphorus in the Rainbow Creek Watershed and the revised TMDL for e-coli have either never been included or are now revised, respectively, they are in fact new "programs." It also argues that federal regulations do not require that wasteload allocations (WLAs) be incorporated into a stormwater permit as a strict numeric effluent limits (or TMDLs) in the discharger's permit. Rather, they assert that the MEP standard applies.[194] As set forth below, Claimant is wrong and its arguments ignore federal law.

1. The Numeric Effluent Limitations Are Required By, And Implement, Federal Law – And As Such Are Not State Mandates

Section 303(d) of the CWA requires that the Water Boards identify impaired water bodies that do not meet water quality standards after applying required technology-based effluent limitations. Specifically, the states must identify those waters for which technology-based effluent limitations are not stringent enough to implement any water quality standard applicable to such waters and establish a priority ranking for such waters.[195] For those waters identified as not meeting water quality standards, each state must establish the TMDL at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety.[196] Each state is required to develop a list that identifies and establishes a priority ranking for those waters requiring TMDLs.[197] The list is known as the CWA Section 303(d) List of Water Quality Limited Segments or more commonly, the 303(d) List. For the specific purpose of developing information, states are also required to estimate TMDLs for all other waters that are not identified on the 303(d) List.[198]

TMDLs are developed by either the regional water boards or by U.S. EPA in response to section 303(d) listings of impaired water bodies. A TMDL is defined as the sum of the individual wasteload allocations for point sources of pollution, the load allocations for nonpoint sources of pollution, and the contribution of background of pollution, and represents the maximum amount of a pollutant that a water body may receive and still achieve water quality standards.[199] TMDLs developed by regional water boards include implementation provisions and are typically incorporated in the regional water boards' water quality control plan.[200] Most TMDLs are not self-executing, but instead rely upon subsequently issued permits to impose requirements on dischargers that implement the TMDL's wasteload allocations.[201]

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[194] Test Claim, at pp. 5-19-20.

[195] CWA section 303(d)(1)(A).

[196] CWA section 303(d)(1)(C).

[197] 40 CFR section 130.7(b)(1).

[198] CWA section 303(d)(3).

[199] 40 CFR section 130.2(i).

[200] State Water Board, Water Quality Control Policy for Addressing Impaired Water: Regulatory Structure and Options (2005), pp. 1, 5.

[201] *See, e.g.,* Wat. Code §§ 13350 and 13385 (boards have no authority to take enforcement for violations of water quality control plans, other than prohibitions).

Once the TMDL is approved by U.S.EPA, any NPDES permit, not just MS4 permits, must include effluent limits "consistent with the assumptions and requirements of any available wasteload allocations."[202] Therefore, the federal regulations provide an alternative and independent federal authority for the TMDL-derived effluent limitations.[203]

Based on this independent federal authority, the San Diego Water Board specifically found:

> [T]he provisions of this Order to implement total maximum daily loads (TMDLs) are federal mandates. The federal Clean Water Act requires TMDLs to be developed for water bodies that do not meet federal water quality standards. (33 U.S.C. sec. 1313(d).) Once U.S. Environmental Protection Agency or a state develops a TMDL, federal law requires that permits must contain effluent limitations consistent with the assumptions of any applicable wasteload allocation.[204]

The 2013 Permit's provisions incorporating numeric limitations to achieve reductions in bacteria in beaches and creeks within the region are consistent with the assumptions and requirements of wasteload allocations in adopted and applicable TMDLs.[205]

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[202] 40 CFR § 122.44(d)(vii)(B). This provision states that, "When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that... (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, ***or both***, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." (emphasis added). 40 CFR Part 30, which includes section 130.7, establishes policies and program requirements for water quality planning, management and implementation under several sections of the CWA, including Section 303, and Section 130.7 addresses the process for identifying and establishing WLAs and TMDLs for impaired waterbodies.

[203] Claimant also challenges associated reporting requirements. But monitoring and reporting is required in federal regulations for all NPDES permits, including MS4 permits. Specifically, federal reporting requirements mandate annual reporting on the "status of implementing" controls and require copermittees to provide a "summary of data, including monitoring data, that is accumulated throughout the reporting year." (40 C.F.R. § 122.42, subd. (c)(4).) Federal stormwater regulations further require that MS4 permittees submit reports that include "[t]he status of implementing the components of the storm water management program that are established as permit conditions." Monitoring and reporting requirements were also discussed by the Ninth Circuit Court of Appeals in the *NRDC v. County of Los Angeles* decision:

> [W]hile otherwise more flexible than the traditional NDPES permitting system, nothing in the ms4 permitting scheme relieves permittees of the obligation to monitor their compliance with their NPDES permit in some fashion. See 33 U.S.C. § 1342(a)(2) ("The Administrator shall prescribe conditions for [NPDES] permits to assure compliance with the requirements of t [the permit], including conditions on data and information collection, reporting, and such other requierments as he deems appropriate."); 40 C.F.R. § 122.44(i)(1) (establishing that every permit "shall include" monitoring "[t]o assure compliance with the permit limitations."). (*Natural Resources Defense Council, Inc., v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, 1209-10.) MS4s shall specify a monitoring scheme "sufficient to yield data which are representative of the monitored activity . . . ." (*Id.* At 1210 [citing 40 C.F.R. § 122.48, subd. (b)].)

The Washington, D.C., MS4 Revised Monitoring Program, approved by EPA in conjunction with the U.S. EPA-issued NPDES permit, notes that the objectives of the monitoring program "are directly tied to water quality requirements found in the [Clean Water Act]" including "[i]dentifying causes and sources of water quality impairments. (Att. 3, Washington, D.C. Revised Monitoring Plan, Section 2, Program Goals and Objectives [citing Clean Water Act Sections 303(d), and 305(b)].) In sum, the reporting requirements are also federal mandates.

[204] Permit, Finding 32(f), citing 40 C.F.R. sec. 122.44(d)(1)(vii)(B).

[205] 40 CFR §122.44(d)(1)(vii)(B).

Claimant focuses its challenge on the inclusion of WQBELs expressed as numeric effluent limitations in the 2013 Permit as exceeding federal law. The Water Boards disagree that inclusion of numeric effluent limitations exceeds federal law where the San Diego Water Board determined that they are necessary to assure compliance with the federal water quality standards in the receiving waters.[206]

In 2014, U.S. EPA released supplemental guidance concerning inclusion of limitations in MS4 permits to implement TMDL WLAs. U.S. EPA recognized that "[w]here the NPDES authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that the NPDES permitting authority exercise its discretion to include clear specific, and measurable permit requirements, and, where feasible, numeric effluent limitations[] as necessary to meet water quality standards."[207] U.S. EPA recognizes permittees have some discretion in how to express the requirements to meet the federal standards, but the determination "should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying WLA, including the nature of the stormwater discharge, available data, modeling results, and other relevant information."[208]

Here, the San Diego Water Board determined that inclusion of numeric effluent limitations in the Regional Permit are necessary to achieve compliance with the TMDL. The San Diego Water Board based the inclusion of these TMDL provisions on federal law, finding, in part:

> Discharges from MS4s are point source discharges. The federal regulations (40 CFR 122.44(d)(1)(vii)(B)) require that NPDES permits incorporate water quality based effluent limitations (WQBELs) developed to protect a narrative water quality criterion, a numeric water quality criterion, or both, consistent with the assumptions and requirements of any available WLA for the discharge. Requirements of this Order implement the TMDLs adopted by the San Diego Water Board and approved by USEPA as of the time this Order is issued. This Order establishes WQBELs consistent with the assumptions and requirements of all available TMDL WLAs assigned to discharges from the Copermittees' MS4s.[209]

U.S. EPA has supported this approach[210] and as discussed above, has supported the incorporation of numeric limits when necessary to ensure consistency and compliance with

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[206] In addition, the numeric effluent limitations for dry weather discharges also are consistent with the independent federal prohibition on non-storm water discharges discussed above. The TMDL compliance schedule affords more time to comply that Claimant would otherwise have.

[207] U.S. EPA Memorandum, November 26, 2014 (*Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,"*), (U.S. EPA TMDL Memorandum) p. 4. U.S. EPA clarified that numeric effluent limitations in the context of storm water discharges "refer[s] to limitations with a quantifiable or measurable parameter related to a pollutant (or pollutants). Numeric WQBELs may include other types of numeric limits on pollutant discharges by specifying parameters such as on-site stormwater retention volume or percentage or amount of effective impervious cover, as well as the more traditional pollutant concentration limits and pollutant loads in the discharge." However, numeric limitations should be crafted to ensure that water quality standards will be achieved.

[208] *Id.*, p. 6.

[209] 2013 Permit at p. 2, Finding No. 5.

[210] U.S. EPA Comments on draft Regional MS4 Permit, R9-2013-001, January 11, 2013, pp. 1-3.

applicable WLAs in prior permits issued to Orange County permittees.[211] U.S. EPA has consistently made similar comments endorsing numeric effluent limitations in TMDLs in other MS4 permit proceedings, remarking that the use of numeric effluent limitations is capable of improving clarity and enforceability.[212]

Separately, Claimant argues that because federal *stormwater* regulations do not require municipal stormwater permits to contain TMDL provisions, wasteload allocations intended to achieve water quality standards are "arguably not 'applicable'" as that term is used in 40 CFR sec. 122.44(d)(1)(vii)(B).[213] The regulation cited by Claimant requires that NDPES permits (which include MS4 Permits) include conditions consistent with assumptions and requirements of TMDL wasteload applications *when applicable*." The better reading of the phrase "when applicable" in this context is that inclusion of such conditions is limited to those permits with identified sources of discharges that may contribute to an impairment in the affected receiving waters. In any case, as a practical matter, if impairments exist in receiving waters to which an MS4 discharges, the MS4 is responsible for complying with water quality standards whether or not there is a TMDL. This view is also consistent with U.S. EPA's interpretation of its regulations in its 2014 TMDL Memorandum in which U.S. EPA clearly contemplates that NPDES permits, inclusive of storm water permits – municipal, industrial and construction--, shall "contain effluent limits and conditions consistent with the assumptions and requirements of the WLAs in the TMDL."[214]

In summary, TMDLs are expressly required, or *federally mandated,* under Section 303(d) of the CWA and its implementing regulations. Therefore, Claimant's argument that the TMDLs are not required by federal law (e.g., at Test Claim, p. 5-18) and are somehow *State mandates* fails.

2. There Is No New Program Or Higher Level Of Service

Claimant appears to argue that the specific TMDLs for nitrogen and total phosphorus in the Rainbow Creek Watershed and the bacteria TMDL for twenty beaches and creeks in the San Diego region are "new" programs or higher levels of service because they are TMDLs that have not appeared in permits before; this argument must be rejected. As explained above, the Water Boards disagree that the 2013 Permit imposes new programs or higher levels of service. Claimant has been subject to TMDL requirements in prior permits.[215] Moreover, the purpose of the TMDLs is to address identified impairments for waters not meeting water quality standards. The 2013 Permit requires that discharges to receiving waters not cause or contribute to exceedances of water quality standards.[216] These objectives are to be achieved through compliance with the TMDL provisions incorporated into the Permit but the objectives themselves are not new. Indeed, the same objectives – that discharges not cause or contribute to

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[211] Comments of U.S. EPA, May 14, 2009, p. 4. See also Comments of June 9, 2009 and September 28, 2009.

[212] See Letter to Los Angeles Water Board on Draft MS4 Permit for Los Angeles County (July 23, 2012); Letter to Los Angeles Water Board on Draft MS4 Permit for Long Beach (January 15, 2014); and Letter to Santa Ana Water Board on Draft North Orange County Permit (June 20, 2014.)

[213] Test Claim Narrative Statement, p. 5-18.

[214] U.S. EPA 2014 Memorandum, p. 6, citing 40 C.F.R §122.44(d)(1)(vii)(B)).

[215] See, R9-2007-0001 at pp. 9-10 and 51-57.

[216] 2013 Permit, Prov. A.2.

exceedances of water quality standards – were in the Third and Fourth Term Permits.[217] Once a TMDL is approved by U.S. EPA, effluent limits must be consistent with wasteload allocations for the particular discharge per federal law.[218] In fact, the compliance schedule established in the TMDL and incorporated in the Permit allows Claimant time to achieve necessary reductions of bacteria loading to the receiving waters.[219]

Because Claimant is separately required to achieve compliance with water quality standards, but has been provided a timeframe in which to comply through incorporation of limitations and associated compliance schedules, the numeric limitations included to implement the TMDL are not a new program nor require a higher level of service be provided beyond what Claimant is already obligated by law to achieve. Moreover, the availability of the alternative compliance option provides an avenue for Claimant to be deemed in compliance with receiving water limitations when, among other things, interim and final WQBELs established by the TMDLs in the Permit are incorporated into the applicable Water Quality Improvement Plan.[220] The state has not *mandated* a new program.

3. Other Mandates Exceptions Apply

Even if the Commission disagrees that federal law mandates the challenged provisions, they are not reimbursable because other recognized mandates exceptions apply. As discussed in Section IV, above, the Claimant has fee authority to implement these permit provisions. It has not demonstrated it must use tax monies to pay for compliance with these provisions. Moreover, requirements to implement the challenged TMDL do not apply uniquely to local government. The TMDL also identified Caltrans, a state agency, as well as agricultural dischargers within the San Diego Region, as contributing sources for the bacteria impairment.[221] For these reasons, Claimant is not entitled to subvention to comply with Provision A.3.b and related portions of Attachment E.

C. Development, Implementation and Update of Water Quality Improvement Plans (WQIPs), Permit Provisions B and F

The purpose of Provision B, titled "Water Quality Improvement Plans" is to develop WQIPs that guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and receiving waters. The goal of the WQIPs is to further the CWA's objective to protect, preserve, enhance, and restore the water

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[217] *E.g.,* 2007 Permit, at pp. 9-11, Provision E; and 2001 Permit, at p. 4, Finding 13; p. 8 Finding 38.

[218] 40 CFR section 122.44(d)(vii)(B). This provision states that, "When developing water quality-based effluent limits under this paragraph the permitting authority shall ensure that... (B) Effluent limits developed to protect a narrative water quality criterion, a numeric water quality criterion, ***or both***, are consistent with the assumptions and requirements of any available wasteload allocation for the discharge prepared by the State and approved by EPA pursuant to 40 CFR 130.7." (emphasis added).

[219] *See* Regional Permit Fact Sheet, p. F-46, noting that "there is a specific date for compliance to be achieved. . . . Copermittees are in compliance with the interim or final TMDL requirements in Attachment E as long as the interim or final WQBELs are being achieved in accordance with the interim or final compliance dates."

[220] See Regional Permit, Prov. B.3.c.(1); see also, Permit Fact Sheet, F-59 "Compliance with Provision B.3.c constitutes compliance with the requirements of Provision A.3.b, which requires compliance with the WQBELs of TMDLs in Attachment E to the Order, and is considered compliance with receiving water limitations for those TMDL water body-pollutant combinations."

[221] San Diego Water Board Resolution No. R9-2010-0001, *supra,* at e.g., ¶¶ 11, 22, 25.

quality and designated beneficial uses of waters of the state. This goal will be accomplished through an adaptive planning and management process that identifies the highest priority water quality conditions within a watershed and implements strategies through the jurisdictional runoff management programs to achieve improvements in the quality of discharges from the MS4s and receiving waters.[222]

Provision F, titled, "Reporting," is designed "to determine and document compliance with the requirements set forth in this Order," including WQIPs.[223] Each Copermittee must develop and submit a WQIP for several different Watershed Management Areas in accordance with the requirements set forth in Provision F.

Claimant challenges these provisions as not being required under federal law; and as being new programs mandated by the State and not required by the 2007 Permit.[224] Both of these challenges must be rejected.

1. There Is No New Program or Higher Level of Service

For the reasons discussed in the general responses, above, these challenged provisions do not impose a new program or higher level of service on Claimant.

It is true that the term "WQIP" does not appear in previous permits. But the concept of a WQIP, its substance, and its accompanying reporting provisions are not new to the 2013 Permit. Indeed, "the Copermittees have been developing and implementing programs and BMPs intended to effectively prohibit non-storm water discharges to the MS4s and control pollutants in storm water discharges from the MS4s to receiving waters" since 1990.[225] The 2007 Permit precursor to the WQIP was a document called the Watershed Urban Runoff Management Plan (WURMP) (and there is a Watershed Urban Runoff Management Program);[226] and the WURMP was in the 2001 Permit.[227] Both the 2007 and 2001 Watershed Urban Runoff Management provisions had reporting requirements attached to them,[228] and both were designed to do exactly what the 2013 WQIP provision does: engage dischargers in the iterative process to achieve compliance with water quality standards over time. If fact, Claimant tacitly concedes this point, acknowledging that the 2007 Permit contains analogous provisions to the WQIP.[229] In short, prior permits have required copermittees to implement comparable programs central to the iterative process for ensuring water quality. Development and implementation of the WQIPs reflects engagement in the iterative process of achieving compliance with water quality standards over time. This is not a new program, nor does it impose higher levels of service on Claimant.

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[222] 2013 Permit at p. 17, B.

[223] 2013 Permit at p. 111.

[224] Test Claim at p. 5-32.

[225] 2013 Permit at p. F-42.

[226] 2007 Permit, Order No. R9-2007-0001 at p. 6, D.1.c.; Provision E.

[227] 2001 Permit, Order No. R9-2001-0001 at p. 42 Provision J.

[228] 2007 Permit, Order No. R9-200-0001 at pp. 46-51, Provisions E, F; p. 57, Provision J, and p. 62, provision J.b; 2001 Permit, Order No. R9-2001-0001 at pp. 42-46, Provisions J, L, M, and M.3.

[229] Test Claim Narrative Statement, p. 5-32.

To get around this conclusion, Claimant attempts to focus its challenge on particular components of the WQIP, including the requirement to Develop and Implement the WQIP;[230] the requirement to update the WQIP (see particular provisions at Test Claim Narrative Statement pp. 5-34); and the requirement to report on WQIPs.[231] Specifically, Claimant argues that these requirements are neither required by federal law or in the 2007 Permit. With respect to whether the provisions are required under federal law, the Water Boards refer the Commission to Section IV(C)(2), *supra*. With respect to whether analogous requirements existed in the 2007 Permit, they did. Examination of a sampling of the provisions about which Claimant protests reveals this to be true:

2013 Permit Provision At Issue	Analogous 2007 Permit Provision
Permit Provision B.2.a. (Test Claim Narrative p. 5-32, n. 92, 93)	2007 Permit, Provisions E.2.f, E.2.c
Permit Provision B.2.b (Test Claim Narrative p. 5-32, n. 94)	2007 Permit, Provisions E.2.c, E.2.e
Permit Provision B.2.c.(1) (Test Claim Narrative pp. 5-32-33, n. 95)	2007 Permit Provisions E.2.c, E.2.f
Permit Provision B.2.c.(2) (Test Claim Narrative pp. 5-33, n. 96)	2007 Permit Provisions E.2.c

Indeed, careful consideration of Claimant's complaints in this regard reveals not only that analogous provisions existed in the prior 2007 Permit, but also the true nature of its complaints: Claimant is not really questioning whether the 2007 and 2013 Permits have the same requirements, but instead, is challenging any further specificity or refinement of 2007 Permit requirements in the 2013 Permit. In other words, it is not challenging any new requirements, because there are none. This is not a new "program" or even a higher level of service as those terms have been defined in mandates law.[232] Furthermore, at worst, the new specificity in the 2013 Permit is included as part of the iterative process – which is expressly contemplated under federal law.[233] Moreover, as Claimant admits, the data gathering and monitoring required by the challenged provisions has been done for years: "The Copermittees have implemented an extensive monitoring program for many years with the data being used to identify Pollutants and Issues of Concern in previous regulatory documents. Such work provides an excellent foundation

[230] See particular provisions at Test Claim Narrative Statement pp. 5-32-34, n. 92-106.

[231] See particular provisions at Test Claim Narrative Statement pp. 5-35-36.

[232] *See, e.g., City of Richmond v. Comm. on State Mandates* (1998) 64 Cal.App.4th 1190, 1195-96 (finding that technical changes, clarifications, and additions to a statute, which imposed no new substantive requirements on appellants but excluded certain persons from benefits, did not impose a new program or higher level of service on city).

[233] *E.g.,* 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999 ("EPA envisions application of the MEP standard as an iterative process."); and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.")

for establishing watershed priorities."[234] In short, Claimant proposed the particular WQIP and admits that they "support the development of Watershed Plans for the nine major Watershed Management Areas (WMAs) currently identified in the 2007 Order."[235] These requirements are not an unfunded state mandate.

2. Provisions B and F are Necessary To Meet the Federal MEP Standard

Even if the Commission finds that the provisions establish a new program or higher level of service, no subvention is required because the WQIPs are based entirely on federal law and the San Diego Water Board determined they are necessary to meet the MEP standard. As discussed above in the General Responses (Section IV), the San Diego Water Board's findings concerning the basis for these provisions are entitled to deference under *Department of Finance.* For these reasons, the provisions are a federal, not a state, mandate.

Claimant asserts that federal law does not require local agencies to "develop, update, and provide annual reports on a WQIP for each of the Watershed Management Areas."[236] And, because the objective of the WQIP is to achieve water quality standards, an objective it claims is not required by federal law, Claimant contends these provisions are state mandates.[237] As the Water Boards explained in Section IV above, the Regional Permit does not require strict compliance with water quality standards, as alleged by Claimant. Instead, the Water Boards anticipate Copermittees will achieve compliance with water quality standards through implementation of the iterative process of successively improving BMPs. Implementation of the WQIP embodies the iterative process determined to satisfy the MEP standard in this case.[238]

The Board recognized that, in adopting the WQIP provisions, "[t]he purpose ... is to develop Water Quality Improvement Plans that guide the Copermittees' jurisdictional runoff management programs towards achieving the outcome of improved water quality in MS4 discharges and

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[234] ROWD at p. 46.

[235] ROWD at p. 44. To get around this, Claimant argues that "the specific content and suggestions put forth in this ROWD are intended solely to advance ongoing dialogue with RWQCB staff, and to identify potential options to be explored in a reissued permit. As such, the development and adoption of specific permit provisions remain solely the responsibility of the RWQCB and its staff. In addition, ... the Copermittees are legally required to submit this ROWD and to address the program changes ... thus, the content and suggestions in this ROWD are legally mandated and should not be construed as being voluntary." (ROWD at p. 16.) This "out" essentially constructs a classic Catch 22 for the Water Boards – if the Copermittees propose a program, voluntarily, and the Water Boards "impose" a program involuntarily upon Copermittees by including the program in the permit as required by federal law, it is somehow an unfunded mandate. Not only does this argument ignore the law on unfunded mandates and the fact that MS4 permits are required under the CWA, it ignores the fact that the ROWD itself is required under federal law – it is the permit application. 40 CFR 126.26(d) (setting forth application requirements, which are embodied in ROWD. Applicants such as Claimant *must* propose "management programs" to reduce the discharge of pollutants to the [MEP]. 40 CFR 122.26(d)(iv). This is exactly what the ROWD does here, and which is incorporated into the WQIP. Claimant should not be able to avoid paying for the programs *it has actually proposed and which are required under federal law.*

[236] Test Claim Narrative Statement, p. 5-32.

[237] Claimant also relies on the Commission's earlier determination on the issue of a federal mandate regarding provisions in its Statement of Decision in 07-TC-09 to argue that the WQIP provisions in the Regional MS4 Permit establish new programs or higher levels of service. As noted elsewhere, and as the Commission is aware, numerous challenges to the 2010 Statement of Decision have not been resolved by the courts, nor has the litigation been reconsidered in light of *Department of Finance*, which recognizes that deference is appropriate when certain findings are made and anticipates a case-specific, factual consideration of whether there is a federal mandate.

[238] 2013 Permit, Provision A.4.

receiving waters."[239] As discussed in the Permit Fact Sheet, "federal NPDES regulations require the Copermittees to develop a proposed management program (40 CFR 122.26(d)(2)(iv)). A proposed management program must include *'a comprehensive planning process'* and *'where necessary intergovernmental coordination'* for the *'duration of the permit.'*"[240] The WQIP serves as the Copermittees' comprehensive planning process document for the proposed management program that will be implemented as a WQIP within a Watershed Management Area. Development of WQIPs based upon watersheds is consistent with federal regulations that support the development of permit conditions, as well as implementation of storm water management programs, at a watershed scale.[241]

The factual findings here support the fact that WQIPs are necessary to meet the MEP standard under federal law and that they are entitled to deference under *Department of Finance.* For example, the Board found:

> [t]he Water Quality Improvement Plan is the backbone of the Regional MS4 Permit requirements. Provision B provides the guidance, criteria, and minimum expectations and requirements for the elements of the Water Quality Improvement Plan to be developed and implemented by the Copermittees [and] incorporates a program to monitor and assess the progress of the Copermittes' jurisdictional runoff management programs toward improving the quality of discharges from MS4s, as well as tracking improvements to the quality of the receiving waters.[242]

Provision F includes the process for adapting and improving the effectiveness of the WQIPs to implement the iterative approach to achieve compliance with receiving water limitations. Other regulatory requirements pertaining to certain aspects of the WQIP are discussed more fully in the Fact Sheet for Provisions B and F.

Finally, unlike the LA MS4 Permit provisions considered in *Department of Finance,* the requirements to implement similar programs also exist in U.S. EPA issued MS4 permits. In the most recent MS4 permit for the District of Columbia MS4, U.S. EPA required development, implementation, assessment and upgrading of the Stormwater Management Program (SWMP) Plan.[243] While the program titles differ, the elements (development, implementation, updating and reporting) are comparable and serve the same functions. This relevant comparison demonstrates that the Board effectively crafted provisions necessary to meet the MEP standard, and that the WQIP is required under federal law.

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[239] 2013 Permit, Provision B, p. 17.

[240] 2013 Permit, at p. F-43; 40 CFR § 122.26(d)(2)(iv).

[241] Regional Permit at p. F-43; 40 CFR § 122.26(a)(3)(ii), (v) and 122.26(d)(2)(iv); U.S. EPA Watershed-Based NPDES Permitting Policy Statement, https://www3.epa.gov/npdes/pubs/watershedpermitting_finalguidance.pdf.

[242] Regional Permit, at p. F-42.

[243] "The permittee shall continue to implement, assess and upgrade all of the controls, procedures and management practices, described in this permit, and in the [Storm Water Management Plan] dated February 19, 2009, and any subsequent updates. This Program has been determined to reduce the discharge of pollutants to the maximum extent practicable. The Stormwater Management Program is comprised of all requirements in this permit. All existing and new strategies, elements, initiatives, schedules or programs required by this permit must be documented in the SWMP Plan, which shall be the consolidated document of all stormwater program elements." (U.S. EPA, MS4 Permit for the District of Columbia, DC0000221, modified October 25, 2012, pp. 7-8.

D. Challenge to Portions of Jursidictional Runoff Management Program (JRMP): Provisions E.3.c.(2), E.3.d and F.2.b, Which Concern Hydromodification Management BMP Requirements and BMP Design Manual Updates

1. Hydromodification Management Requirements (E.3.c.(2)) (Critical Sediment Yield)

Challenged aspects of Provision E.3.c.(2) specify that Copermittees must require Priority Development Projects[244] to implement onsite BMPs to manage hydromodification effects that may be caused by storm water runoff discharged from a project, including BMPs to avoid known critical sediment yield areas, or "to implement measures that allow critical coarse sediment to be discharged to receiving waters, such that there is no net impact to the receiving waters."[245]

Although somewhat unclear, it appears that Claimant challenges this provision on two grounds. First, Claimant contends that these *exact specific requirements* are not required under federal law (although it freely ***admits*** *that the CWA "suggests management practices, control techniques, and system, design and engineering methods"* are options for attaining the MEP, and that "post construction controls to limit pollutant discharges originating in areas of new development" "may be within the requirements of [40 CFR §] 122.26(d)(iv)(A)").[246] Because MEP is not defined, Claimant argues that any selection of methods by which to attain MEP by the San Diego Water Board, such as hydromodifiction requirements concerning critical coarse sediment, is a state mandate. And second, Claimant maintains that the Commission already decided that "the hydromodification requirement constitutes a 'state–mandated, new program or higher level of service."[247] Thus, they argue, this one does, too. For the reasons set forth below, Claimant is wrong.

a. Not A New Program Or Higher Level Of Service

As an initial matter, hydromodification plans for discharges from priority development projects were required in the 2007 Permit, and it listed minimum requirements.[248] The 2001 Permit also addressed hydromodification, requiring that pollutant discharges and runoff flows from development are reduced to the MEP, and again, it listed minimum requirements.[249] Here, while the specific reference to coarse sediment is new in the 2013 Permit, "performance criteria for

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[244] Priority Development Projects (or PDPs) are defined in the Regional Permit at Provision E.3.b.(1). In general, PDPs are "land development projects that fall under the planning and building authority of the Copermittee for which the Copermittee must impose specific requirements. . . including the implementation of structural BMPs to meet the performance requirements . . . ."

[245] Regional Permit Provision E.3.c.2(b).

[246] Test Claim Narrative Statement, 5-39, citing to Statement of Decision, Test Claim 07-TC-09, *Discharge of Stormwater Runoff – Order No. R9-2007-0001*, at p. 51. Again, as discussed above, to the extent Claimant relies on the Commission's prior Statement of Decision in Case 07-TC-09 as support for their arguments, the Water Boards remind the Commission that the Water Boards and Department of Finance challenged numerous aspects of that Decision and these issues remain unresolved by the courts

[247] Test Claim Narrative Statement, 5-39, citing to Statement of Decision, Test Claim 07-TC-09, *Discharge of Stormwater Runoff – Order No. R9-2007-0001*, at p. 51.

[248] Regional Permit 2007-0001, Provision D.1.g, p. 25.

[249] *E.g.,* 2001-0001 Permit, Finding No. 5 and Provision F.1.b.

the implementation of hydromodification management BMPs on Priority Development Projects are consistent with requirements in the Fourth Term Permits for Claimant. By way of example, the 2007 Permit's Hydromodification Construction Component BMP contains erosion and sediment controls,[250] designed to do exactly what the 2013 Permit Provision aims to do.[251] While the hydromodification management plan for the Copermittees "will likely require some minor modifications to incorporate the requirements of Provision E.2.c.(2), the "San Diego Water Board does not, however, expect that it will be necessary for [Claimant] to develop a new approach or significantly re-write the San Diego County HMP. This is because the premise of the hydromodification management BMP requirements, which are to control storm water runoff conditions (flow rates and durations) for Copermittee-defined range of flows, is unchanged from all Fourth Term Permits in the San Diego Region."[252] As explained generally above, a minor modification, particularly in this context, cannot convert a Permit requirement into a new program, nor does it constitute a higher level of service.

Second, as discussed above, the Court of Appeal has yet to issue its opinion on the programs set forth in the 2007 Permit. Regardless, however, the hydromodification programs have in fact existed since at least 2001. Thus, Claimant's arguments must be rejected.

Even if the Commission finds that the requirements concerning coarse sediment yield are a new program or higher level of service, exceptions apply that preclude requiring subvention of funds.

b. The Provision Is Necessary to Meet The Federal MEP Standard

As discussed in General Responses, above, the San Diego Water Board determined that the permit provisions are based entirely on federal law and are necessary to implement the MEP standard. More specifically, federal storm water regulations mandate that MS4 permittees propose a program to develop, implement and enforce controls to reduce the discharge of pollutants from municipal storm sewers "which receive discharges from areas of new development and significant redevelopment."[253] The San Diego Water Board considered the permittees' proposals and explained the basis for development of the permit provision as follows:

> Hydrograph modification (hydromodification) management requirements also are included to mitigate the potential for increased erosion in receiving waters due to increased runoff rates and durations often caused by development and increased impervious surfaces.[254]

And, the Board found that "[p]lacement of impervious services encapsulates 'good' sediment (such as sand, gravel, rocks and cobbles) that would normally replenish creek beds and banks

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[250] 2007 Permit, Provisions D.1.d(7), (10; D.1.g.

[251] 2013 Permit, Provision E.3.c.(2), at p. 87, titled, "Hydromodifcation Management BMP Requirements."

[252] 2013-0001, at p. F-92; see, also, responses to comments received on tentative Order No. R9-2013-0001, p. 25 of 258 and p. 190 of 258.

[253] 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

[254] 2013 Permit Fact Sheet, at p. F-10.

to help stabilize them."[255] The incorporation of coarse sediment yield requirements was thus determined to be a necessary component of the hydromodification requirements to implement the MEP standard under the factual circumstances here. As explained above, the Board's findings that these provisions are necessary to meet the MEP standard are entitled to deference.

Finally, Claimant here argues generally in its ROWD that "each jurisdiction should be held accountable for the implementation of its jurisdictional program and a determination as to whether it has met the Permit's "maximum extent practicable" performance standard. Then, they caution and recommend that the "pre-project discharge rates and durations" baseline for hydromodification projects from the 2007 Permit be used in the 2013 Permit, instead of the "pre-development discharge rates and durations" for hydromodification projects that were adopted.[256] Apparently, "pre-project" would not be a "state mandate" – but "pre-development" would. This appears contrary to prior positions Claimant have taken and highlight the problem with their argument: Although these *exact specific requirements* (in this case, "pre-development discharge rates and durations") are not required under federal law, any hydromodification proposed by Claimant would in fact be a way in which to meet the MEP standard – and satisfy federal law. This is the way that Claimant proposes to comply with federal law, and it is exercising the true choice between various means to comply. As pointed out above, while the hydromodification management plan for the Copermittees "will likely require some minor modifications to incorporate the requirements of Provision E.2.c.(2)," the "San Diego Water Board does not, ..., expect that it will be necessary for [Claimant] to develop a new approach or significantly re-write the San Diego County HMP."[257] In short, the hydromodification provision is not a state mandate – because Claimant itself has proposed this requirement.

c. Other Mandates Exceptions Apply

Also as discussed above in General Responses (Section IV), to the extent the Commission finds that the challenged requirement was imposed in excess if federal law authority, any incremental costs for activities to implement the requirement in the hydromodification management plan beyond previously existing requirements are *de minimis* and therefore not subject to subvention. The *de minimis* determination is further supported because Claimant must require developers of PDPs to adhere to the requirements, not undertake the requirements themselves (unless voluntarily doing so as a municipal developer).

Finally, Claimant has fee authority to fund the hydromodification requirements and cannot establish that it must raise tax monies to carry out implementation of the coarse sediment yield requirements.[258] Claimant may recover the costs of implementing these requirements through development or other fees. Claimant is not subject to the substantive coarse sediment/critical sediment avoidance provisions unless it is also undertaking a Priority Development Project.[259] In this latter case, the costs to comply with the provisions themselves are voluntary and not

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[255] 2013 Permit Fact Sheet, at p. F-86.

[256] ROWD at p. 20.

[257] 2013-0001, at p. F-92; see, also, responses to comments received on tentative Order No. R9-2013-0001, p. 25 of 258 and p. 190 of 25.

[258] Indeed, the Commission agreed in its decision in Case 07-TC-09. However, the Water Boards note that the Decision is on appeal and the issue remains unresolved by the courts.

[259] If a Claimant is also developing a project, it subjects itself to the hydromodification requirements voluntarily.

subject to subvention. For all these reasons, Claimant is not entitled to subvention for this provision.

2. BMP Design Manual Update (Provisions E.3.d and F.2.b)

Provisions E.3.d and F.2.b require Copermittees to update the BMP Design Manual to include a variety of updates. Claimant contends that requirements to update the BMP Design Manual are new to the Regional MS4 Permit and that neither the CWA nor federal regulations require such updates.[260]

a. No New Program or Higher Level of Service

Claimant's prior permits contained a plan comparable to the BMP Design Manual which, likewise, required updates.[261] Claimant contends that unlike the prior permit, the Regional Permit requires updates with "specific procedures and criteria" not previously required. As discussed above in Section IV, the modified requirements do not rise to the level of imposing a new program or higher level of service where the objectives of the applicable federal requirements governing implementation of post-construction controls to limit pollutant discharges from areas of land development are the same.[262]

Even if the Commission accepts Claimant's argument that the requirements to update its BMP Design Manual are a new program or impose a higher level of service, exceptions in mandates law apply to preclude subvention.

b. The Provisions Are Necessary To Meet the Federal MEP Standard

The San Diego Water Board determined that the requirements are necessary to address pollutant discharges from areas of new development and significant redevelopment. In the Regional Permit, the San Diego Water Board found that the BMP Design Manual is necessary to implement the federal requirement that the Copermittees' development planning program included "'*a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal storm sewers which receive discharges from areas of new development and significant redevelopment.*'"[263] As previously explained, the San Diego Water Board's determination that these provisions satisfy the MEP standard and are entirely based on federal law are entitled to deference under *Department of Finance.* Further, the San Diego Water Board's findings that the provisions are necessary to satisfy the federal MEP standard are

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[260] As discussed above, to the extent Claimant relies on the Commission's prior Statement of Decision in Case 07-TC-09 as support for their arguments, the Water Boards remind the Commission that the Water Boards and Department of Finance challenged numerous aspects of that Decision and these issues remain unresolved by the courts.

[261] "The BMP Design Manual is formerly known as the Standard Storm Water Mitigation Plan, or SSMP, and was renamed so that the title has a more accurate description of the document content. The contents of the BMP Design Manual are largely unchanged from the prior Standard Storm Water Mitigation Plans required under the Fourth Term Permits." (Permit Fact Sheet, p. F-95.) In the 2007 Permit, the SSMP was called the Standard Urban Storm Water Mitigation Plan, or SUSMP. R9-2007-0001 at p. 6, p. 17 (Provision D.1.d) and p. 21 (Provision D.1.d.7); compare, R9-2013-001 Provisions E.3.d and F.2.b

[262] *See* 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

[263] Permit Fact Sheet, p. F-95, quoting 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

underscored by the inclusion of similar update requirements in implementation of land development storm water provisions in at least one U.S. EPA-issued permit.[264]

c. Other Mandates Exceptions Apply

First, to the extent the Commission finds the provisions exceed federal requirements, any associated incremental costs of considering specific types of updates are *de minimis*. Second, as discussed above, the Claimant has fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. Claimant may recover the costs of implementing these requirements through development or other fees. For these reasons, the Commission should find that no subvention is required to fund these updates.

E. Residential Inventory and Inspections and (Provision E.5.a, E.5.c.(1)(a), E.5.c.(2)(a), and E.5.c(3))

Claimant challenges as "new programs" long-standing requirements to develop and implement a residential inventory and inspection program, and inventory of existing development. Additionally, Claimant argues that the text of the federal regulations does not support these requirements and that the inventory and inspection requirements constitute new programs. These arguments fail.

1. Not a New Program Or Higher Level Of Service

For the general reasons discussed above in Section IV, the Commission should reject Claimant's arguments that requirements to develop and implement an inventory and inspection program amounts to a new program or requires a higher level of service by Claimant. The Water Boards disagree that the requirements to inventory and inspect residential areas and to inventory existing development are new programs of higher levels of service. At most, the requirements under Provision E.5 build upon existing program elements being implemented by Claimant.[265] Claimant has long been required to develop and implement a procedure for pollutants of concern for residential units, in order to reduce discharges of pollutants from MS4s and into receiving waters from residential development to the MEP. [266] The permit language has been modified to provide more flexibility to implement the programs so resources can be better focused toward addressing the highest priority water quality conditions identified in the Water Quality Improvement Plans.[267]

Even if the Commission should find that there is a new program or higher level of service, there are additional reasons why the Provisions here are not unfunded state mandates.

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[264] U.S. EPA MS4 Permit DC0000221 for the District of Columbia, as modified October 25, 2012, sec. 4.1.

[265] 2013 Permit Fact Sheet, p. F-99.

[266] 2007 Permit at pp. 18-19, Provisions D.1.d, D.1.d.(2), (3).

[267] 2013 Permit Fact Sheet, p. F-100;

2. The Provisions Are Necessary to Meet the Federal MEP Standard

The Provisions here are required to meet the MEP. To explain, the requirements flow from federal storm water regulations that require each municipality to implement a "management program...to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and other such provisions where applicable."[268] Within this section, subprovisions (iv)(A) and (C) require the management program to reduce impacts on receiving waters and reduce pollutants in storm water discharges to the MEP from commercial and *residential areas*, industrial facilities, and municipal facilities. Copermittees are also required to describe "structural and source control measures to reduce pollutants" in stormwater runoff from existing development.[269] The San Diego Water Board found that in order for a copermittee to "properly manage areas of existing development, having knowledge of what development exists within its jurisdiction is essential."[270] Therefore, the challenged provision "requires each Copermittee to maintain a watershed-based inventory of all the existing development within its jurisdiction."[271] The San Diego Water Board also found that using a watershed-based inventory of all land use types would enable copermittees within a watershed management area to more effectively address pollutant flows from existing development.[272]

As previously explained, the San Diego Water Board's determined that these provisions are necessary to satisfy the MEP standard and are based entirely on federal law. Under the factual circumstances here, these findings are entitled to deference under *Department of Finance.*

3. Other Mandates Exceptions Apply

If the Commission finds that some aspects of these provisions exceed federal requirements, any associated incremental costs of completing the inventory and inspection requirements would be *de minimis.* Creating a list from data already largely (if not wholly) available and doing drive by inspections once a year is not costly. Finally, as discussed above, the Claimant has fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. This is particularly true for residential inspections – such fees can be considered a fee for doing business and not a fee imposed as an incident of property ownership subject to Proposition 218.[273] But even if the fees are somehow subject to Proposition 218, the fact remains that Claimant has the *authority to charge them.* For these reasons, the Commission should find that no subvention is required for the residential inventory and inspection requirements.

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[268] 40 C.F.R. § 122.26(d)(2)(iv).

[269] 40 C.F.R. § 122.26(d)(2)(iv)(A).

[270] 2013 Permit Fact Sheet, p. F-100. Indeed, the San Diego Water Board found that this "requirement is necessary for each Copermittee to implement the requirements of Provision E.5.b-e," a Provision that Claimant does not challenge.

[271] Permit Fact Sheet, p. F-100.

[272] *Ibid.*

[273] *Apartment Ass'n. of Los Angeles County, Inc. v. City of Los Angeles* (2001) 24 Cal.4th 830, 844-45.

F. Retrofit and Rehabilitation of Existing Development and Streams (Provisions E.5.e.1, E.5.e.2)

Provision E.5.e in the Regional Permit requires that Copermittees include in their jurisdictional runoff management program document a description of a program element concerning retrofitting areas of existing development within their respective jurisdictions to address identified sources of pollutants and/or stressors that contribute to the highest priority water quality conditions (Provision E.5.e.(1)), and a description of a program to "rehabilitate streams, channels, and/or habitats in areas of existing development within its jurisdiction to address the highest priority water quality conditions . . ." (Provision E.5.e.(2)).

1. No New Program Or Higher Level Of Service

In asserting that the requirements impose a state mandate, Claimant argues in part that nothing in the CWA or implementing regulations or case law requires copermittees "to develop, fund, and implement a retrofitting and rehabilitation program."[274] This is not a new program as that term is understood in caselaw. In fact, the Board determined that the challenged provisions "do not require the implementation of retrofitting and rehabilitation projects, but do require the Copermittee to develop a program of strategies to facilitate the implementation of these types of projects in areas of existing development."[275] For the general reasons discussed above in Section IV, the Commission should reject Claimant's arguments that requirements to facilitate water quality improvements by making available retrofit and rehabilitation opportunities amounts to a new program or requires a higher level of service by Claimant.

Even if the Commission accepts Claimant's argument that the requirements regarding retrofitting and rehabilitation opportunities are a new program or impose a higher level of service on local agencies, exceptions in mandates law apply to preclude subvention.

2. The Provisions Are Necessary to Meet the Federal MEP Standard

While the storm water regulations do not explicitly require these provisions be included in the permit, the provisions require development of potential strategies that can result in significant water quality improvements as the Copermittees implement their WQIPs. The provisions flow from the CWA requirements to control pollutants in discharges to the MEP standard and to effectively prohibit non-storm water discharges to the MS4s.[276] They also implement the regulatory requirement to address land development controls.[277] As discussed above, the iterative process of implementing WQIPs is designed to allow Claimant to achieve compliance with water quality standards over time. In developing these requirements, the San Diego Water Board determined:

> [e]xisting development can generate substantial pollutant loads which are discharged in runoff to receiving waters. Retrofitting areas of existing development with storm water pollutant control and hydromodification

[274] Test Claim Narrative Statement, p. 5-54.

[275] 2013 MS4 Permit Fact Sheet, p. F-119.

[276] CWA, § 402(p)(3)(B)(iii) and (ii).

[277] See 40 C.F.R. § 122.26(d)(2)(iv)(A)(2).

> management BMPs is necessary to address storm water discharges from existing development that may cause or contribute to a condition of pollution or a violation of water quality standards.[278]

These provisions are integral to the iterative process embodied in the WQIP. As previously explained, the San Diego Water Board's findings that these provisions are necessary to satisfy the MEP standard and are based entirely on federal law. These findings are entitled to deference under *Department of Finance.*

Moreover, the Water Boards also observe that U.S. EPA required similar – and in some instances more detailed – requirements to address storm water control opportunities in existing development areas in its most recent MS4 permit issued to the District of Columbia. This federal MS4 Permit requires, among other things, that the District establish a "Retrofit Program" and "implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way," and the District "shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40[percent] by 2035. . . . The permittee shall ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rates."[279]

The fact that this U.S. EPA-issued permit includes such prescriptive requirements that are likewise absent when compared directly to the text of the implementing storm water regulations is strong evidence supporting the San Diego Water Board's findings that the permit provisions, under the factual circumstances of the Regional Permit, are necessary to meet the MEP standard and based entirely on federal law.

3. Other Mandates Exceptions Apply

Even if the Commission determines that some aspect of these provisions exceeds federal law, the costs to make these programs available as opportunities for developers would be *de miminis*, and do not entitle Claimant to reimbursement.

Finally, as discussed above, Claimant has fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For these reasons, the Commission should find that no subvention of funds is required.

G. Jurisdictional Urban Runoff Management Plan Update (Provision F.2.a.)

Provision F.2.a requires five updates to Claimant's existing Jurisdictional Runoff Management Plan (JRMP).

Claimant argues that the requirement to update the JRMP is a state mandate. Claimant relies on prior Commission determinations in municipal storm water test claims which are pending in the

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[278] 2013 Permit, Finding 17.

[279] U.S. EPA MS4 Permit DC0000221, issued to District of Columbia, modified October 25, 2012, e.g., section 4.1.5 (Retrofit Program for Existing Discharges) and section 4.1.6 (Tree Canopy).

courts to support their contention.[280] It also argues that nothing in federal law or the implementing regulations requires that permittees "create, review and update a JRMP where that update consists of at least eight elements."[281]

Close examination of the challenged provision shows that (a) it is not a new program or a higher level of service differing from the 2007 Permit; and (b) it is necessary to meet federal MEP standards. Claimant's arguments are unfounded.

1. Not a New Program Or Higher Level Of Service

The Water Boards disagree that the provision to update the JRMP imposes a new program or requires a higher level of service by Claimant. As an initial matter, JRMPs provisions were contained in the 2001 Permit, and in the 2007 Permit.[282] Moreover, the 2007 Permit also required preparation of updated JRMPs:

> Updated [JRMPs] . . . which describe the Copermittees' runoff management programs in their entirety, are needed to guide the Copermittees' runoff management efforts and aid the Copermittees in tracking runoff management program implementation.[283]

While the prior permit did not include the listing of five specific elements, it directed Copermittes to "revise and update its existing JRMP so that it describes all activities the Copermittees will undertake to implement each component of [its JURMP in] section D of this Order."[284] This is exactly what the Permit does here – the only difference is that the requirements are spelled out in a more specific manner. Additional specificity alone cannot convert a requirement into an "unfunded mandate."[285] The requirement is not a new program, nor does it impose a higher level of service on Claimant. Indeed, this program has been around for almost 20 years.

Even if the Commission accepts Claimant's argument that the requirement to update the JRMP imposes a new program or requires a higher level of service, exceptions in mandates law apply to preclude subvention for this challenged provision

2. The Provision is Necessary To Meet The MEP Standard

It is relevant to evaluate the underlying federal purposes of JRMPs when considering whether the requirement to make updates is likewise necessary to meet the MEP standard. A JRMP is a "program to control the contribution of pollutants to and the discharges from the MS4 within [a] jurisdiction. The goal of the jurisdictional runoff management programs is to implement strategies that effectively prohibit non-storm water discharges to the MS4 and reduce the

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[280] As noted above, the Commission's prior determinations in its Statement of Decision in 07-TC-09 (San Diego County MS4) are still unresolved by the courts and have not been considered in light of *Department of Finance.*

[281] Test Claim, Narrative Statement, p. 5-50. *Notably, there are not eight elements listed in Permit 2007-0001 – there are only five, and they are not the same as what Claimant contends they are in their Narrative Statement.*

[282] 2001 Permit at Provision F., p. 13; Order No. R9-2007-0001, Provision D., p. 15.

[283] 2007 Permit, Finding D.1.c, p. 6 and Provision D., p. 15.

[284] 2007 Permit, Provision J, at p. 57.

[285] *City of Richmond, supra,* 64 Cal.App.4th at 1195-96.

discharge of pollutants in storm water to the MEP."[286] The JRMP is thus an integral part of the "comprehensive planning process" required pursuant to 40 CFR 122.26(d)(2)(iv).[287] Because JRMPs have been developed under prior permits, the requirement to make appropriate updates is essential to the success of a JRMP at achieving federal water quality standards through the iterative process – a federal requirement as well.[288]

Unlike in the LA Permit case considered in *Department of Finance*, the San Diego Water Board found that the provisions in the Regional Permit are exclusively based on federal law and necessary to achieve the MEP standard. As previously explained, the San Diego Water Board's findings are entitled to deference under *Department of* Finance. Moreover, that the requirement is a federal, not a state mandate, is supported by the inclusion of similar requirements in the most recent U.S. EPA-issued MS4 Permit for the District of Columbia. In that permit, U.S. EPA requires the District to "continue to implement, assess and upgrade all of the controls, procedures and management practices described in this permit, and in the SWMP dated February 19, 2009, and any subsequent updates. . . ," and "[n]o later than 3 years from the issuance date of this permit the permittee shall notice a fully updated Plan including all of the elements required in this permit."[289] U.S. EPA's Annual Report requirements imposed in the same permit also include extensive requirements for proposed revisions, assessments and analyses.[290] The fact that U.S. EPA has issued at least one permit that includes similar requirements demonstrates that the San Diego Water Board's effectively determined what provisions were necessary to meet the MEP standard in this case.

3. Other Mandates Exceptions Apply

First, if the Commission finds that some aspect of the JRMP update provisions exceed federal law, any associated incremental costs would be *de minimis.* Indeed, these are only updates to long-existing programs. Second, as discussed above, the Claimant has fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For these reasons, the Commission should find that no subvention is required for implementation of this provision.

H. Requirement To Appear Before San Diego Water Board (Provision F.3.a.)

The Regional Permit requires that Copermittees, including Claimant, appear periodically to present progress reports on implementation of their WQIPs and JRMPs. Claimant contends this requirement is a state mandate because it imposes a new program or requires they provide a higher of level of service than in prior permits.

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[286] 2013 Permit, Provision E., at p. 72; see, also, Fact Sheet at F-75.

[287] 2013 Permit, Fact Sheet at p. F-75.

[288] *E.g.,* 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754; Dec. 8, 1999 ("EPA envisions application of the MEP standard as an iterative process."); and Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards.")

[289] U.S. EPA MS4 Permit DC0000221, (modified October 25, 2012) sec. 3.

[290] *Id., at* sec. 6.2.1

1. No New Program Or Higher Level Of Service

As explained in the General Responses, above, the Water Boards disagree that such a requirement constitutes a new program or higher level of service within mandates law. Indeed, a reporting requirement was in fact included in the prior permit – a fact which Claimant admits.[291] And a requirement that a permittee attend a meeting to update a particular body concerning its progress or permitting requirements has never been held to be an unfunded mandate.

Even if the Commission accepts Claimant's argument that the requirement to personally appear to report progress in program implementation imposes a new program or requires a higher level of service, exceptions in mandates law apply to preclude subvention.

2. Reports Are Required Under Federal Law And Necessary To Meet The Federal MEP Standard

As part of the reporting requirements, the San Diego Water Board provided for, upon request, periodic progress reports from copermittees in each Watershed Management Area. Unlike in the LA Permit case considered in *Department of Finance*, the San Diego Water Board generally found that the provisions in the Regional MS4 Permit are necessary to achieve the MEP standard and based entirely on federal law. As previously explained, the San Diego Water Board's findings are entitled to deference under *Department of* Finance.

Moreover, that the requirement is a federal, not a state mandate, is further supported by U.S. EPA's inclusion of an in-person *annual* reporting requirement in the most recent U.S. EPA-issued MS4 Permit for the District of Columbia. In that permit, U.S. EPA requires the District of Columbia convene an annual in person meeting with U.S. EPA "to present annual progress and plans for the following year."[292] In contrast to the U.S. EPA's annual requirement, no personal progress reports have yet been required under the Regional Permit, resulting in far less than the annual frequency imposed by U.S. EPA. U.S. EPA's inclusion of a comparable requirement lends support for the San Diego Water Board's determination of what is necessary to meet the MEP standard in the Regional Permit.

Finally, as Claimant concedes, it is required by federal law to provide information – any information – that the Regional Board may request at any time pursuant to 40 CFR 122.41(h). A requirement to appear periodically and update the San Diego Water Board fits squarely within this federal law.

3. Other Mandates Exceptions Apply

Even if the Commission nonetheless finds that the requirement for periodic annual reporting exceeds federal law requirements, any associated incremental costs are *de minimis*. Additionally, as discussed above, the Claimant has fee authority to implement these requirements and have not shown that they are required to raise taxes to fund them. For all of these reasons, the Commission should find that no subvention is required for a periodic appearance.

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[291] R9-2007-0001 at Attachment B, p. B-4, Section 5, Standard Provisions – Reporting.

[292] *Id.* Sec. 6.2.2.

V. CONCLUSION

The above response establishes that the contested provisions are not state mandates because they do not impose new programs or higher levels of service on Claimant. For any challenged provision that the Commission nonetheless finds to be mandated by the state, the Commission should find that the provisions are instead mandated by federal law and/or that other exceptions apply, precluding a finding that subvention is required for any of the Test Claim provisions.

The focus of consideration of the federal mandate exception in *Department of Finance* was the application of the MEP standard to two 2001 LA County MS4 Permit provisions, where the Los Angeles Water Board had not explicitly found that the provisions met that standard.[293] In reaching the conclusion that those two provisions did *not* meet MEP, the Court suggested that the result might have been different if the agency *had* found that permit conditions were necessary to satisfy the MEP standard, and specifically noted that deference to the agency would be appropriate.[294] Here, the San Diego Water Board *did* find that the Permit conditions of the MS4 Permit were necessary to satisfy the MEP standard and that the Permit was based entirely on federal law. Those findings are entitled to deference.

Even if the Commission does not defer to the San Diego Water Board's findings, analogous provisions in U.S. EPA-issued permits or U.S. EPA permit guidance and model permit language independently demonstrate that the Permit's provisions were federally mandated.[295] In addition, the Permit's provisions implement other federal standards, discussed above, that the Supreme Court did not evaluate. Furthermore, the Supreme Court's decision did not address a number of the other exceptions to mandates law present here, such as the existence of fee authority, the absence of a new program or higher level of service, the opportunity for Permittees to propose and substitute other programs and/or BMPs for many of the requirements in the 2010 Permit, and the absence of requirements "unique" to local entities or instances where costs are *de minimis*.

For these reasons, the Commission should find that the 2013 Permit does not impose state mandates requiring subvention and the Commission should deny the Test Claim in its entirety.

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[293] *Department of Finance v. Comm'n on State Mandates, supra*, 1 Cal.5th at p. 768.

[294] *Ibid.*

[295] *Id.*, at p. 772.

I certify and declare under penalty of perjury under the laws of the State of California that the foregoing facts are true and correct to the best of my personal knowledge or information or belief. I further declare that all documents attached are true and correct copies of such documents as they exist in the San Diego Water Board's files, or were obtained from publicly available sources.

Catherine George Hagan,
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State Water Resources Control Board

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Attachments

cc: Service List via CSM Dropbox

ATTACHMENTS TO WATER BOARD COMMENTS to 14-TC-03[1]

Federal Regulations

1. 40 CFR Part 122.42
2. 40 CFR Part 122.48
3. Vol. 55 Fed. Reg. 47990 (Nov. 16, 1990)
4. Vol. 61 Fed. Reg. 41698 (Aug. 9, 1996)
5. Vol. 64 Fed. Reg. 68722 (Dec. 8, 1999)

State Statutes and Regulations

6. Water Code § 13370, et seq. (Division 7, Chapter 5.
7. Cal. Code Regs., tit. 23, § 2235.2
8. Cal. Code Regs., tit. 23, § 2235.3

Federal Court Decisions

9. *Environmental Defense Center v. U.S. EPA* (9th Cir. 2003) 344 F.3d 862
10. *Natural Resources Defense Council v. Costle* (D.C. Cir. 1977) 568 F.2d 1369
11. *Waterkeeper Alliance, Inc. v. U.S. EPA* (2nd Cir. 2005) 399 F.3d. 486

State Court Decisions

12. *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46
13. *Connell v. Superior Court* (1997) 59 Cal.App.4th 382
14. *Clovis Unified School District v. Chiang* (2010) 188 Cal.App.4th 794
15. *Apartment Ass'n. of Los Angeles County v. City of Los Angeles* (2001) 24 Cal.4th 830
16. *Building Industry Ass'n v. State Water Resources Control Bd.* (2004) 134 Cal.App.4th 866 (modified on denial of reh'g 2005) (rev. denied 2005)

Other Administrative Materials

[1]To avoid duplication, most materials referenced in the Test Claim are not also included as attachments to this Response. (Cal. Code Regs., tit. 2, § 1183.2)

17. State Water Resources Control Board, Order: WQ 99-05 (*In the Matter of: Environmental Health Coalition*)

18. State Water Resources Control Board, Order: WQ 2001-15 (*In the Matter of: Building Industry Association and WSPA)*

19. California Regional Water Quality Control Board, *Water Quality Control Plan for the San Diego Region (Basin Plan)* at http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/

20. State Water Resources Control Board, Water Quality Control Plan, Ocean Waters of *California (Ocean Plan)*

21. State Water Resources Control Board, *Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options* (June 16, 2005)

22. State Water Resources Control Board, Water Quality (WQ) Order No. 2012-0175, *Waste Discharge Requirements for the Municipal Separate Storm Sewer System (MS4) Discharges within the Coastal Watersheds of Los Angeles County, Except Those Discharges Originating from the City of Long Beach MS4* (June 16, 2015)

23. State Water Resources Control Board, Order 2012-0011-DWQ as Amended, NPDES No. CAS000003, *National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit, Waste Discharge Requirements (WDRs) for State of California, Department of Transportation* (Adopted 2012, Amended 2014 and 2015)

24. State Water Resources Control Board, Order NPDES No. CAS000001, *General Permit for Storm Water Discharges Associated with Industrial Activities* (Adopted April 1, 2014)

25. San Diego Water Board Resolution No. R9-2010-0001, A Resolution Amending the *Water Quality Control Plan for the San Diego Basin (9)* To Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek) (February 10, 2010)

26. U.S. EPA Letter Approving Revised Beaches and Creeks TMDL (June 22, 2011)

27. San Diego Water Board, Order No. R9-2016-0116, NPDES No. CA0109134, *Waste Discharge Requirements for General Dynamics, National Steel and Shipbuilding Company (NASSCO)* Discharge to San Diego Bay

28. San Diego Water Board Order No. R9-2015-0117, NPDES No. CA0109185, *Waste Discharge Requirements for the United States Department of the Navy, Naval Base Coronado*, San Diego County

Materials in Regional MS4 Permit Proceeding

29. San Diego Water Board Response to Comments on Order No. R9-2013-0001 (March 27, 2013)

30. Public Hearing Transcript for Order No. R9-2013-0001 (April 10, 2013)

31. Public Hearing Transcript for Order No. R9-2013-0001 (April 11, 2013)

32. Public Hearing Transcript for Order No. R9-2013-0001 (May 8, 2013)

33. San Diego County Copermittees' Report of Waste Discharge for Order No. R9-2013-0001
34. U.S. EPA Comment Letter on Draft Regional MS4 Permit (February 14, 2012)

35. U.S. EPA Comment Letter on Draft Regional MS4 Permit (January 11, 2013)

36. U.S. EPA Comment Letter (Email) on Draft Regional MS4 Permit (February 12, 2013)

37. U.S. EPA Letter to Darrell Issa re Draft Regional MS4 Permit (April 24, 2013)

Materials From Prior San Diego Water Board MS4 Permit Proceedings

38. Order No. R9-2007-0001, Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority

39. Order No. R9-2001-0001, Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority

40. U.S. EPA Comment Letter on Draft 2009 Orange County MS4 Permit (May 14, 2009)

41. U.S. EPA Comment Letter on Draft 2009 Orange County MS4 Permit (June 18, 2009)

42. U.S. EPA Comment Letter on Draft 2009 Orange County MS4 Permit (Sept. 28, 2009)

Other Jurisdictions' MS4 Permits and Related Correspondence

43. U.S. EPA, NPDES Permit No. DC0000221, *Authorization to Discharge Under the National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System Permit,* issued to the District of Columbia (Final Modified Permit, October 25, 2012)

44. U.S. EPA, NPDES Permit No. DC0000221, *Authorization to Discharge Under the National Pollutant Discharge Elimination System, Municipal Separate Storm Sewer System Permit,* issued to the District of Columbia, Fact Sheet (September 30, 2011)

45. 2001 Los Angeles Regional Water Board MS4 Permit, Order No. 01-182, *NPDES Permit CAS004001, Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the County of Los Angeles, and the Incorporated Cities Therein, Except the City of Long Beach* (December 2001, amended in September 2006 and August 2007)

U.S. EPA Correspondence in Other Water Board Proceedings

46. Letter from Alexis Strauss to State Water Board (April 10, 2008)

47. Letter from Alexis Strauss to Mark Grey (July 31, 2008)

48. Letter to Santa Ana Water Board re Draft Permit for Orange County (June 20, 2014)

49. Letter to Los Angeles Water Board re Draft Permit for Long Beach (January 15, 2014)

50. Letter to Los Angeles Water Board re Draft Permit for Los Angeles (July 23, 2012)

51. Letter to State Water Board Concerning Petition A-2236(a)-(kk) (January 20, 2015)

Guidance and Miscellaneous Materials

52. U.S. EPA Memorandum, *Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs* (November 22, 2002)

53. U.S. EPA Memorandum, *Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs"* (November 26, 2014)

54. U.S. EPA, *MS4 Program Evaluation Guidance*

55. U.S. EPA, *MS4 Improvement Guidance* (April 2010)

56. U.S. EPA, *National Management Measures to Control Nonpoint Source Pollution from Hydromodification* (July 2007)

57. U.S. EPA Hydromodification Management Program Technical Report (December 2005)

58. 2005 Stormwater Utility Report, Black and Veatch

59. City of Santa Cruz Measure E

60. City of San Jose Storm Sewer Charge (web page listing)

61. City of San Clemente Urban Runoff Management Fee/Clean Ocean Program

62. City of Palo Alto Storm Drainage Fee/San Jose Mercury News Article

63. City of Alameda Sewer and Storm Water Fees Bulletin

ATTACHMENT 1

KeyCite Yellow Flag - Negative Treatment
Unconstitutional or PreemptedPrior Version Held Invalid Waterkeeper Alliance, Inc. v. U.S. E.P.A., 2nd Cir., Feb. 28, 2005

KeyCite Yellow Flag - Negative TreatmentProposed Regulation

40 C.F.R. § 122.42

§ 122.42 Additional conditions applicable to specified categories of NPDES permits (applicable to State NPDES programs, see § 123.25).

Effective: December 21, 2015
Currentness

The following conditions, in addition to those set forth in § 122.41, apply to all NPDES permits within the categories specified below:

(a) Existing manufacturing, commercial, mining, and silvicultural dischargers. In addition to the reporting requirements under § 122.41(1), all existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe:

(1) That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(i) One hundred micrograms per liter (100 µg/l);

(ii) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4–dinitrophenol and for 2–methyl–4,6–dinitrophenol; and one milligram per liter (1 mg/l) for antimony;

(iii) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with § 122.21(g)(7); or

(iv) The level established by the Director in accordance with § 122.44(f).

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(2) That any activity has occurred or will occur which would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":

(i) Five hundred micrograms per liter (500 µg/l);

(ii) One milligram per liter (1 mg/l) for antimony;

(iii) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with § 122.21(g)(7).

(iv) The level established by the Director in accordance with § 122.44(f).

(b) Publicly owned treatment works. All POTWs must provide adequate notice to the Director of the following:

(1) Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to sections 301 or 306 of CWA if it were directly discharging those pollutants; and

(2) Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit.

(3) For purposes of this paragraph, adequate notice shall include information on (i) the quality and quantity of effluent introduced into the POTW, and (ii) any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

(c) Municipal separate storm sewer systems. The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the Director under § 122.26(a)(1)(v) must submit an annual report by the anniversary of the date of the issuance of the permit for such system. As of December 21, 2020 all reports submitted in compliance with this section must be submitted electronically by the owner, operator, or the duly authorized representative of the MS4 to the Director or initial recipient, as defined in 40 CFR 127.2(b), in compliance with this section and 40 CFR part 3 (including, in all cases, subpart D to part 3), § 122.22, and 40 CFR part 127. Part 127 is not intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the owner, operator, or the duly authorized representative of the MS4 may be required to report electronically if specified by a particular permit or if required to do so by state law. The report shall include:

(1) The status of implementing the components of the storm water management program that are established as permit conditions;

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(2) Proposed changes to the storm water management programs that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; and

(3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part;

(4) A summary of data, including monitoring data, that is accumulated throughout the reporting year;

(5) Annual expenditures and budget for year following each annual report;

(6) A summary describing the number and nature of enforcement actions, inspections, and public education programs;

(7) Identification of water quality improvements or degradation;

(d) Storm water discharges. The initial permits for discharges composed entirely of storm water issued pursuant to § 122.26(e)(7) of this part shall require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.

(e) Concentrated animal feeding operations (CAFOs). Any permit issued to a CAFO must include the requirements in paragraphs (e)(1) through (e)(6) of this section.

(1) Requirement to implement a nutrient management plan. Any permit issued to a CAFO must include a requirement to implement a nutrient management plan that, at a minimum, contains best management practices necessary to meet the requirements of this paragraph and applicable effluent limitations and standards, including those specified in 40 CFR part 412. The nutrient management plan must, to the extent applicable:

(i) Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;

(ii) Ensure proper management of mortalities (i.e., dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;

(iii) Ensure that clean water is diverted, as appropriate, from the production area;

(iv) Prevent direct contact of confined animals with waters of the United States;

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(v) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants;

(vi) Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States;

(vii) Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;

(viii) Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater; and

(ix) Identify specific records that will be maintained to document the implementation and management of the minimum elements described in paragraphs (e)(1)(i) through (e)(1)(viii) of this section.

(2) Recordkeeping requirements.

(i) The permittee must create, maintain for five years, and make available to the Director, upon request, the following records:

(A) All applicable records identified pursuant paragraph (e)(1)(ix) of this section;

(B) In addition, all CAFOs subject to 40 CFR part 412 must comply with record keeping requirements as specified in § 412.37(b) and (c) and § 412.47(b) and (c).

(ii) A copy of the CAFO's site-specific nutrient management plan must be maintained on site and made available to the Director upon request.

(3) Requirements relating to transfer of manure or process wastewater to other persons. Prior to transferring manure, litter or process wastewater to other persons, Large CAFOs must provide the recipient of the manure, litter or process wastewater with the most current nutrient analysis. The analysis provided must be consistent with the requirements of 40 CFR part 412. Large CAFOs must retain for five years records of the date, recipient name and address, and approximate amount of manure, litter or process wastewater transferred to another person.

(4) Annual reporting requirements for CAFOs. The permittee must submit an annual report to the Director. As of December 21, 2020 all annual reports submitted in compliance with this section must be submitted electronically by the permittee to the Director or initial recipient, as defined in 40 CFR 127.2(b), in compliance with this section and 40 CFR part 3 (including, in all cases, subpart D to part 3), § 122.22, and 40 CFR part 127. Part 127 is not

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intended to undo existing requirements for electronic reporting. Prior to this date, and independent of part 127, the permittee may be required to report electronically if specified by a particular permit or if required to do so by state law. The annual report must include:

(i) The number and type of animals, whether in open confinement or housed under roof (beef cattle, broilers, layers, swine weighing 55 pounds or more, swine weighing less than 55 pounds, mature dairy cows, dairy heifers, veal calves, sheep and lambs, horses, ducks, turkeys, other);

(ii) Estimated amount of total manure, litter and process wastewater generated by the CAFO in the previous 12 months (tons/gallons);

(iii) Estimated amount of total manure, litter and process wastewater transferred to other person by the CAFO in the previous 12 months (tons/gallons);

(iv) Total number of acres for land application covered by the nutrient management plan developed in accordance with paragraph (e)(1) of this section;

(v) Total number of acres under control of the CAFO that were used for land application of manure, litter and process wastewater in the previous 12 months;

(vi) Summary of all manure, litter and process wastewater discharges from the production area that have occurred in the previous 12 months, including, for each discharge, the date of discovery, duration of discharge, and approximate volume; and

(vii) A statement indicating whether the current version of the CAFO's nutrient management plan was developed or approved by a certified nutrient management planner; and

(viii) The actual crop(s) planted and actual yield(s) for each field, the actual nitrogen and phosphorus content of the manure, litter, and process wastewater, the results of calculations conducted in accordance with paragraphs (e)(5)(i)(B) and (e)(5)(ii)(D) of this section, and the amount of manure, litter, and process wastewater applied to each field during the previous 12 months; and, for any CAFO that implements a nutrient management plan that addresses rates of application in accordance with paragraph (e)(5)(ii) of this section, the results of any soil testing for nitrogen and phosphorus taken during the preceding 12 months, the data used in calculations conducted in accordance with paragraph (e)(5)(ii)(D) of this section, and the amount of any supplemental fertilizer applied during the previous 12 months.

(5) Terms of the nutrient management plan. Any permit issued to a CAFO must require compliance with the terms of the CAFO's site-specific nutrient management plan. The terms of the nutrient management plan are the information, protocols, best management practices, and other conditions in the nutrient management plan determined by the Director to be necessary to meet the requirements of paragraph (e)(1) of this section. The terms of the nutrient management plan, with respect to protocols for land application of manure, litter, or process wastewater required

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by paragraph (e)(1)(viii) of this section and, as applicable, 40 CFR 412.4(c), must include the fields available for land application; field-specific rates of application properly developed, as specified in paragraphs (e)(5)(i) through (ii) of this section, to ensure appropriate agricultural utilization of the nutrients in the manure, litter, or process wastewater; and any timing limitations identified in the nutrient management plan concerning land application on the fields available for land application. The terms must address rates of application using one of the following two approaches, unless the Director specifies that only one of these approaches may be used:

(i) Linear approach. An approach that expresses rates of application as pounds of nitrogen and phosphorus, according to the following specifications:

(A) The terms include maximum application rates from manure, litter, and process wastewater for each year of permit coverage, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Director, in pounds per acre, per year, for each field to be used for land application, and certain factors necessary to determine such rates. At a minimum, the factors that are terms must include: The outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field; the crops to be planted in each field or any other uses of a field such as pasture or fallow fields; the realistic yield goal for each crop or use identified for each field; the nitrogen and phosphorus recommendations from sources specified by the Director for each crop or use identified for each field; credits for all nitrogen in the field that will be plant available; consideration of multi-year phosphorus application; and accounting for all other additions of plant available nitrogen and phosphorus to the field. In addition, the terms include the form and source of manure, litter, and process wastewater to be land-applied; the timing and method of land application; and the methodology by which the nutrient management plan accounts for the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

(B) Large CAFOs that use this approach must calculate the maximum amount of manure, litter, and process wastewater to be land applied at least once each year using the results of the most recent representative manure, litter, and process wastewater tests for nitrogen and phosphorus taken within 12 months of the date of land application; or

(ii) Narrative rate approach. An approach that expresses rates of application as a narrative rate of application that results in the amount, in tons or gallons, of manure, litter, and process wastewater to be land applied, according to the following specifications:

(A) The terms include maximum amounts of nitrogen and phosphorus derived from all sources of nutrients, for each crop identified in the nutrient management plan, in chemical forms determined to be acceptable to the Director, in pounds per acre, for each field, and certain factors necessary to determine such amounts. At a minimum, the factors that are terms must include: the outcome of the field-specific assessment of the potential for nitrogen and phosphorus transport from each field; the crops to be planted in each field or any other uses such as pasture or fallow fields (including alternative crops identified in accordance with paragraph (e)(5)(ii)(B) of this section); the realistic yield goal for each crop or use identified for each field; and the nitrogen and phosphorus recommendations from sources specified by the Director for each crop or use identified for each field. In addition, the terms include the methodology by which the nutrient management plan accounts for the following factors when calculating the amounts of manure, litter, and process wastewater to be land applied: Results of soil tests conducted in accordance with protocols identified in the nutrient management plan, as required by paragraph (e)(1)(vii) of this section; credits for all nitrogen in the field that will be plant available; the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied;

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consideration of multi-year phosphorus application; accounting for all other additions of plant available nitrogen and phosphorus to the field; the form and source of manure, litter, and process wastewater; the timing and method of land application; and volatilization of nitrogen and mineralization of organic nitrogen.

(B) The terms of the nutrient management plan include alternative crops identified in the CAFO's nutrient management plan that are not in the planned crop rotation. Where a CAFO includes alternative crops in its nutrient management plan, the crops must be listed by field, in addition to the crops identified in the planned crop rotation for that field, and the nutrient management plan must include realistic crop yield goals and the nitrogen and phosphorus recommendations from sources specified by the Director for each crop. Maximum amounts of nitrogen and phosphorus from all sources of nutrients and the amounts of manure, litter, and process wastewater to be applied must be determined in accordance with the methodology described in paragraph (e)(5)(ii)(A) of this section.

(C) For CAFOs using this approach, the following projections must be included in the nutrient management plan submitted to the Director, but are not terms of the nutrient management plan: The CAFO's planned crop rotations for each field for the period of permit coverage; the projected amount of manure, litter, or process wastewater to be applied; projected credits for all nitrogen in the field that will be plant available; consideration of multi-year phosphorus application; accounting for all other additions of plant available nitrogen and phosphorus to the field; and the predicted form, source, and method of application of manure, litter, and process wastewater for each crop. Timing of application for each field, insofar as it concerns the calculation of rates of application, is not a term of the nutrient management plan.

(D) CAFOs that use this approach must calculate maximum amounts of manure, litter, and process wastewater to be land applied at least once each year using the methodology required in paragraph (e)(5)(ii)(A) of this section before land applying manure, litter, and process wastewater and must rely on the following data:

(1) A field-specific determination of soil levels of nitrogen and phosphorus, including, for nitrogen, a concurrent determination of nitrogen that will be plant available consistent with the methodology required by paragraph (e)(5)(ii)(A) of this section, and for phosphorus, the results of the most recent soil test conducted in accordance with soil testing requirements approved by the Director; and

(2) The results of most recent representative manure, litter, and process wastewater tests for nitrogen and phosphorus taken within 12 months of the date of land application, in order to determine the amount of nitrogen and phosphorus in the manure, litter, and process wastewater to be applied.

(6) Changes to a nutrient management plan. Any permit issued to a CAFO must require the following procedures to apply when a CAFO owner or operator makes changes to the CAFO's nutrient management plan previously submitted to the Director:

(i) The CAFO owner or operator must provide the Director with the most current version of the CAFO's nutrient management plan and identify changes from the previous version, except that the results of calculations made in accordance with the requirements of paragraphs (e)(5)(i)(B) and (e)(5)(ii)(D) of this section are not subject to the requirements of paragraph (e)(6) of this section.

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(ii) The Director must review the revised nutrient management plan to ensure that it meets the requirements of this section and applicable effluent limitations and standards, including those specified in 40 CFR part 412, and must determine whether the changes to the nutrient management plan necessitate revision to the terms of the nutrient management plan incorporated into the permit issued to the CAFO. If revision to the terms of the nutrient management plan is not necessary, the Director must notify the CAFO owner or operator and upon such notification the CAFO may implement the revised nutrient management plan. If revision to the terms of the nutrient management plan is necessary, the Director must determine whether such changes are substantial changes as described in paragraph (e)(6)(iii) of this section.

(A) If the Director determines that the changes to the terms of the nutrient management plan are not substantial, the Director must make the revised nutrient management plan publicly available and include it in the permit record, revise the terms of the nutrient management plan incorporated into the permit, and notify the owner or operator and inform the public of any changes to the terms of the nutrient management plan that are incorporated into the permit.

(B) If the Director determines that the changes to the terms of the nutrient management plan are substantial, the Director must notify the public and make the proposed changes and the information submitted by the CAFO owner or operator available for public review and comment. The process for public comments, hearing requests, and the hearing process if a hearing is held must follow the procedures applicable to draft permits set forth in 40 CFR 124.11 through 124.13. The Director may establish, either by regulation or in the CAFO's permit, an appropriate period of time for the public to comment and request a hearing on the proposed changes that differs from the time period specified in 40 CFR 124.10. The Director must respond to all significant comments received during the comment period as provided in 40 CFR 124.17, and require the CAFO owner or operator to further revise the nutrient management plan if necessary, in order to approve the revision to the terms of the nutrient management plan incorporated into the CAFO's permit. Once the Director incorporates the revised terms of the nutrient management plan into the permit, the Director must notify the owner or operator and inform the public of the final decision concerning revisions to the terms and conditions of the permit.

(iii) Substantial changes to the terms of a nutrient management plan incorporated as terms and conditions of a permit include, but are not limited to:

(A) Addition of new land application areas not previously included in the CAFO's nutrient management plan. Except that if the land application area that is being added to the nutrient management plan is covered by terms of a nutrient management plan incorporated into an existing NPDES permit in accordance with the requirements of paragraph (e)(5) of this section, and the CAFO owner or operator applies manure, litter, or process wastewater on the newly added land application area in accordance with the existing field-specific permit terms applicable to the newly added land application area, such addition of new land would be a change to the new CAFO owner or operator's nutrient management plan but not a substantial change for purposes of this section;

(B) Any changes to the field-specific maximum annual rates for land application, as set forth in paragraphs (e)(5)(i) of this section, and to the maximum amounts of nitrogen and phosphorus derived from all sources for each crop, as set forth in paragraph (e)(5)(ii) of this section;

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(C) Addition of any crop or other uses not included in the terms of the CAFO's nutrient management plan and corresponding field-specific rates of application expressed in accordance with paragraph (e)(5) of this section; and

(D) Changes to site-specific components of the CAFO's nutrient management plan, where such changes are likely to increase the risk of nitrogen and phosphorus transport to waters of the U.S.

(iv) For EPA–issued permits only. Upon incorporation of the revised terms of the nutrient management plan into the permit, 40 CFR 124.19 specifies procedures for appeal of the permit decision. In addition to the procedures specified at 40 CFR 124.19, a person must have submitted comments or participated in the public hearing in order to appeal the permit decision.

Credits

[49 FR 38049, Sept. 26, 1984; 50 FR 4514, Jan. 31, 1985; 55 FR 48073, Nov. 16, 1990; 57 FR 60448, Dec. 18, 1992; 68 FR 7268, Feb. 12, 2003; 71 FR 6984, Feb. 10, 2006; 72 FR 40250, July 24, 2007; 73 FR 70483, Nov. 20, 2008; 80 FR 64098, Oct. 22, 2015]

SOURCE: 45 FR 33418, May 19, 1980, as amended at 48 FR 14153, Apr. 1, 1983, unless otherwise noted.

AUTHORITY: The Clean Water Act, 33 U.S.C. 1251 et seq.

Notes of Decisions (1)

Current through February 9, 2017; 82 FR 9977.

End of Document

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ATTACHMENT
2

Code of Federal Regulations
Title 40. Protection of Environment
Chapter I. Environmental Protection Agency (Refs & Annos)
Subchapter D. Water Programs
Part 122. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System (Refs & Annos)
Subpart C. Permit Conditions

40 C.F.R. § 122.48

§ 122.48 Requirements for recording and reporting of monitoring results (applicable to State programs, see § 123.25).

Effective: December 21, 2015
Currentness

All permits shall specify:

(a) Requirements concerning the proper use, maintenance, and installation, when appropriate, of monitoring equipment or methods (including biological monitoring methods when appropriate);

(b) Required monitoring including type, intervals, and frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring;

(c) Applicable reporting requirements based upon the impact of the regulated activity and as specified in 40 CFR part 3 (Cross–Media Electronic Reporting Regulation), § 122.44, and 40 CFR part 127 (NPDES Electronic Reporting). Reporting shall be no less frequent than specified in § 122.44. EPA will maintain the start dates for the electronic reporting of monitoring results for each state on its Web site.

Credits
[50 FR 6940, Feb. 19, 1985; 58 FR 18016, April 7, 1993; 80 FR 64098, Oct. 22, 2015]

SOURCE: 45 FR 33418, May 19, 1980, as amended at 48 FR 14153, Apr. 1, 1983, unless otherwise noted.

AUTHORITY: The Clean Water Act, 33 U.S.C. 1251 et seq.

Notes of Decisions (15)

Current through February 9, 2017; 82 FR 9977.

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ATTACHMENT
3

RULES and REGULATIONS

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Parts 122, 123, and 124

[FRL-3834-7]

RIN 2040-AA79

National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges

Friday, November 16, 1990

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Today's final rule begins to implement section 402(p) of the Clean Water Act (CWA) (added by section 405 of the Water Quality Act of 1987 (WQA)), which requires the Environmental Protection Agency (EPA) to establish regulations setting forth National Pollutant Discharge Elimination System (NPDES) permit application requirements for: storm water discharges associated with industrial activity; discharges from a municipal separate storm sewer system serving a population of 250,000 or more; and discharges from municipal separate storm sewer systems serving a population of 100,000 or more, but less than 250,000.

Today's rule also clarifies the requirements of section 401 of the WQA, which amended CWA section 402(1)(2) to provide that NPDES permits shall not be required for discharges of storm water runoff from mining operations or oil and gas exploration, production, processing, or treatment operations or transmission facilities, composed entirely of flows which are from conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with, or do not come into contact with, any overburden, raw material, intermediate product, finished product, byproduct, or waste product located on the site of such operations. This rule sets forth NPDES permit application requirements addressing storm water discharges associated with industrial activity and storm water discharges from large and medium municipal separate storm sewer systems.

DATES: This final rule becomes effective December 17, 1990. In accordance with 40 CFR 23.2, this rule shall be considered final for purposes of judicial review on November 30, 1990, at 1 p.m. eastern daylight time. The public record is located at EPA Headquarters, EPA Public Information Reference Unit, room 2402, 401 M Street SW., Washington DC 20460. A reasonable fee may be charged for copying.

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FOR FURTHER INFORMATION CONTACT: For further information on the rule contact: Thomas J. Seaton, Kevin Weiss, or Michael Mitchell Office of Water Enforcement and Permits (EN-336), United States Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202) 475-9518.

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SUPPLEMENTARY INFORMATION:

I. Background and Water Quality Concerns

The 1972 amendments to the Federal Water Pollution Control Act (referred to as the Clean Water Act or CWA), prohibit the discharge of any pollutant to navigable waters from a point source unless the discharge is authorized by an NPDES permit. Efforts to improve water quality under the NPDES program traditionally and primarily focused on reducing pollutants in discharges of industrial process wastewater and municipal sewage. This program emphasis developed for a number of reasons. At the onset of the program in 1972, many sources of industrial process wastewater and municipal sewage were not adequately controlled and represented pressing environmental problems. In addition, sewage outfalls and industrial process discharges were easily identified as responsible for poor, often drastically degraded, water quality conditions. However, as pollution control measures were initially ***47991** developed for these discharges, it became evident that more diffuse sources (occurring over a wide area) of water pollution, such as agricultural and urban runoff were also major causes of water quality problems. Some diffuse sources of water pollution, such as agricultural storm water discharges and irrigation return flows, are statutorily exempted from the NPDES program.

Since enactment of the 1972 amendments to the CWA, considering the rise of economic activity and population, significant progress in controlling water pollution has been made, particularly with regard to industrial process wastewater and municipal sewage. Expenditures by EPA, the States, and local governments to construct and upgrade sewage treatment facilities have substantially increased the population served by higher levels of treatment. Backlogs of expired permits for industrial process wastewater discharges have been reduced. Continued improvements are expected for these discharges as the NPDES program continues to place increasing emphasis on water quality-based pollution controls, especially for toxic pollutants.

Although assessments of water quality are difficult to perform and verify, several national assessments of water quality are available. For the purpose of these assessments, urban runoff was considered to be a diffuse source or nonpoint source pollution. From a legal standpoint, however, most urban runoff is discharged through conveyances such as separate storm sewers or other conveyances which are point sources under the CWA. These discharges are subject to the NPDES program. The "National Water Quality Inventory, 1988 Report to Congress" provides a general assessment of water quality based on biennial reports submitted by the States under section 305(b) of the CWA. In preparing the section 305(b) Reports, the States were

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asked to indicate the fraction of the States' waters that were assessed, as well as the fraction of the States' waters that were fully supporting, partly supporting, or not supporting designated uses. The Report indicates that of the rivers, lakes, and estuaries that were assessed by States (approximately one-fifth of stream miles, one-third of lake acres and one-half of estuarine waters), roughly 70% to 75% are supporting the uses for which they are designated. For waters with use impairments, States were asked to determine impacts due to diffuse sources (agricultural and urban runoff and other sources), municipal sewage, industrial process wastewaters, combined sewer overflows, and natural and other sources, then combine impacts to arrive at estimates of the relative percentage of State waters affected by each source. In this manner, the relative importance of the various sources of pollution that are causing use impairments was assessed and weighted national averages were calculated. Based on 37 States that provided information on sources of pollution, industrial process wastewaters were cited as the cause of nonsupport for 7.5% of rivers and streams, 10% of lakes, and 6% of estuaries. Municipal sewage was the cause of nonsupport for 13% of rivers and streams, 5% lakes, 48% estuaries, 41% of the Great Lake shoreline, and 11% of coastal waters. The Assessment concluded that pollution from diffuse sources, such as runoff from agricultural, urban areas, construction sites, land disposal and resource extraction, is cited by the States as the leading cause of water quality impairment. These sources appear to be increasingly important contributors of use impairment as discharges of industrial process wastewaters and municipal sewage plants come under increased control and as intensified data collection efforts provide additional information. Some examples of diffuse sources cited as causing use impairment are: for rivers and streams, 9% from separate storm sewers, 6% from construction and 13% from resource extraction; for lakes, 28% from separate storm sewers and 26% from land disposal; for the Great Lakes shoreline, 10% from separate storm sewers, 34% from resource extraction, and 82% from land disposal; for estuaries, 28% from separate storm sewers and 27% from land disposal; and for coastal areas, 20% from separate storm sewers and 29% from land disposal.

The States conducted a more comprehensive study of diffuse pollution sources under the sponsorship of the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and EPA. The study resulted in the report "America's Clean Water--The States' Nonpoint Source Assessment, 1985" which indicated that 38 States reported urban runoff as a major cause of beneficial use impairment. In addition, 21 States reported construction site runoff as a major cause of use impairment.

To provide a better understanding of the nature of urban runoff from commercial and residential areas, from 1978 through 1983, EPA provided funding and guidance to the Nationwide Urban Runoff Program (NURP). The NURP included 28 projects across the Nation, conducted separately at the local level but centrally reviewed, coordinated, and guided.

One focus of the NURP was to characterize the water quality of discharges from separate storm sewers which drain residential, commercial, and light industrial (industrial parks) sites. The majority of samples collected in the study were analyzed for eight conventional pollutants and three metals. Data collected under the NURP indicated that on an annual loading basis, suspended solids in discharges from separate storm sewers draining runoff from residential, commercial and light industrial areas are around an order of magnitude greater than solids in discharges

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from municipal secondary sewage treatment plants. In addition, the study indicated that annual loadings of chemical oxygen demand (COD) are comparable in magnitude to effluent from secondary sewage treatment plants. When analyzing annual loadings associated with urban runoff, it is important to recognize that discharges of urban runoff are highly intermittent, and that the short-term loadings associated with individual events will be high and may have shockloading effects on receiving water, such as low dissolved oxygen levels. NURP data also showed that fecal coliform counts in urban runoff are typically in the tens to hundreds of thousands per 100 ml of runoff during warm weather conditions, although the study suggested that fecal coliform may not be the most appropriate indicator organism for identifying potential health risks in storm water runoff. Although NURP did not evaluate oil and grease, other studies have demonstrated that urban runoff is an extremely important source of oil pollution to receiving waters, with hydrocarbon levels in urban runoff typically being reported at a range of 2 to 15 mg/l. These hydrocarbons tend to accumulate in bottom sediments where they may persist for long periods of time and exert adverse impacts on benthic organisms.

A portion of the NURP study involved monitoring 120 priority pollutants in storm water discharges from lands used for residential, commercial and light industrial activities. Seventy-seven priority pollutants were detected in samples of storm water discharges from residential, commercial and light industrial lands taken during the NURP study, including 14 inorganic and 63 organic pollutants. Table A-1 shows the priority pollutants which were detected in at least ten percent of the discharge samples which were sampled for priority pollutants.

Table A-1.-- Priority Pollutants Detected in at Least 10% of NURP Samples
[In percent]

	Frequency of detection
Metals and inorganics:	
Antimony	13
Arsenic	52
Beryllium	12
Cadmium	48
Chromium	58
Copper	91
Cyanides	23
Lead	94
Nickel	43
Selenium	11
Zinc	94
Pesticides:	
Alpha-hexachlorocyclohexane	20
Alpha-endosulfan	19
Chlordane	17
Lindane	15
Halogenated aliphatics:	
Methane, dichloro-	11
Phenols and cresols:	
Phenol	14

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Phenol, pentachloro-	19
Phenol, 4-nitro	10
Phthalate esters:	
Phthalate, bis(2-ethylhexyl)	22
Polycyclic aromatic hydrocarbons:	
Chrysene	10
Fluoranthene	16
Phenanthrene	12
Pyrene	15

*47992 The NURP data also showed a significant number of these samples exceeded various EPA freshwater water quality criteria.

The NURP study provides insight on what can be considered background levels of pollutants for urban runoff, as the study focused primarily on monitoring runoff from residential, commercial and light industrial areas. However, NURP concluded that the quality of urban runoff can be adversely impacted by several sources of pollutants that were not directly evaluated in the study and are generally not reflected in the NURP data, including illicit connections, construction site runoff, industrial site runoff and illegal dumping.

Other studies have shown that many storm sewers contain illicit discharges of non-storm water and that large amounts of wastes, particularly used oils, are improperly disposed in storm sewers. Removal of these discharges present opportunities for dramatic improvements in the quality of storm water discharges. Storm water discharges from industrial facilities may contain toxics and conventional pollutants when material management practices allow exposure to storm water, in addition to wastes from illicit connections and improperly disposed wastes.

In some municipalities, illicit connections of sanitary, commercial and industrial discharges to storm sewer systems have had a significant impact on the water quality of receiving waters. Although the NURP study did not emphasize the identification of illicit connections to storm sewers (other than to assure that monitoring sites used in the study were free from sanitary sewage contamination), the study concluded that illicit connections can result in high bacterial counts and dangers to public health. The study also noted that removing such discharges presented opportunities for dramatic improvements in the quality of urban storm water discharges.

Studies have shown that illicit connections to storm sewers can create severe, wide-spread contamination problems. For example, the Huron River Pollution Abatement Program inspected 660 businesses, homes and other buildings located in Washtenaw County, Michigan and identified 14% of the buildings as having improper storm drain connections. Illicit discharges were detected at a higher rate of 60% for automobile related businesses, including service stations, automobile dealerships, car washes, body shops and light industrial facilities. While some of the problems discovered in this study were the result of improper plumbing or illegal connections, a majority were approved connections at the time they were

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built.

Intensive construction activities may result in severe localized impacts on water quality because of high unit loads of pollutants, primarily sediments. Construction sites can also generate other pollutants such as phosphorus and nitrogen from fertilizer, pesticides, petroleum products, construction chemicals and solid wastes. These materials can be toxic to aquatic organisms and degrade water for drinking and water-contact recreation. Sediment loadings rates from construction sites are typically 10 to 20 times that of agricultural lands, with runoff rates as high as 100 times that of agricultural lands, and typically 1,000 to 2,000 times that of forest lands. Even a small amount of construction may have a significant negative impact on water quality in localized areas. Over a short period of time, construction sites can contribute more sediment to streams than was previously deposited over several decades.

II. Water Quality Act of 1987

The WQA contains three provisions which specifically address storm water discharges. The central WQA provision governing storm water discharges is section 405, which adds section 402(p) to the CWA. Section 402(p)(1) provides that EPA or NPDES States cannot require a permit for certain storm water discharges until October 1, 1992, except: for storm water discharges listed under section 402(p)(2). Section 402(p)(2) lists five types of storm water discharges which are required to obtain a permit prior to October 1, 1992:

(A) A discharge with respect to which a permit has been issued prior to February 4, 1987;

(B) A discharge associated with industrial activity;

(C) A discharge from a municipal separate storm sewer system serving a population of 250,000 or more;

(D) A discharge from a municipal separate storm sewer system serving a population of 100,000 or more, but less than 250,000; or

(E) A discharge for which the Administrator or the State, as the case may be, determines that the storm water discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States.

Section 402(p)(4)(A) requires EPA to promulgate final regulations governing storm water permit application requirements for storm water discharges associated with industrial activity and discharges from large municipal separate storm sewer systems (systems serving a population of 250,000 or more), "no later than two years" after the date of enactment (i.e., no later than February 4, 1989). Section 402(p)(4)(B) also requires EPA to promulgate final regulations governing storm water permit application requirements for discharges from medium municipal separate storm sewer systems (systems serving a population of 100,000 or more but less than 250,000) "no later than four years" after enactment (i.e., no later than February 4, 1991).

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In addition, section 402(p)(4) provides that permit applications for storm water discharges associated with industrial activity and discharges from large municipal separate storm sewer systems "shall be filed no later than three years" after the date of enactment of the WQA (i.e., no later than February 4, 1990). Permit applications for discharges from medium municipal systems must be filed "no later than five years" after enactment (i.e., no later than February 4, 1992).

The WQA clarified and amended the requirements for permits for storm water discharges in the new CWA section 402(p)(3). The Act clarified that permits for discharges associated with industrial activity must meet all of the applicable provisions of section 402 and section 301 *47993 including technology and water quality based standards. However, the new Act makes significant changes to the permit standards for discharges from municipal storm sewers. Section 402(p)(3)(B) provides that permits for such discharges:

(i) May be issued on a system- or jurisdiction-wide basis;

(ii) Shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers; and

(iii) Shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants.

These changes are discussed in more detail later in today's rule.

The EPA, in consultation with the States, is required to conduct two studies on storm water discharges that are in the class of discharges for which EPA and NPDES States cannot require permits prior to October 1, 1992. The first study will identify those storm water discharges or classes of storm water discharges for which permits are not required prior to October 1, 1992, and determine, to the maximum extent practicable, the nature and extent of pollutants in such discharges. The second study is for the purpose of establishing procedures and methods to control storm water discharges to the extent necessary to mitigate impacts on water quality. Based on the two studies the EPA, in consultation with State and local officials, is required to issue regulations no later than October 1, 1992, which designate additional storm water discharges to be regulated to protect water quality and establish a comprehensive program to regulate such designated sources. This program must, at a minimum, (A) Establish priorities, (B) establish requirements for State storm water management programs, and (C) establish expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate.

Section 401 of the WQA amends section 402(l)(2) of the CWA to provide that the EPA shall not require a permit for discharges of storm water runoff from mining operations or oil and gas exploration, production, processing, or treatment operations or transmission facilities if the storm water discharge is not contaminated by contact with, or does not come into contact with, any overburden,

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For construction facilities that are not included in the definition of storm water discharge associated with industrial activity, EPA will consider the appropriate procedures and methods to reduce pollutants in construction site runoff under the studies authorized by section 402(p)(5) of the CWA. EPA will also consider under section 402(p)(5) appropriate procedures and methods during post-construction for maintaining structural controls developed pursuant to NPDES permits issued for storm water discharges associated with industrial activity from construction sites.

Numerous commenters requested clarification as to whether permits for storm water discharges from construction activities at an industrial facility are required. EPA is requiring permits for all storm water discharges from construction activities where the land disturbed meets the requirements established in § 122.26(b)(14)(x) and which discharge into waters of the United States. The location of the construction activity or the ultimate land use at the site does not factor into the analysis.

G. Municipal Separate Storm Sewer Systems

1. Municipal Separate Storm Sewers

Today's rule defines "municipal separate storm sewer" at § 122.26(b)(8) to include any conveyance or system of conveyances that is owned or operated by a State or local government entity and is designed for collecting and conveying storm water which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2. It is important to note that today's permit application requirements for discharges from municipal separate storm sewer systems serving a population of 100,000 or more do not apply to discharges from combined sewers (systems designed as both a sanitary sewer and a storm sewer). For purposes of calculating whether a municipal separate storm sewer system meets the large or medium population criteria, a municipality may petition to have the population served by a combined sewer deducted from the total population. Section 122.26(f) of today's rule describes this procedure.

EPA requested comments on whether different language for the definition of municipal separate storm sewer would clarify responsibility under the NPDES permit system. Comments were also requested on whether the definition needed to be clarified by explicitly stating that municipal streets and roads with drainage systems (curb and gutter, ditches, etc.) are part of the municipal storm sewer system, and that the owners or operators of such roads are responsible for such discharges. Numerous comments were received by EPA on this issue. Some commenters questioned whether road culverts and road ditches were municipal separate storm sewers, while others specifically recommended that further clarifying language should be added so that owners and operators of roads and streets understand that they are covered by this regulation. In light of these comments, EPA has clarified that municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains that discharge into the waters of the United States are municipal separate storm sewers. One commenter asked if "other wastes" in the proposed definition of municipal separate storm sewer (40 CFR 122.26(b)(8)(i)) included storm water. In response, EPA has added "storm water" to this definition in order to clarify that the rule addresses such systems.

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EPA requested comments on whether legal classifications such as "storm sewers that are not private (e.g. public, district or joint district sewers)" would provide a clearer definition of municipal separate storm sewer than an owner or operator criterion, especially for the purpose of determining responsibility under the NPDES program. Most commenters agreed that the owner/operator concept, and the additional language noted above, is sufficient for this purpose. EPA also requested comments on to what extent the owner/operator concept should apply to municipal governments with land-use authority over lands which contribute storm water runoff to the municipal storm sewer system, and how the responsibility should be clarified. In response to comments on this point, EPA has addressed these concerns in the context of clarifying what municipal entities are responsible for applying for a permit covering storm water discharges from municipal systems in section VI.H. below.

One commenter expressed a desire for clarification as to whether conveyances that were once used for the conveyance of storm water, but are no longer used in that manner, are covered by the definition. EPA emphasizes that this rulemaking only addresses conveyances that are part of a separate storm sewer system that discharges storm water into waters of the United States.

One commenter stated that if EPA intends to regulate roadside collection systems then EPA must repropose since these were not considered by the public. EPA disagrees with this comment since one of the options specifically addressed the inclusion of roadside drainage systems and roads in the definition of municipal separate storm sewer system. In addition, the public recognized the issue in comments on the proposal. EPA would note that several commenters specifically endorsed EPA's inclusion of these conveyances.

2. Effective Prohibition on Non-Storm Water Discharges

Section 402(p)(3)(B)(ii) of the amended CWA requires that permits for discharges from municipal storm sewers shall include a requirement to effectively prohibit non-storm water discharges into the storm sewers. Based on the legislative history of section 405 of the WQA, EPA does not interpret the effective prohibition on non-storm water discharges to municipal separate storm sewers to apply to discharges that are not composed entirely of storm water, as long as such discharge has been issued a separate NPDES permit. Rather, *48037 an "effective prohibition" would require separate NPDES permits for non-storm water discharges to municipal storm sewers. In many cases in the past, applicants for NPDES permits for process wastewaters and other non-storm water discharges have been granted approval to discharge into municipal separate storm sewers, provided that the permit conditions for the discharge are met at the point where the discharge enters into the separate storm sewer. Permits for such discharges must meet applicable technology-based and water-quality based requirements of Sections 402 and 301 of the CWA. If the permit for a non-storm water discharge to a municipal separate storm sewer contains water-quality based limitations, then such limitations should generally be based on meeting applicable water quality standards at the boundary of a State established mixing zone (for States with mixing zones) located in the receiving waters of the United States.

All options will be considered when an applicant applies for a NPDES permit for a

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non-storm water discharge to a municipal separate storm sewer. In some cases, permits will be denied for discharges to storm sewers that are causing water quality problems in receiving waters. However, not all discharges present such problems; and in these cases EPA or State permit writers may allow such discharges to municipal separate storm sewers within appropriate permit limits.

Today's rule has two permit application requirements that are designed to begin implementation of the effective prohibition. The first requirement discussed in VI.H.6.a., below, addresses a screening analysis which is intended to provide sufficient information to develop priorities for a program to detect and remove illicit discharges. The second provision, discussed in VI.H.7.b., requires municipal applicants to develop a recommended site-specific management plan to detect and remove illicit discharges (or ensure they are covered by an NPDES permit) and to control improper disposal to municipal separate storm sewer systems.

Several commenters suggested that either the definition of "storm water" should include some additional classes of nonprecipitation sources, or that municipalities should not be held responsible for "effectively prohibiting" some classes of nonstorm water discharges into their municipal storm sewers. The various types of discharges addressed by these comments include detention and retention reservoir releases, water line flushing, fire hydrant flushing, runoff from fire fighting, swimming pool drainage and discharge, landscape irrigation, diverted stream flows, uncontaminated pumped ground water, rising ground water, discharges from potable water sources, uncontaminated waters from cooling towers, foundation drains, non-contact cooling water (such as heating, ventilation, air conditioning (HVAC) water that POTWs require to be discharged to separate storm sewers rather than sanitary sewers), irrigation water, springs, roofdrains, water from crawl space pumps, footing drains, lawn watering, individual car washing, flows from riparian habitats and wetlands. Most of these comments were made with regard to the concern that these were commonly occurring discharges which did not pose significant environmental problems.

EPA disagrees that the above described flows will not pose, in every case, significant environmental problems. At the same time, it is unlikely Congress intended to require municipalities to effectively prohibit individual car washing or discharges resulting from efforts to extinguish a building fire and other seemingly innocent flows that are characteristic of human existence in urban environments and which discharge to municipal separate storm sewers. It should be noted that the legislative history is essentially silent on this point. Accordingly, EPA is clarifying that section 402(p)(3)(B) of the CWA (which requires permits for municipal separate storm sewers to 'effectively' prohibit non-storm water discharges) does not require permits for municipalities to prohibit certain discharges or flows of nonstorm water to waters of the United States through municipal separate storm sewers in all cases. Accordingly, § 122.26(d)(2)(iv)(B)(1) states that the proposed management program shall include: "A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; the program description shall address the following categories of non-storm water discharges or flows only where such discharges are identified by the municipality as sources of pollutants to waters of the United States: Water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR

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35.2005(20)) to separate storm sewers, uncontaminated pumped ground water discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash waters. Program descriptions shall address discharges from fire fighting only where such discharges or flows are identified as significant sources of pollutants to waters of the United States."

However, the Director may include permit conditions that either require municipalities to prohibit or otherwise control any of these types of discharges where appropriate. In the case of fire fighting it is not the intention of these rules to prohibit in any circumstances the protection of life and public or private property through the use of water or other fire retardants that flow into separate storm sewers. However, there may be instances where specified management practices are appropriate where these flows do occur (controlled blazes are one example).

Conveyances which continue to accept other "non-storm water" discharges (e.g. discharges without an NPDES permit) with the exceptions noted above do not meet the definition of municipal separate storm sewer and are not subject to section 402(p)(3)(B) of the CWA unless the non-storm water discharges are issued separate NPDES permits. Instead, conveyances which continue to accept non-storm water discharges which have not been issued separate NPDES permits are subject to sections 301 and 402 of the CWA. For example, combined sewers which convey storm water and sanitary sewage are not separate storm sewers and must comply with permit application requirements at 40 CFR 122.21 as well as other regulatory criteria for combined sewers.

3. Site-Specific Storm Water Quality Management Programs for Municipal Systems

Section 402(p)(3)(iii) of the CWA mandates that permits for discharges from municipal separate storm sewers shall require controls to reduce the discharge of pollutants to the maximum extent practicable (MEP), including management practices, control techniques and systems, design and engineering methods, and such other provisions as the Director determines appropriate for the control of such pollutants.

When enacting this provision, Congress was aware of the difficulties in regulating discharges from municipal *48038 separate storm sewers solely through traditional end-of-pipe treatment and intended for EPA and NPDES States to develop permit requirements that were much broader in nature than requirements which are traditionally found in NPDES permits for industrial process discharges or POTWs. The legislative history indicates, municipal storm sewer system "permits will not necessarily be like industrial discharge permits. Often, an end-of-the-pipe treatment technology is not appropriate for this type of discharge." [Vol. 132 Cong. Rec. S16425 (daily ed. Oct. 16, 1986)].

A shift towards comprehensive storm water quality management programs to reduce the discharge of pollutants from municipal separate storm sewer systems is appropriate for a number of reasons. First, discharges from municipal storm

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sewers are highly intermittent, and are usually characterized by very high flows occurring over relatively short time intervals. For this reason, municipal storm sewer systems are usually designed with an extremely high number of outfalls within a given municipality to reduce potential flooding. Traditional end-of-pipe controls are limited by the materials management problems that arise with high volume, intermittent flows occurring at a large number of outfalls. Second, the nature and extent of pollutants in discharges from municipal systems will depend on the activities occurring on the lands which contribute runoff to the system. Municipal separate storm sewers tend to discharge runoff drained from lands used for a wide variety of activities. Given the material management problems associated with end-of-pipe controls, management programs that are directed at pollutant sources are often more practical than relying solely on end-of-pipe controls.

In past rulemakings, much of the criticism of the concept of subjecting discharges from municipal separate storm sewers to the NPDES permit program focused on the perception that the rigid regulatory program applied to industrial process waters and effluents from publicly owned treatment works was not appropriate for the site-specific nature of the sources which are responsible for the discharge of pollutants from municipal storm sewers.

The water quality impacts of discharges from municipal separate storm sewer systems depend on a wide range of factors including: The magnitude and duration of rainfall events, the time period between events, soil conditions, the fraction of land that is impervious to rainfall, land use activities, the presence of illicit connections, and the ratio of the storm water discharge to receiving water flow. In enacting section 405 of the WQA, Congress recognized that permit requirements for municipal separate storm sewer systems should be developed in a flexible manner to allow site-specific permit conditions to reflect the wide range of impacts that can be associated with these discharges. The legislative history accompanying the provision explained that "[p]ermits for discharges from municipal separate stormwater systems * * * must include a requirement to effectively prohibit non-stormwater discharges into storm sewers and controls to reduce the discharge of pollutants to the maximum extent practicable, * * * These controls may be different in different permits. All types of controls listed in subsection [(p)(3)(C)] are not required to be incorporated into each permit" [Vol. 132 Cong. Rec. HI0576 (daily ed. October 15, 1986) Conference Report]. Consistent with the intent of Congress, this rule sets out permit application requirements that are sufficiently flexible to allow the development of site-specific permit conditions.

Several commenters agreed with this approach. One municipality recommended that there be as much flexibility as possible so that the permitting authority can work with each municipality in developing meaningful long-term goals with plans for improving storm water quality. This commenter noted that too many specific regulations that apply nationwide do not take into consideration the climatic and governmental differences within the States. EPA agrees that as much flexibility as possible should be incorporated into the program. However, flexibility should not be built into the program to such an extent that all municipalities do not face essentially the same responsibilities and commitment for achieving the goals of the CWA. EPA believes that these final regulations build in substantial flexibility in designing programs that meet particular needs, without abandoning a nationally consistent structure designed to create storm water control programs.

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4. Large and Medium Municipal Storm Sewer Systems

During the 1987 reauthorization of the CWA, Congress established a framework for EPA to implement a permit program for municipal separate storm sewers and establishing phased deadlines for its implementation. The amended CWA establishes priorities for EPA to develop permit application requirements and issue permits for discharges from three classes of municipal separate storm sewer systems. The CWA requires that NPDES permits be issued for discharges from large municipal separate storm sewer systems (systems serving a population of more than 250,000) by no later than February 4, 1991. Permits for discharges from medium municipal separate storm sewer systems (systems serving a population of more than 100,000, but less than 250,000) must be issued by February 4, 1992. After October 1, 1992, the requirements of sections 301 and 402 of the CWA are restored for all other discharges from municipal separate storm sewers.

The priorities established in the Act are based on the size of the population served by the system. Municipal operators of these systems are generally thought to be more capable of initiating storm water programs and discharges from municipal separate storm sewers serving larger populations are thought to present a higher potential for contributing to adverse water quality impacts. NURP and other studies have verified that the event mean concentration of pollutants in urban runoff from residential and commercial areas remains relatively constant from one area to another, indicating that pollutant loads from urban runoff strongly depend on the total area and imperviousness of developed land, which in turn is related to population.

The term "municipal separate storm sewer system" is not defined by the Act. By not defining the term, Congress intended to provide EPA discretion to define the scope of municipal systems consistent with the objectives of developing site-specific management programs in NPDES permits. EPA considered two key issues in defining the scope of municipal separate storm sewer system: (1) What is a reasonable definition of the term "system," and (2) how to determine the number of people "served" by a storm sewer system. EPA found these two issues to be intertwined. Different approaches to defining the scope of a system allowed for greater or lesser certainty in deterining the population served by the system.

In the December 7, 1988, proposal, EPA described seven options for defining "municipal separate storm sewer system." In developing these options the EPA considered:

- The inter-jurisdiction complexities associated with municipal governments;

- The fact that many municipal storm water management programs have traditionally focused on water quantity *48039 concerns, and have not evaluated water quality impacts of system discharges or developed measures to reduce pollutants in such discharges;

- The advantages of developing system-wide storm water management programs for municipal systems;

- The geographic basis necessary for planning of comprehensive management programs

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to reduce pollutants in discharges from municipal separate storm sewers to the maximum extent practicable;

- The geographic basis necessary to provide flexibility to target controls on areas where water quality impacts associated with discharges from municipal systems are the greatest and to provide an opportunity to develop cost effective controls;

- The need to establish a reasonable number of permits for municipal systems during the initial phases of program development that will provide an adequate basis for a storm water quality management program for over 13,000 municipalities after the October 1, 1992 general prohibition on storm water permits expires; and

- Congressional intent to allow the development of jurisdiction-wide, comprehensive storm water management programs with priorities given to the most heavily populated areas of the country.

a. Overview of Proposed Options and Comments. The December 7, 1988, proposal requested comment on seven options for defining large and medium municipal separate storm sewer system. With the addition of a watershed-based approach suggested by certain commenters, eight options or approaches were addressed by the over 200 commenters on this issue: Option 1--systems owned or operated by incorporated places augmented by integrated discharges; Option 2-- systems owned or operated by incorporated places augmented with significant other municipal discharges; Option 3--systems owned or operated by counties; Option 4--systems owned and operated by States or State departments of transportation; Option 5--systems within the boundaries of an incorporated place; Option 6--systems within the boundaries of counties; Option 7--systems in census designated urbanized areas; and Option 8--systems defined by watershed boundaries.

Generally, these options can be classified into two categories. The first category of options, Options 1, 2 and 3, define municipal systems in terms of the municipal entity which owns or operates storm sewers within municipal boundaries of the requisite population. The second category of options would define municipal systems on a geographic basis. Under Options 4, 5, 6, 7 and 8 all municipal separate storm sewers within the specified geographic area would be part of the municipal system, regardless of which municipal entity owns or operates the storm sewer. EPA did not propose to define the scope of a municipal separate storm sewer system in engineering terms because of practical problems determining the boundaries of and the populations served by "systems" defined in such a manner. In addition an engineering approach based on physical interconnections of storm sewer pipes by itself does not provide a rational basis for developing a storm water program to improve water quality where a large number of individual storm water catchments are found within a municipality.

In the December 7, 1988, proposal, EPA favored those options that relied primarily on the municipal entity which owns or operates or otherwise has jurisdiction over storm sewers. These options were preferred because it was anticipated that the administrative complexities of developing the permit programs would be reduced by decreasing the number of affected municipal entities. However, most commenters were not satisfied that such an approach would reduce administrative burdens or complexities.

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The diversity of arguments and rationales offered in comments justifying the selection of particular option, or combinations thereof, were generally a function of geographic, climatic, and institutional differences around the country. As such, there was little substantive agreement with how this program should be implemented as far as defining large and medium municipal separate storm sewer systems. Of all the options, Option 1 generally received the most favorable comment. However, the overwhelming majority of comments suggested different options or other alternatives. Having reviewed the comments at length, EPA is convinced that the definition of municipal separate storm sewers should possess elements of several of the options enumerated above and a mechanism that enables States or EPA Regions to define a system that best suits their various political and geographical conditions.

The following comments were the most pervasive, and represent those issues and concerns of greatest importance to the public: (1) The approach chosen initially must be realistic and achievable administratively; (2) the definition must be flexible enough to accommodate development of the program on a watershed basis, and incorporate elements of existing programs and frameworks and regional differences in climate, geography, and political institutions; (3) permittees must have legal authority and control over land use; (4) discharges from State highways, identified as a significant source of runoff and pollutants, should be included in the program and combined in some manner with one or more of the other options; (5) the definition should address how the inclusion of interrelated discharges into the municipal separate storm sewer system are timed, decided upon, dealt with, etc.; (6) any approach must address the major sources of pollutants; (7) development of co-permittee management plans must be coordinated or developed on a regional basis and in the same time frame--fragmented or balkanized programs must be avoided; (8) municipalities should be regulated as equitably as possible; (9) flood control districts should be addressed as a system or part of a system; (10) the definition must conform to the legal requirements of the Clean Water Act; and (11) the definition should limit the number of co-permittees as much as possible.

b. Definition of large and medium municipal separate storm sewer system. A combination of the options outlined in the 1988 proposal would address most of these concerns, while achieving a realistic and environmentally beneficial storm water program. Accordingly, EPA has adopted the following definition of large and medium municipal separate storm sewer systems. Large and medium separate storm sewer systems are municipal separate storm sewers that:

(i) Are located in an incorporated place with a population of 100,000 or more or 250,000 or more as determined by the latest Decennial Census by the Bureau of Census (see appendices F and G of part 122 for a list of these places based on the 1980 Census);

(ii) Are located within counties having areas that are designated as urbanized areas by latest decennial Bureau of Census estimates and where the population of such areas exceeds 100,000, after the population in the incorporated places, townships or towns within such counties is excluded (see appendices H and I for a listing of these counties based on the 1980 census) (incorporated places, towns, and townships within these counties are excluded from permit application

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requirements unless they fall under paragraph (i) or are designated under paragraph (iii)); or (iii) are owned or *48040 operated by a municipality other than those described in paragraph (i) or (ii) that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from municipal separate storm sewers described under paragraphs (i) or (ii). In making this determination the Director may consider the following factors:

(A) Physical interconnections between the municipal separate storm sewers;

(B) The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in subparagraph (i);

(C) The quantity and nature of pollutants discharged to waters of the United States;

(D) The nature of the receiving waters; or

(E) Other relevant factors.

(iv) The Director may, upon petition, designate as a system, any municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs (i), (ii), and (iii).

Under today's rule at § 122.26(a)(3)(iii) the regional authority shall be responsible for submitting a permit application under the following guidelines: The regional authority together with co-applicants shall have authority over a storm water management program that is in existence, or shall be in existence at the time part 1 of the application is due; the permit applicant or co-applicants shall establish their ability to make a timely submission of part 1 and part 2 of the municipal application; each of the operators of municipal separate storm systems described in paragraphs 122.26(b)(4) (i), (ii), and (iii) and (7)(i), (ii), and (iii), that are under the purview of the designated regional authority, shall comply with the application requirements of § 122.26(d).

As noted above, the finalized definition of large and medium municipal separate storm sewer system is combination of the approaches as proposed. (In the following discussion "paragraph (i)" refers to §§ 122.26 (b)(4)(i) and (b)(7)(i); "paragraph (ii)" refers to §§ 122.26(b)(4)(ii) and (b)(7)(ii); "paragraph (iii)" refers to §§ 122.26 (b)(4)(iii) and (b)(7)(iii); and "paragraph (iv)" refers to §§ 122.26 (b)(4)(iv) and (b)(7)(iv)). Paragraph (i) originates from proposed Option 5 (boundaries of incorporated places); paragraph (ii) originates from Option 6 (boundaries of counties) and Option 7 (urbanized areas); paragraph (iii) originates from Options 1 and 5; and paragraph (iv) is an outgrowth of comments on all options, especially Option 4 (State owned systems/State highways) and Option 8 (watersheds).

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This definition creates a system by virtue of the fact that storm sewers within defined geographical and political areas, and the owner/operators of separate storm sewers in those areas, are addressed or required to obtain permits. Although within these systems, different segments and discharges of storm water conveyances may be owned or operated by different public entities, EPA is convinced by comments that discharges from such conveyances are interrelated to such an extent that all of these conveyances may be properly considered a "system." These comments are identified and discussed in greater detail below.

c. Response to comments. Many commenters urged that the approach taken must be administratively achievable. Option 5 of the proposal (boundaries of incorporated places), which can be equated to paragraphs (i) and (iii) above, was identified by several commenters as the most workable of all the options. Many commenters stated that Option 1 (systems owned or operated by incorporated places) was inappropriate because of special districts and other owners of systems within the incorporated area; and although EPA proposed a designation provision for interrelated discharges in Option 1, commenters advised that it would be impossible to identify these systems, account for their discharges, and exclude or include them in a timely manner if Option 1 was selected (Option 1 only addresses those systems owned or operated by the incorporated place). The final rule would obviate these concerns, since all the publicly owned sewers within the boundaries of the municipality will be required to be covered by a permit.

Other commenters noted that cities sometimes have storm water conveyances owned or operated by numerous entities. One municipality commented that these problems could be more easily resolved using a unified permit/district wide approach, which the final approach outlined above can accomplish. One county stated that Option 1 of the proposal would result in a permanent balkanization of stormwater programs and that a regional approach focusing on the entire system should be established. Another municipality recommended that all the systems of conveyances within the incorporated city boundaries be issued a permit. In rejecting Option 1 of the proposal, one municipality stated that program inefficiencies would result from implementing a piecemeal program in a contiguous urban environment with different owners and operators. One State conveyed similar concerns. Using a geographical approach, as described in paragraph (i) of the final definition, will best address all of these concerns.

One commenter criticized proposed Option 1 as being contrary to the legal requirements of the WQA, and a further example of EPA's continuing attempt to minimize the scope of a national storm water program. It was noted that the legislative history regarding requirements for large and medium municipal separate storm sewer systems in section 402(p) of the CWA generally does not reference incorporated cities or towns. As a result, the commenter recommended that the term "municipal" in municipal separate storm sewer system refer to separate storm sewers operated by municipal entities meeting the definition of "municipality" in section 502 of the CWA and that the scope of the term "municipal separate storm sewer system" be defined as broadly as possible. This approach would result in defining large and medium municipal separate storm sewer systems to include all municipal separate storm sewers within the 410 counties with a population of 100,000 or more. EPA has adopted the commenter's recommendation to extend the scope of the program to the extent that today's rule covers all municipal separate storm sewers within certain areas rather than only those operated by an

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incorporated place. EPA disagrees however that it must define the term "system" to include sewers within any municipal boundary of sufficient population with reference to section 502(4). By not providing explicit definitions, section 402(p)(3)(B) of the CWA gives EPA discretion to define how municipal separate storm sewer systems are defined. There is no indication in the language of the CWA or the legislative history that Congress intended that the scope of "municipality" and the scope of "municipal separate storm sewer system" to be identical, particularly since the latter term is not defined in the statute. Furthermore, for the reasons discussed elsewhere in this section, EPA believes that today's definition is a reasonable accommodation of the many conflicting concerns surrounding the proper way to delineate the extent of a *48041 municipal separate storm sewer system serving over 100,000 people.

Several commenters concluded that EPA should be flexible enough to allow the permitting authority broad discretion to establish system wide permits, with flood control districts and/or counties acting as co-permittees with the various incorporated cities within the district boundaries. Commenters expressed concern that Option 1 would not allow for such flexibility.

Arguments that were advanced by commenters in support of proposed Option 1 are equally applicable to paragraph (i), above. Like proposed Option 1, the approach outlined above targets major cities. However, it also has the advantage of addressing municipal separate storm sewer systems which may be interrelated to those owned by the city, a benefit recognized by one municipality that endorsed the selection of proposed Option 5. This will also give the permitting authority more discretion to establish co-permittee relationships.

Paragraph (ii) of the final definition also uses a geographical approach to the definition of municipal storm sewer systems to include municipal storm sewers within urbanized counties. Thus, it closely resembles Option 7 of the proposal. The counties identified in paragraph (ii) have, based on the 1980 Census, a population of 100,000 or more in urbanized, [FN5] unincorporated portions of the county. In the unincorporated areas of these counties (or in the 20 States where the Census recognizes minor civil divisions, unincorporated county areas outside of towns or townships), the county is the primary local government entity. In these cases, the county performs many of the same functions as incorporated cities with a population of 100,000, and is generally expected to have the necessary legal and land use authority in these areas to begin to implement storm water management programs. Due to the urbanized nature of their population, discharges from the municipal separate storm sewers in these counties will have many similarities to discharges from municipal systems in incorporated cities with a population of 100,000 or more. Addressing these counties in this fashion will not adversely affect small municipalities (incorporated places, towns and townships) within the county, as municipal separate storm sewers that are located in the small incorporated places, townships or towns within these counties are not automatically included as part of the system.

FN5 The Bureau of Census defines urbanized areas to provide a description of high-density development. Urbanized areas are comprised of a central city (or cities) with a surrounding closely settled area. The population of the entire urbanized area must be greater than 50,000 persons, and the closely settled area outside of the city, the urban fringe, must generally have a population density

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greater than 1,000 persons per square mile (just over 1.5 persons per acre) to be included.

EPA has focused on the unincorporated areas because permit applications cannot be required from systems that serve a population less than 100,000, unless designated. EPA received the comment that if the sewers in incorporated places within such counties were included as part of the system for that county, there would be the potential for systems serving a population less than 100,000 to be improperly subject to permit requirements. EPA agrees with the comment, except that EPA reserves the authority to designate sewers in small incorporated places as part of the system subject to permitting, pursuant to paragraph (iii) of the final definition. Incorporated areas within the identified counties will be required to file permit applications if the population served by the municipal separate storm sewer system is 100,000 or more.

As one commenter noted, the counties addressed by the definition will generally be areas of high growth with a growing tax base that can finance a storm water management program. Numerous counties affected by paragraph (ii) commented on the proposal. Several of these indicated a preference for the county government as the permittee. Others indicated that their county had the ability to perform the functions of the permit applicant and permittee. One county brought to EPA's attention that the county had laid plans for a storm water utility scheduled to be in operation in 1989. Several of the counties supported the use of watersheds, or flexible regional approaches, as the basis for the definition of municipal separate storm sewer systems. The modified definition should satisfy these concerns.

EPA recognizes that some of the counties addressed by today's rule have, in addition to areas with high unincorporated urbanized populations, areas that are essentially rural or uninhabited and may not be the subject of planned development. While permits issued for these municipal systems will cover municipal system discharges in unincorporated portions of the county, it is the intent of EPA that management plans and other components of the programs focus on the urbanized and developing areas of the county. Undeveloped lands of the county are not expected to have many, if any, municipal separate storm sewers.

Paragraphs (i) and (ii) above will help resolve the problems associated with permittees not having adequate land use controls, the legal authority to implement controls, and the ownership of the conveyances. This factor was mentioned by numerous commenters on the proposed options, especially county governments. Under paragraphs (i) and (ii), all publicly owned separate storm sewers within the appropriate municipal boundaries will be defined as part of the municipal system. In many cases, a number of municipal operators of these storm sewers will be responsible for discharges from these systems. Since a number of co-permittees may be addressed in the permits for these discharges, problems associated with the ability to control pollutants that are contributed from interrelated discharges will be minimized. State highways or flood control districts, which may have no land use authority in incorporated cities, will be co-permittees with the city which does possess land use authority. EPA envisions that permit conditions for these systems will be written to establish duties that are commensurate with the legal authorities of a co-permittee. For example, under a permit, a flood control district may be responsible for the maintenance of drainage channels that they have jurisdiction over, while a city is responsible for implementing a sediment and

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erosion ordinance for construction sites which relates to discharges to the drainage channel. Confusion over ownership of conveyances or systems, at least for the purposes of determining whether they require a permit, will be minimized since all conveyances will be covered. Similarly, under paragraph (ii), the affected counties are expected to have the necessary legal and land use authority to implement programs and controls in unincorporated, urbanized areas because the county government is the primary political or governing entity in these geographical areas.

Many commenters from all levels of State and local government expressed concern about controlling pollutants from State highways. Paragraphs (i) and (ii) will result in discharges from separate storm sewers serving State highways and other highways through storm sewers that are located within incorporated places with the appropriate population or highways in unincorporated portions of specified counties being included as part of the large or medium municipal separate storm sewer system, since all municipal separate storm sewers within the boundaries of these political entities are included. Paragraph (iv) can facilitate *48042 the submission of a permit application for storm sewers operated as part of an entire State highway system. Paragraph (iv) would allow an entire system in a geographical region under the purview of a State agency (such as a State Department of Transportation) to be designated, where all the permit application requirements and requirements established under § 122.26(a)(iii)(C) can be met.

Paragraphs (i) and (ii) can effectively deal with many of the major sources of pollutants. One municipality noted that Option 5 (paragraph (i)) would require all systems in the incorporated boundaries to obtain permits and institute control measures, rather than just the few owned or operated by incorporated cities. Another municipality noted that this approach could deal with many of the regional variations in sources of pollution. Many commenters, including environmental groups, believed that proposed Option 3 (systems owned or operated by counties), Option 6 (systems within the boundaries of counties), and Option 7 (system in urbanized areas) were good approaches because more sources of pollution would be addressed. It was also maintained that Options 3, 6 and 7 could incorporate watershed planning which, in the view of some commenters, is the only effective way to address pollutants in storm water.

Commenters noted that addressing counties and urbanized areas would focus attention on developing areas which would otherwise be left out in the initial phases of permitting. One commenter noted that most new development in large urbanized areas occurs outside of core cities (incorporated cities with a population of 100,000 or more). Newly developing areas provide opportunities for installing pollutant controls cost effectively. EPA agrees with these comments and notes that paragraph (ii) addresses a significant number of counties with highly developed or developing areas.

However, EPA is convinced that addressing all counties or urbanized areas in the initial phases of the storm water program is ill-advised. Commenters noted that some counties have inappropriate or nonexistent governmental structures, and that a program that addressed all counties in the country with a population of 100,000 or more would be unmanageable, because too many municipal entities nationwide would be involved in the program initially. Commenters advised that defining municipal storm sewer systems solely in terms of the boundaries of census urbanized areas (Option

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7) would result in systems which did not correspond to jurisdictions that are in a position to implement a storm water programs. Thus, EPA has modified Option 7 and combined it with Option 6 to create paragraph (ii) above.

Paragraph (iii) incorporates a designation authority such that municipalities that own or operate discharges from separate storm sewers systems other than those described in paragraph (i) or (ii) may be designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the other discharges of the designated storm sewer and the discharges from the large or medium municipal separate storm sewers. In making this determination the physical interconnections between the municipal separate storm sewers, the location of discharges from the designated municipal separate storm sewer relative to discharges from large or medium municipal separate storm sewers, the quantity and nature of pollutants discharged to waters of the United States, the nature of the receiving waters, or other relevant factors may be considered.

Comments indicated that the designation authority as proposed and described above should be retained. One State noted that this approach gives the most flexibility in making the case-by-case designations, while also delineating in sufficient detail what criteria are used to make the determination. This commenter was concerned about being able to regulate many of the interrelated discharges from counties surrounding incorporated cities.

Paragraph (iv) of the final definition allows the permitting authority, upon petition, to designate as a medium or large municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs (i), (ii), (iii).

Paragraph (iv) was added to the final definitions to respond to a variety of concerns of commenters. One of the prime concerns of commenters was that the definition of large and medium municipal separate storm sewer systems must be flexible enough to accommodate: Programs on a watershed basis, existing storm water programs and frameworks and regional differences in climate, geography, and political institutions. Some States were particularly expressive regarding this concern. One State maintained that an inflexible program could totally disrupt ongoing State efforts. Other commenters urged that the regulation encourage the establishment of regional storm water authorities or other mechanisms that can deal with storm water quality on a watershed basis. One State proposed defining the municipal separate storm sewer system to include all municipal separate storm sewers within a core incorporated place of 100,000 or more, and all surrounding incorporated places within the State defined watershed. One of the State water districts advised that the regulations should be flexible enough to allow regional water quality boards to apply the regulations geographically. One national association expressed concern that existing institutional arrangements for flood control and drainage would be ignored, while another warned against fostering a proliferation of inconsistent patchwork programs based on arbitrary definitions and jurisdictions which bear no relationship to water quality.

EPA is convinced that the mechanism described in paragraph (iv) provides a means

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whereby the mechanisms and concepts identified above can be utilized or created in appropriate circumstances. In addition, § 122.26(f)(4) provides a means for State or local government agencies to petition the Director for the designation of regional authorities responsible for a portion of the storm water program. For example, some States or counties may currently or in the near future have regional storm water management authorities that have the ability to apply for permits under today's rule and carry out the terms of the permit. Some of these authorities may encompass within their jurisdiction large or medium municipal separate storm sewer systems as defined in today's rule. EPA wishes to encourage such entities to assume the role as permittee under today's rule. That is the purpose of paragraph (iv). Such authorities may petition the Director to assume such a role.

Many commenters expressed the view that municipal management plans must be coordinated or developed among co-permittees on a regional basis and in the same timeframe. Paragraphs (i), (iii) and (iv) would bring in all appropriate municipal entities with jurisdiction over a specified geographical area in the same timeframe. Several commenters, including one State, noted proposed Option 1 would lead to fragmented, ill-coordinated programs. Paragraphs (i), (iii), and (iv) do not suffer this drawback *48043 to the same extent since all the municipal separate storm sewers are addressed within the incorporated place, instead of only those owned or operated by the incorporated place.

Equal treatment of municipalities within a watershed or other specified area was a major subject of comment. Many commenters urged that a degree of fairness could be achieved by requiring permit applications, and the concomitant expenditure of municipal dollars and resources, from all municipalities within an entire urban area that contributes to storm water pollution, rather than from a discrete system within an arbitrary political boundary. Paragraph (i), especially when coupled with paragraphs (ii), (iii), and (iv), can best accomplish a more equitable approach, because all owners and operators of municipal separate storm sewers within a system have responsibilities. In addition, some of the areas outside the incorporated city limits which are engaged in expansive urban or suburban development will be brought into the program. Paragraph (iv) will provide a means for State or regional authorities to use existing or emerging mechanisms to set up storm water management programs, and would require multiple agencies either to become regional co-permittees or to be subject to a regional permit.

Paragraphs (i), (ii), (iii), and (iv) could also require flood control districts to be co-permittees, which was a major concern of counties and numerous cities. One municipality stated that the inclusion of flood control districts would greatly reduce the administrative burden required to prepare a single inter-city discharge agreement and would establish a common legal authority to implement the program. Numerous county agencies believed it imperative that flood control districts be brought into a system-wide permit strategy.

Paragraphs (i) and (iii) may not accommodate the concern of several commenters that the number of co-permittees be kept to a minimum. The fact that all the municipal separate storm sewers within the boundaries of the appropriate incorporated places will be addressed dictates that some permits will have several co-permittees. This is a major concern since it goes directly to achieving an effective initial storm water program. There is concern about being able to bring all the co-permittees together under intra-municipal agreements or contracts within

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regulatory deadlines. This problem would be resolved in the short term by selecting Option 1. However, Option 1 may still require inter-municipal agreements because of the designation authority under § 122.26 (b)(4)(ii) and (b)(7)(ii) of the proposal. In addition, such inter-jurisdictional problems will arise after October 1, 1992 when the moratorium on requiring NPDES permits for discharges from other municipal separate storm sewers ends. Under the permitting goals established by the CWA, multi-jurisdictional storm water programs and agreements cannot be avoided. Despite interest in limiting the number of co-permittees, EPA decided not to adopt Option 1 for the reasons already stated.

Section 402(p)(3)(B)(i) of the amended CWA provides that permits for municipal discharges from municipal storm sewers may be issued on a system-wide or jurisdiction-wide basis. This provision is an important mechanism for developing the comprehensive storm water management programs envisioned by the Act.

Under the permit application requirements of today's rule, if the appropriate co-applicants are identified, one permit application may be submitted for a large or medium municipal separate storm sewer system (see section VI.G.4 above). System-wide permit applications can in turn be used to issue system-wide permits which could cover all discharges in the system.

Where several municipal entities are responsible for obtaining a permit for various discharges within a single system, EPA will encourage system-wide permit applications involving the several municipal entities for a number of reasons. The system-wide approach not only provides an appropriate basis for planning activities and coordinating development, but also provides municipal entities participating in a system-wide application the means to spread the resource burden of monitoring, evaluating water quality impacts, and developing and implementing controls.

The system-wide approach provided in today's rule recognizes differences between individual municipalities with responsibilities for discharges from the municipal system. Today's application rule requires information to be submitted that enables the permit issuing authorities to develop tailored programs for each permittee with responsibility for certain components, segments, or portions of the municipal separate storm sewer system. The permit application requirements allow individual municipal entities, participating in system-wide applications, to submit site specific information regarding storm water quality management programs to reduce pollutants in system discharges as a whole, or from specific points within the system.

In some cases, it may be undesirable for all municipal entities with storm water responsibility within a municipal system to be co-permittees under one system-wide permit. The permit application requirements in today's rule allow individual municipal entities within the system to submit permit applications and obtain a permit for that portion of the storm sewer system for which they are responsible. Thus, several permits may be issued to cover various subdivisions of a single municipal system.

In summary, EPA believes that the definition of municipal storm sewer system adopted in today's rule has several distinct advantages that were identified in

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comments:

- The definition adopts features of several options;

- The definition targets areas that have the necessary police powers and land use authority to implement the program;

- The definition can utilize watersheds or accommodate existing administrative frameworks and storm water programs;

- The definition provides that all systems within a geographical area including highways and flood control districts will be covered, thereby avoiding fragmented and ill-coordinated programs;

- The definition has flexible designation authority; and

- The definition addresses major sources of pollutants without being overly broad.

H. Permit Application Requirements for Large and Medium Municipal Systems

1. Implementing the Permit Program

Given the differing nature of discharges from municipal separate storm sewer systems in different parts of the country and the varying water quality impacts of municipal storm sewer discharges on receiving waters, today's permit application requirements are designed to lead to the development of site-specific storm water management programs. In order to effectively implement this goal, EPA intends to retain the overall structure of the municipal permit application as proposed in the December 7, 1988, proposal.

2. Structure of the Permit Application

EPA proposed a two-part permit application designed to meet the goal of *48044 developing site-specific storm water quality management programs in NPDES permits. In response to a request for comments on this aspect of the proposal, numerous comments were received. After reviewing these comments, EPA has decided to retain the two-part permit application. Many commenters agreed that the approach as proposed is appropriate for phasing in and developing site specific storm water management programs. One large municipality strongly endorsed the two-part application, stating that it would facilitate the identification of water quality problem areas and the development of priorities for control measures, thereby allowing for more cost-effective program development. Two State agencies expressed the same view, and noted that the two-part approach is reasonable and well structured for efficient development of programs. One large municipality noted it would allow the permit authority and the permit applicant the time needed to gain the knowledge and data to develop site-specific permits. A medium municipality expressed similar views.

Numerous commenters submitted endorsements of a proposal offered by one of the national municipal associations. This approach responded to EPA's request for

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on receiving waters requires the analysis of both pollutant loadings and concentrations of pollutants in discharges.

The loading and concentration estimates in today's rule will be used to evaluate two types of water quality impacts: (1) Short-term impacts; and (2) long-term impacts. Specifically, the regulation requires estimates of the annual pollutant load of the cumulative discharges to waters of the United States from municipal outfalls and the event mean concentration of the cumulative discharges to waters of the United States municipal outfalls during a storm event for BOD 5 , COD, TSS, dissolved solids, total nitrogen, total ammonia plus organic nitrogen, total phosphorus, dissolved phosphorus, cadmium, copper, lead, and zinc. Estimates shall be accompanied by a description of the procedures for estimating constituent loads and concentrations, including any modelling, data analysis, and calculation methods. Municipalities have options in the use of methodologies, including those presented in NURP for calculating loads.

Short term impacts from discharges from municipal separate storm sewers involve changes in water quality that occur during and shortly after storm events. Examples of short-term impacts that can lead to impairments include periodic dissolved oxygen depression due to the oxidation of contaminants, high bacteria levels, fish kills, acute effects of toxic pollutants, contact recreation impairments and loss of submerged macrophytes. Characterization of instream pollutant concentrations based on estimated pollutant concentrations in system discharges are important for evaluating these types of impacts.

Long-term water quality impacts from discharges from municipal separate storm sewers may be caused by contaminants associated with suspended solids that settle in receiving water sediments and by nutrients which enter receiving water systems with long *48052 retention times. Pollutant loading data are important for evaluation of impairments such as loss of storage capacity in streams, estuaries, reservoirs, lakes and bays, lake eutrophication caused by high nutrient loadings, and destruction of benthic habitat. Other examples of the long-term water quality impacts include depressed dissolved oxygen caused by the oxidation of organics in bottom sediments and biological accumulation of toxics as a result of uptake by organisms in the food chain. An estimate of annual pollutant loading associated with discharges from municipal storm water sewer systems is necessary to evaluate the magnitude and severity of the environmental impacts of such discharges and to evaluate the effectiveness of controls which are imposed at a later time.

Municipal storm water sewer systems generally handle runoff from large drainage areas and the sources of pollution are usually very diffuse. The concentrations of many pollutants in discharges from these systems are often low relative to many industrial process and POTW discharges. The water quality impacts of low concentration pollution discharges tend to be cumulative and need to be evaluated in terms of aggregate loadings as well as pollutant concentrations. A site-specific loading analysis can be used to evaluate the relative contribution of various pollutant sources.

7. Storm Water Quality Management Plans

Today's rule facilitates the development of site-specific permit conditions by

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requiring large and medium municipal permit applicants to submit, along with other information, a description of existing structural and non-structural prevention and control measures on discharges of pollutants from municipal storm sewers in part I of the permit application. Section 122.26(d)(2)(iv) requires the applicant to identify in part 2 of the application, to the degree necessary to meet the MEP standard, additional prevention or control measures which will be implemented during the life of the permit. Although, in many cases, it will not be possible to identify all prevention and control measures that are appropriate as permit conditions, EPA believes that the process of identifying components of a comprehensive prevention and/or control program should begin early and that applicants should be given the opportunity to identify and propose the components of the program that they believe are appropriate for first preventing or controlling discharges of pollutants.

As noted earlier, EPA recognizes that problems associated with storm water, combined sewer overflows (CSOs) and infiltration and inflow (I&I) are all inter-related even though they are treated somewhat differently under the law. EPA believes that it is important to begin linking these programs and activities and, because of the potential cost to local governments, to investigate the use of innovative, nontraditional approaches to reducing or preventing contamination of storm water. The application process for developing municipal storm water management plans provides an ideal opportunity between steps 1 and 2 for considering the full range of nontraditional, preventive approaches.

The permit application requirements in today's rule require the applicant or co-applicants to develop management programs for four types of pollutant sources which discharge to large and medium municipal storm sewer systems. Discharges from large and medium municipal storm sewer systems are usually expected to be composed primarily of: (1) Runoff from commercial and residential areas; (2) storm water runoff from industrial areas; (3) runoff from construction sites; and (4) non-storm water discharges. Part 2 of the permit application has been designed to allow the applicant the opportunity to propose MEP control measures for each of these components of the discharge. Discharges from some municipal systems may also contain pollutants from other sources, such as runoff from land disposal activities (leaking septic tanks, landfills and land application of sewage sludge). Where other sources, such as land disposal, contribute significant amounts of pollutants to a municipal storm sewer system, appropriate control measures should be included on a site-specific basis. Proposed management programs will then be evaluated in the development of permit conditions.

There is some overlap in the manner in which these pollutant sources are characterized and their sources identified. For instance, improper disposal of oil into storm drains is often associated with do-it-yourself automobile oil changes in residential areas, or improper application or over-use of herbicides and pesticides in residential areas can also occur in industrial areas. Also, some control measures will reduce pollutant loads for multiple components of the municipal storm sewer discharge. These measures should be identified under all appropriate places in the application; as discussed below, however, double counting of pollutant removal must be avoided when the total assessment of control measures is performed.

Although many land use programs have multiple purposes, including the reduction of

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pollutants in discharges from municipal separate storm sewer systems, the proposed management programs in today's rule are intended to address only those controls which can be implemented by the permit applicant or co-applicants. EPA cannot abrogate its responsibilities under the CWA to implement the NPDES permit program by relying on pollution control programs that are outside the NPDES program. For example, municipal permit management programs may not rely exclusively on erosion or sediment control laws for implementing that portion of management programs that address discharges from construction sites, unless such laws implement NPDES permit program requirements entirely and that such implementation is a part of the permit.

EPA anticipates that storm water management programs will evolve and mature over time. The permits for discharges from municipal separate storm sewer systems will be written to reflect changing conditions that result from program development and implementation and corresponding improvements in water quality. The proposed permit applications will require applicants to provide a description of the range of control measures considered for implementation during the term of the permit. Flexibility in developing permit conditions will be encouraged by providing applicants an opportunity to identify in the permit application priority controls appropriate for the initial implementation of management programs. Many commenters endorsed the flexible site-specific storm water program approach as proposed as a method for addressing regional water quality control programs in a cost effective manner. To this extent, EPA agrees with one municipality that management programs should focus on more serious problems and sources of pollutants identified in the municipal system. However, EPA believes that to implement section 402(p)(3), comprehensive storm water management programs which address a number of major sources of pollutants to a system are necessary. Municipal programs should not be focused solely on a single source of pollution, such as illicit connections.

One commenter maintained that management program development *48053 should be flexible enough to allow for consideration of what is attainable based on the area's climate, vegetation, hydrology, and land uses. EPA agrees with this comment. Some strategies for reducing pollutants in the northeast will not be practical in the southwest, such as management programs for deicing activities. The permit application process will determine what strategies are appropriate in different locations.

Several commenters supported addressing storm water pollutant problems through management practices or programs rather than end of pipe controls or treatment. EPA agrees with this comment to the extent that storm water management practices are a general theme of this rulemaking with regard to municipal permits. However, there will be cases where such discharges are best addressed through technology such as retention, detention or infiltration ponds.

One commenter reacted unfavorably to the flexible site-specific management plan approach stating that there is no hard criteria upon which to judge the adequacy of programs. Another commenter felt that there should be a BAT standard for municipal permits. Another commenter stated that the rule should contain specific BMPs that the permittee must comply with. EPA disagrees with these comments. The Clean Water Act requires municipalities to apply for permits that will reduce pollutants in discharges to the maximum extent practicable and sets out the types of controls that are contemplated to deal with storm water discharges from municipalities. The language of CWA section 402(p)(3) contemplates that, because

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of the fundamentally different characteristics of many municipalities, municipalities will have permits tailored to meet particular geographical, hydrological, and climatic conditions. Management practices and programs may be incorporated into the terms of the permit where appropriate. Permit conditions, which require that storm water management programs be developed and implemented or require specific practices, are enforceable in accordance with the terms of the permit. EPA disagrees with the notion that this regulation, which addressed permit application requirements, should create mandatory permit requirements which may have no legitimate application to a particular municipality. The whole point of the permit scheme for these discharges is to avoid inflexibility in the types and levels of control. Further, to the degree that such mandatory requirements may be appropriate, these requirements should be established under the authority of section 402(p)(6) of the CWA and not in this rulemaking, which addresses permit application requirements.

Some commenters suggested that management programs should be developed as part of the permit conditions and not as part of the permit application. EPA agrees that management programs and their ongoing development should be part of the permit term. However, EPA is convinced, and many commenters agree, that the permit application should contain information on what the permittee has done to date and what it proposes and plans to do during the permit term based upon its discharge characterization and source identification data. This is a reasonable and logical approach and one that meets the intent and letter of section 402(p)(3) of the CWA. As stated above, this would be an appropriate method for implementing storm water management programs that should mature and evolve over time.

Applicants will propose priorities based on a consideration of appropriate controls including, but not limited to, consideration of controls that address: reducing pollutants to municipal separate storm sewer system discharges that are associated with storm water from commercial and residential areas (§ 122.26(d)(2)(iv)(A)); illicit discharges and illegal disposal (§ 122.26(d)(2)(iv)(B)); storm water from industrial areas (§ 122.26(d)(2)(iv)(C)); and runoff from construction sites (§ 122.26(d)(2)(iv)(D)). Permits for different municipalities will place different emphasis on controlling various components of discharges from municipal storm sewers. For example, the potential for cross-connections (such as municipal sewage or industrial process wastewater discharges to a municipal separate storm sewer) is generally expected to be greater in municipalities with older developed areas. On the other hand, municipalities with larger areas of new development will have a greater opportunity to focus controls to reduce pollutants in storm water generated by the area after it is developed, discharges from construction sites, and other planning activities.

EPA requested comments on the process and methods for developing appropriate priorities in management programs proposed in applications and how the development of these priorities can be coordinated with controls on other discharges to ensure the achievement of water quality standards and the goals of the CWA.

Discharges from diffuse sources in residential areas was recognized by several commenters as a significant source of pollutants. Accordingly, these elements of the management plans have been retained. In conjunction with the importance of developing programs for illicit connections, numerous commenters stated that education programs are a priority. Another commenter emphasized that ordinances

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prohibiting such discharges and their enforcement is a crucial means of a successful program in this regard. EPA agrees with these comments and consequently will retain those portions of management program development that include a description of a program for educational activities such as public information for the proper disposal of oil and toxic materials and the use of herbicides, pesticides and fertilizers.

Some commenters noted that discharge characterization is necessary for development of appropriate management plans. EPA agrees with these comments and has retained the discharge characterization components in this rulemaking. However, EPA disagrees that the results of all discharge characterization procedures (i.e., part 1 and part 2) are necessary to describe and propose a program as required in part 2 of the application. The application of various models is available to permit applicants, where needed, to develop appropriate management programs. All available site specific discharge characterization data should be available to the permit writer to draft appropriate conditions for the term of the permit.

One commenter noted that an important aspect of developing management plans is establishing the necessary legal authority to improve water quality. EPA agrees with this comment and has retained those aspects of the regulation which call for development and attainment of adequate legal authority in both parts of the municipal application.

One commenter stated that programs should address previously identified water quality problems in other programs that are required by section 304(1) of the CWA. EPA agrees that identified water quality problems need to be addressed by management programs, and the municipal permit application will call for an identification of these waters. However, EPA does not endorse addressing these waters to the exclusion of all others within the boundaries of the municipal separate storm sewer system. Some waters may experience substantial degradation after rain events and still not be listed under *48054 section 304(1). Further, water quality impacts in listed waters may not be related to storm water discharges, while other non-listed waters do have water quality impacts from storm water discharges. Similarly, EPA agrees with one commenter that it may be desirable to focus attention and resources on certain problem watersheds within a municipality, and controls may be imposed and programs prioritized on that basis. However, such a focus should not be to the exclusion of other waters and watersheds that have water quality problems (although less troublesome) traceable to storm water discharges. The CWA requires that permits address discharges to waters of the United States, not just waters previously targeted under special programs.

Some commenters expressed concern that the permit application requires the design of management programs before knowing what will be in the permits. EPA disagrees with the thrust of this comment, that is that the order of requirements is inappropriate. The permit applicant will have two years to develop proposed plans which can be considered by permit writers in the development of the permit. Based upon a consideration of the management program proposed by the municipality and other relevant information, permits can be tailored for individual programs. One commenter stated that the cornerstone of management programs are inspection and enforcement programs. EPA agrees that these two elements are important components. Without inspection and enforcement mechanisms the programs will undoubtedly falter. Accordingly these requirements in the description of management

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programs in the permit application have been retained. In a similar vein, one commenter emphasized the importance of developing legal authority, financial capability, and administrative infrastructure. EPA agrees with this comment and has retained those aspects of the regulation that call for a description of applicants plans and resources in these areas.

One commenter stressed that control of discharges into the municipal system from industries is an important goal of municipal storm water management programs. EPA agrees with this comment and has retained the proposed description of management programs to address discharges from industrial sources. Other commenters identified industries as the principal contributors of pollutants to municipal separate storm sewer systems.

In addition, EPA will continue to evaluate procedures and methods to control storm water discharges to the extent necessary to mitigate impacts on water quality in the studies required under section 402(p)(5) of the CWA. One purpose of these studies will be to evaluate the costs and water quality benefits associated with implementing these procedures and methods. This evaluation will address a number of factors which impact the implementation costs associated with these programs, such as the extent to which similar municipal ordinances are currently being implemented, the degree to which existing municipal programs (such as flood management programs or construction site inspections) can be expanded to address water quality concerns, the resource intensiveness of the control, and whether the control program will involve public or private expenditures. This information, along with information gained during permit implementation will aid in the dynamic long-term development of municipal storm water management programs.

a. Measures to reduce pollutants in runoff from commercial and residential areas. The NURP program evaluated runoff from lands primarily dedicated to residential and commercial activities. The areas evaluated in the study reflect some other activities, such as light industry, which are commonly dispersed among residential and commercial areas. The NURP study selected sampling locations that were thought to be relatively free of illicit discharges and storm water from heavy industrial sites including storm water runoff from heavy construction sites. Of course, in a study such as NURP it was impossible to totally isolate various contributions to the runoff. In developing the permit application requirements in today's rule EPA has, in general, relied on the NURP definition of urban runoff--runoff from lands used for residential, commercial and light industrial activities.

NURP and numerous other studies have shown that runoff from residential and commercial areas washes a number of pollutants into receiving waters. Of equal importance is the **volume** of storm water runoff leaving urban areas during storm events. Large intermittent **volumes** of runoff can destroy aquatic habitat. As the percentage of paved surfaces increases, the **volume** and rate of runoff and the corresponding pollutant loads also increase. Thus, the amount of storm water runoff from commercial and residential areas and the pollutant loadings associated with storm water runoff increases as development progresses; and they remain at an elevated level for the lifetime of the development.

Proposed § 122.26(d)(2)(iv)(A) requires municipal storm sewer system applicants to provide in part 2 of the application a description of a proposed management program

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that will describe priorities for implementing management programs based on a consideration of appropriate controls including:

- A description of maintenance activities and a maintenance schedule for structural controls;

- A description of planning procedures including a comprehensive master plan to control after construction is completed, the discharge of pollutants from municipal separate storm sewers which receive discharges from new development and significant redevelopment after construction is completed (in response to comment this contemplates an engineering policy and procedure strategy with long term planning);

- A description of practices for operating and maintaining public highways and procedures for reducing the impact on receiving waters of such discharges from municipal storm sewer system;

- A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies; and

- A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include, as appropriate, controls such as educational activities and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.

Water quality problems caused by municipal storm sewer discharges will generally be most acute in heavily developed areas. Prevention measures may be desirable and cost effective. However, structural control measures may also be effective, although opportunities for implementing these measures may be limited in previously developed areas. Commonly used structural technologies include a wide variety of treatment techniques, including first flush diversion systems, detention/infiltration basins, retention basins, extended detention basins, infiltration trenches, porous pavement, oil/grit separators, grass swales, and swirl concentrators. A major problem associated with sound storm water management is the need for operating *48055 and maintaining the system for its expected life.

The unavailability of land in highly developed areas often makes the use of structural controls infeasible for modifying many existing systems. Non-structural practices can play a more important role. Non-structural practices can include erosion control, streambank management techniques, street cleaning operations, vegetation/lawn maintenance controls, debris removal, road salt application management and public awareness programs.

As noted above, the first component of the proposed program to reduce pollutants in storm water from commercial and residential areas which discharge to municipal storm sewer systems is to describe maintenance activities and schedule. The second component of the proposed program to reduce pollutants in storm water from commercial and residential areas which discharge to municipal storm sewer systems provides that applicants describe the planning procedures and a comprehensive master plan that will assure that increases of pollutant loading associated with

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newly developed areas are, to the maximum extent practicable, limited. These measures should address storm water from commercial and residential areas which discharge to the municipal storm sewer that occur after the construction phase of development is completed. Controls for construction activities are addressed later in today's rule. One commenter noted the feasibility of developing management plans for newly developing areas. EPA agrees with this comment and has retained that portion of the regulation that deals with a description of controls for areas of new development. Similarly, one municipality stressed the importance and achievability of addressing storm water discharges from construction sites.

As urban development occurs, the volume of storm water and its rate of discharge increases. These increases are caused when pavement and structures cover soils and destroy vegetation which otherwise would slow and absorb runoff. Development also accelerates erosion through alteration of the land surface. Areas that are in the process of development offer the greatest potential for utilizing the full range of structural and non-structural best management practices. If these measures are to provide controls to reduce pollutant discharges after the area has been developed, comprehensive planning must be used to incorporate these measures as the area is in the process of developing. These measures offer an important opportunity to limit increases in pollutant loads.

The third component of § 122.26(d)(2)(iv)(A) provides a description of practices for operating and maintaining public roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems. General guidelines recommended for managing highway storm water runoff include litter control, pesticide/herbicide use management, reducing direct discharges, reducing runoff velocity, grassed channels, curb elimination, catchbasin maintenance, appropriate streetcleaning, establishing and maintaining vegetation, development of management controls for salt storage facilities, education and calibration practices for deicing application, infiltration practices, and detention/retention practices.

The fourth component of § 122.26(d)(2)(iv)(A) provides that applicants identify procedures that enable flood management agencies to consider the impact of flood management projects on the water quality of receiving streams. A well-developed storm water management program can reduce the amount of pollutants in storm water discharges as well as benefit flood control objectives. As discussed above, increased development can increase both the quantity of runoff from commercial and residential areas and the pollutant load associated with such discharges. Disturbing the land cover, altering natural drainage patterns, and increasing impervious area all increase the quantity and rate of runoff, thereby increasing both erosion and flooding potential. An integrated planning approach helps planners make the best decisions to benefit both flood control and water quality objectives.

The fifth component of § 122.26(d)(2)(iv)(A) would provide that municipal applicants submit a description of a program to reduce, to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer. Such a program may include controls such as educational activities and other measures for commercial applicators and distributors and controls for application in public rights-of-way and at municipal facilities. Discharges of these materials to

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municipal storm sewer systems can be controlled by proper application of these materials. Some commenters noted that insecticides used in residential areas are a probable source of pollutants in storm water discharges from residential areas, as well as salting and other de-icing activities. In response to this comment, part of a community management plan may include controls or education programs to limit the impacts of these sources of pollutants. One commenter noted that many communities already have household toxic disposal programs. Where appropriate these can be incorporated into municipal management programs.

Some commenters suggested substituting the management program description for residential and commercial areas with a simple identification of applicable management practices. EPA agrees that identification of appropriate management practices is a critical component of a program description for these areas. In essence, this is what the program description is designed to achieve. However, for the reasons discussed in greater detail above, EPA is convinced that an appropriate program must address all of the components of the management program for residential and commercial areas that are outlined in today's rule. Further, for the purposes of writing a permit with enforceable conditions, the application should identify a schedule to implement management practices. The applicant should be able to estimate the reduction in pollutant loads as a result of the development of certain management practices and programs (§ 122.26(d)(2)(v). A program may also include public education programs, which are not necessarily viewed as traditional BMPs.

b. Measures for illicit discharges and improper disposal. The CWA requires that NPDES permits for discharges from municipal storm sewers "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers." In today's rule, EPA will begin to implement this statutory mandate by focusing on two types of discharges to large and medium municipal separate storm sewer systems. See § 122.26(d)(1)(iv)(D) and (d)(2)(iv)(B). One type of non-storm water discharges are illicit discharges which are plumbed into the system or that result from leakage of sanitary sewage system. The other class of non-storm water discharges result from the improper disposal of materials such as used oil and other toxic materials.

Illicit discharges. In some municipalities, illicit connections of sanitary, commercial and industrial discharges to storm sewer systems have had a significant impact on the water quality of receiving waters. Although the *48056 NURP study did not emphasize identifying illicit connections to storm sewers other than to assure that monitoring sites used in the study were free from sanitary sewage contamination, the study concluded that illicit connections can result in high bacterial counts and dangers to public health. The study also noted that removing such discharges presented opportunities for dramatic improvements in the quality of urban storm water discharges.

Other studies have shown that illicit connections to storm sewers can create severe, wide-spread contamination problems. For example, the Huron River Pollution Abatement Program inspected 660 businesses, homes and other buildings located in Washtenaw County, Michigan and identified 14% of the buildings as having improper storm drain connections. Illicit discharges were detected at a higher rate of 60% for automobile related businesses, including service stations, automobile dealerships, car washes, body shops and light industrial facilities.

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ATTACHMENT
4

RULES and REGULATIONS

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 122

[FRL-5533-7]

Interpretative Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems

Friday, August 9, 1996

***41698** AGENCY: Environmental Protection Agency (EPA).

ACTION: Policy statement; interpretation.

SUMMARY: By today's notice EPA announces federal policy, signed by Robert Perciasepe, Assistant Administrator for Water, on May 17, 1996, regarding application requirements for renewal or reissuance of National Pollutant Discharge Elimination System (NPDES) permits for municipal separate storm sewer systems (MS4s). Today's action responds to requests from municipalities and NPDES permit writers for clarification about regulations which do not appear to address reapplication requirements, i.e., permit reissuance. Today's notice explains that MS4 permit applicants and NPDES permit writers have considerable discretion to customize appropriate and streamlined reapplication requirements on a case-by-case basis, specifically, by using the fourth year annual report as the principal reapplication document.

EFFECTIVE DATE: This policy is effective May 17, 1996.

FOR FURTHER INFORMATION CONTACT: Marilyn Fonseca, Office of Wastewater Management, MC-4203, U.S. Environmental Protection Agency, 401 M Street SW., Washington, DC 20460, (202)-260-0592, e-mail: Fonseca.Marilyn(A)epamail.epa.gov

SUPPLEMENTARY INFORMATION: The text of this policy is as follows:

Municipal Separate Storm Sewer System Permit Reapplication Policy

The 1987 amendments to the Clean Water Act added Section 402(p) which directed the Environmental Protection Agency to establish regulations governing storm water discharges under the National Pollutant Discharge Elimination System (NPDES) program. Early in the program, Congress specifically required NPDES permits for municipal separate storm sewer systems (MS4s) serving populations over 100,000. In response, EPA promulgated regulations in 1990 that established permit application requirements for MS4s that serve populations over 100,000. MS4 permits have since

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been drafted and finalized for many municipal systems. A number of MS4 permits are due to expire and must be reissued.

EPA is providing this policy memorandum to outline permit reapplication requirements for regulated MS4s. There are three components to EPA's reapplication policy. First, EPA is not requiring that the process used for part 1 and 2 of the initial permit application be repeated in full. Second, EPA has identified basic information that should be included in every reapplication package. Finally, EPA is seeking to improve existing MS4 storm water management programs by using information and experience municipalities have gained during the previous permit term.

Is a Permit Reapplication Necessary?

Yes. The requirement that all point source discharges authorized by a NPDES permit must reapply is well established at 40 CFR 122.41(b) and 122.46(a):

Duty to reapply. If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

Duration of permits. NPDES permits shall be effective for a fixed term not to exceed 5 years.

The reapplication requirement is also found at 40 CFR 122.21(d):

Duty to reapply. . . . All other permittees with currently effective permits shall submit a new application 180 days before the existing permit expires.

Therefore, all regulated Phase I MS4s need to participate in a permit reapplication process.

Where a complete reapplication package has been submitted as directed by the permit authority, conditions of an expired MS4 permit will continue until the effective date of a new permit, as stated in 40 CFR 122.6(a) and (b):

(a) EPA permits. When EPA is the permit-issuing authority, the conditions of an expired permit continue in force . . . until the effective date of a new permit . . . and (b) Effect. Permits continued under this section remain fully effective and enforceable.

Are Initial MS4 Permit Application Requirements Applicable To Permit Reapplication?

No. The scope of the initial permit application requirements was comprehensive and regulated MS4s invested considerable resources to develop these applications. The initial applications have laid the foundation for the long-term implementation of MS4 storm water management programs. EPA believes reapplications should focus on maintenance and improvement of these programs.

The MS4 permit application requirements at 40 CFR 122.26(d)(1) and (2) apply to

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the first round permit applications required of large and medium MS4s. The permit application deadline regulations in 40 CFR 122.26(e) (3) & (4) clearly reflect the "one time" nature of the Part I & II application requirements for large and medium MS4s. EPA has not promulgated regulations applicable to reapplication for MS4s. Requirements to demonstrate adequate legal authority, perform source identification (e.g., identify major outfalls and facility inventory), characterize data, and develop a storm water management program should have been addressed in the initial application phase. Therefore, to request the same information again, where it has already been provided and has not changed, would be needlessly redundant. Thus, as a practical matter, most first-time permit application requirements are unnecessary for purposes of second round MS4 permit application.

What Basic Information Must Be Submitted for an MS4 Permit Reapplication?

EPA is committed to allowing permitting authorities to develop flexible reapplication requirements that are site-specific. In the absence of reapplication regulations specific to MS4s, minimum reapplication requirements are drawn from the generic NPDES permit application regulations at 40 CFR 122.21(f). EPA regulations suggest the following basic information be included as part of any permit reapplication:

--name and mailing address(es) of the permittee(s) that operate the MS4, and

--names and titles of the primary administrative and technical contacts for the municipal permittee(s).

In addition, in the reapplication, municipalities should identify any proposed changes or improvements to the storm water management program and monitoring activities for the upcoming five year term of the permit, if those proposed changes have not already been submitted pursuant to 40 CFR 122.42(c). [A requirement to submit proposed changes to the storm water management program is specified in the annual reporting requirements in 40 CFR 122.42(c)(2).] EPA encourages permitting authorities to make use of the fourth year annual report as the basic permit reapplication package.

***41699** Changes to the storm water management program may be justified due to the availability of new information on the relative magnitude of a problem or new data on water quality impacts of the storm water discharges. Municipalities may also propose to de-emphasize some program components and strengthen others, based on the experience gained under the first permit. Proposed elimination of a program component might be justified upon permit renewal; for example, when a component is no longer a problem area (i.e., all detention basins have been retrofitted) or when a different water quality program would serve the same goals.

The components of the original storm water management program which are found to be effective should be continued and made an ongoing part of the proposed new storm water management program. Such components may include:

--continued emphasis on public education programs, particularly programs on proper disposal of waste oil and household hazardous waste and pesticide application;

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--continued, if not greater, emphasis on addressing impacts of new development/construction;

--proper storm design criteria for all new developments;

--retrofitting and/or upgrading of the existing storm sewer system according to a priority system;

--more frequent maintenance of storm sewer systems and storm water treatment systems;

--coordination with adjacent MS4s on monitoring or other efforts; and

--using a watershed approach to storm water management.

The accumulated annual report information as outlined in 40 CFR 122.42(c) should be evaluated and, to the extent applicable, be incorporated by reference into the reapplication package.

To reiterate, MS4s may use the fourth year annual report, which emphasizes proposed changes to the storm water management program, with the additional required basic information, as the MS4 permit reapplication. Changes to the storm water management program should be jointly developed by the permitting authority and the permit applicant. In this regard, we urge permit issuance authorities and permittees to work together to assure that the permit reapplication is complete and addresses all appropriate issues. The permitting agency may request additional technical information be submitted in the reapplication. NPDES permitting authorities, therefore, can exercise their information gathering authority under CWA Section 308, or analogous State provisions to complete the permit reapplication on a case-by case basis, as appropriate.

What Additional Information Should Be Considered for a Reapplication?

EPA also recommends the following information be provided by reapplicants to the permitting authority, as outlined in 40 CFR 122.26(d)(1)(iv)(C):

--identification of any previously unidentified water bodies that receive discharges from the MS4, and

--a summary of any known water quality impacts on the newly identified receiving waters (based on best available data).

In addition, EPA recommends the following information be provided to the permitting authority as well:

--a description of changes in co-applicants since issuance of initial MS4 permit, and

--identification number of the existing NPDES MS4 permit.

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Further, EPA encourages permitting authorities to work with permittees to determine if storm water monitoring efforts are appropriate and useful. For example, during the previous permit term, municipalities may have found that their monitoring program was not fully successful in characterizing the nature and extent of storm water problems. Reapplication is an appropriate time for MS4s to evaluate their monitoring program and propose changes to make the program more appropriate and useful. To accomplish this, municipalities may wish to consider using monitoring techniques other than end-of-the pipe chemical-specific monitoring, including habitat assessments, bioassessments and/or other biological methods.

Permitting authorities should incorporate any such new information, together with assembled materials from the initial application and the existing permit, to form the administrative record for any reissued MS4 permits. Such administrative records should be made publicly available as part of the process to reissue the permit.

Dated: June 28, 1996.

Michael B. Cook,

Director, Office of Wastewater Management.

[FR Doc. 96-20228 Filed 8-8-96; 8:45 am]

BILLING CODE 6560-50-P

61 FR 41698-01, 1996 WL 446384 (F.R.)

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ATTACHMENT
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64 FR 68722-01, 1999 WL 1111032(F.R.)
RULES and REGULATIONS
ENVIRONMENTAL PROTECTION AGENCY
40 CFR Parts 9, 122 , 123, and 124
[FRL—6470-8]
RIN 2040-AC82

National Pollutant Discharge Elimination System—Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges

Wednesday, December 8, 1999

***68722** AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: Today's regulations (Phase II) expand the existing National Pollutant Discharge Elimination System (NPDES) storm water program (Phase I) to address storm water discharges from small municipal separate storm sewer systems (MS4s) (those serving less than 100,000 persons) and construction sites that disturb one to five acres. Although these sources are automatically designated by today's rule, the rule allows for the exclusion of certain sources from the national program based on a demonstration of the lack of impact on water quality, as well as the inclusion of others based on a higher likelihood of localized adverse impact on water quality. Today's regulations also exclude from the NPDES program storm water discharges from industrial facilities that have “no exposure” of industrial activities or materials to storm water. Finally, today's rule extends from August 7, 2001 until March 10, 2003 the deadline by which certain industrial facilities owned by small MS4s must obtain coverage under an NPDES permit. This rule establishes a cost-effective, flexible approach for reducing environmental harm by storm water discharges from many point sources of storm water that are currently unregulated.

EPA believes that the implementation of the six minimum measures identified for small MS4s should significantly reduce pollutants in urban storm water compared to existing levels in a cost-effective manner. Similarly, EPA believes that implementation of Best Management Practices (BMP) controls at small construction sites will also result in a significant reduction in pollutant discharges and an improvement in surface water quality. EPA believes this rule will result in monetized financial, recreational and health benefits, as well as benefits that EPA has been unable to monetize. Expected benefits include reduced scouring and erosion of streambeds, improved aesthetic quality of waters, reduced eutrophication of aquatic systems, benefit to wildlife and endangered and threatened species, tourism benefits, biodiversity benefits and reduced costs for siting reservoirs. In addition, the costs of industrial storm water controls will decrease due to the exclusion of storm water discharges from facilities where there is “no exposure” of storm water to industrial activities and materials.

DATES: This regulation is effective on February 7, 2000. The incorporation by reference of the rainfall erosivity factor publication listed in the rule is approved by the Director of the Federal Register as of February 7, 2000. For judicial review purposes, this final rule is promulgated as of 1:00 p.m. Eastern Standard Time, on December 22, 1999 as provided in 40 CFR 23.2.

ADDRESSES: The complete administrative record for the final rule and the ICR have been established under docket numbers W-97-12 (rule) and W-97-15 (ICR), and includes supporting documentation as well as printed, paper versions of electronic comments. Copies of information in the record are available upon request. A reasonable fee may be charged for copying. The record is available for inspection and copying from 9 a.m. to 4 p.m., Monday through Friday, excluding

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legal holidays, at the Water Docket, EPA, East Tower Basement, 401 M Street, SW, Washington, DC. For access to docket materials, please call 202/260-3027 to schedule an appointment.

FOR FURTHER INFORMATION CONTACT: George Utting, Office of Wastewater Management, Environmental Protection Agency, Mail Code 4203, 401 M Street, SW, Washington, DC 20460; (202) 260-5816; sw2@epa.gov.

SUPPLEMENTARY INFORMATION: Entities potentially regulated by this action include:

Category	Examples of regulated entities
Federal, State, Tribal, and Local Governments	Operators of small separate storm sewer systems, industrial facilities that discharge storm water associated with industrial activity or construction activity disturbing 1 to 5 acres.
Industry	Operators of industrial facilities that discharge storm water associated with industrial activity.
Construction Activity	Operators of construction activity disturbing 1 to 5 acres.

This table is not intended to be exhaustive, but rather provides a guide for readers regarding entities likely to be regulated by this action. This table lists the types of entities that EPA is now aware could potentially be regulated by this action. Other types of entities not listed in the table could also be regulated. To determine whether your facility or company is regulated by this action, you should carefully examine the applicability criteria in §§122.26(b), 122.31, 122.32, and 123.35 of the final rule. If you have questions regarding the applicability of this action to a particular entity, consult the person listed in the preceding FOR FURTHER INFORMATION CONTACT section.

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I. Background

A. Proposed Rule and Pre-Proposal Outreach

On January 9, 1998 (63 FR 1536), EPA proposed to expand the National Pollutant Discharge Elimination System (NPDES) storm water program to include storm water discharges from municipal separate storm sewer systems (MS4s) and construction sites that were smaller than those previously included in the program. The proposal also addressed industrial sources that have "no exposure" of industrial activities and materials to storm water. Today, EPA is promulgating a final rule to implement most of the proposed revisions with minor changes based on public comments received on the proposal. Today's final rule also extends the deadline by which certain industrial facilities operated by municipalities of less than 100,000 population must be covered by a NPDES permit; the deadline is changed from August 7, 2001 until March 10, 2003.

In 1972, Congress amended the Federal Water Pollution Control Act (commonly referred to as the Clean Water Act (CWA)) to prohibit the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by an NPDES permit. The NPDES program is a program designed to track point sources and require the implementation of the controls necessary to minimize the discharge of pollutants. Initial efforts to improve water quality under the NPDES program primarily focused on reducing pollutants in industrial process wastewater and municipal sewage. These discharge sources were easily identified as responsible for poor, often drastically degraded, water quality conditions.

As pollution control measures for industrial process wastewater and municipal sewage were implemented and refined, it became increasingly evident that more diffuse sources of water pollution were also significant causes of water quality impairment. Specifically, storm water runoff draining large surface areas, such as agricultural and urban land, was found to be a major cause of water quality impairment, including the nonattainment of designated beneficial uses.

In 1987, Congress amended the CWA to require implementation, in two phases, of a comprehensive national program for addressing storm water discharges. The first phase of the program, commonly referred to as "Phase I," was promulgated on November 16, 1990 (55 FR 47990). Phase I requires NPDES permits for storm water discharge from a large number of priority sources including municipal separate storm sewer systems ("MS4s") generally serving populations of 100,000 or more and several categories of industrial activity, including construction sites that disturb five or more acres of land.

Today's rule, which is the second phase of the storm water program, expands the existing program to include discharges of storm water from smaller municipalities in urbanized areas and from construction sites that disturb between one and five acres of land. Today's rule allows certain sources to be excluded from the national program based on a demonstrable lack of impact on water quality. The rule also allows other sources not automatically regulated on a national basis to be designated for inclusion based on increased likelihood for localized adverse impact on water quality. ***68724** Today's rule also conditionally excludes storm water discharges from industrial facilities that have "no exposure" of industrial

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activities or materials to storm water. Today's rule and the effort that led to its development are commonly referred to as "Phase II." On August 7, 1995, EPA promulgated a final rule that required facilities to be regulated under Phase II to apply for a NPDES permit by August 7, 2001, unless the NPDES permitting authority designates them as requiring a permit by an earlier date. (60 FR 40230). That rule is referred to as "the Interim Phase II Rule." Today's rule replaces the Interim Phase II rule.

EPA performed extensive outreach and worked with a variety of stakeholders prior to proposing today's rule. On September 9, 1992, EPA published a notice requesting information and public comment on how to prepare regulations under CWA section 402(p)(6) (see 57 FR 41344). The notice identified three sets of issues associated with developing new NPDES storm water regulations: (1) How should EPA identify unregulated sources of storm water to protect water quality, (2) what types of control strategies should EPA develop for these sources, and (3) what are appropriate deadlines for implementing new requirements. The notice recognized that potential sources for coverage under the section 402(p)(6) regulations would fall into two main categories: municipal separate storm sewer systems and individual (commercial and residential) sources. EPA received more than 130 comments on the September 9, 1992, notice. For further discussion of the comments received, see Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System: Report to Congress (EPA, 1995a), pp. 1-21 to 1-22, and Appendix J (which provides a detailed summary of the comments received as they relate to the specific issues raised in the notice).

In early 1993, the Rensselaerville Institute and EPA held public and expert meetings to assist in developing and analyzing options for identifying unregulated sources and possible controls. The report on the 1993 meetings identified two options that were favored by the various groups that participated. One option was a program that allowed States to select sources to be controlled in a manner consistent with criteria developed by EPA. A second option was a tiered approach under which EPA would select high priority sources for control by NPDES permits and States would select other sources for control under a State water quality program other than the NPDES program. For additional details see the "Report on the EPA Storm Water Management Program (Rensselaerville Study)," Appendix I of Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System: Report to Congress (EPA, 1995a).

EPA also conducted outreach with representatives of small entities in conjunction with the convening of a Small Business Advocacy Review Panel under the Small Business Regulatory Enforcement Fairness Act (SBREFA). This process is discussed in section IV.E of today's preamble. For additional background see the discussion in the preamble to the proposal for today's rule.

To assist EPA by providing advice and recommendations regarding the urban municipal wet weather water pollution control program, EPA established the Urban Wet Weather Flows Federal Advisory Committee (hereinafter, "FACA Committee") under the Federal Advisory Committee Act (FACA). The Office of Management and Budget approved the charter for the FACA Committee on March 10, 1995. The FACA Committee provided a forum for identifying and addressing issues associated with water quality impacts from storm water sources.

The FACA Committee established two subcommittees: the Storm Water Phase II FACA Subcommittee and the Sanitary Sewer Overflows (SSOs) FACA Subcommittee. Consistent with the requirements of FACA, the membership of both the FACA Committee and the subcommittees was balanced among EPA's various outside stakeholder interests, including representatives from municipalities, States, Indian Tribes, EPA, industrial and commercial sectors, agriculture, and environmental and public interest groups.

The Storm Water Phase II FACA Subcommittee ("Subcommittee") met fourteen times between September 1995 and June 1998. The 32 Subcommittee members discussed possible regulatory frameworks at these meetings as well as during numerous other meetings and conference calls. Members of the FACA Committee provided views regarding the development of the "no exposure" provision and other provisions in drafts of the Phase II rule. EPA provided

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Subcommittee members with four successive drafts of the proposed rule and preamble, outlines of the rule, summaries of the written comments received on each draft, and documents identifying the changes made to each draft. In the course of providing input to the Committee, individual Subcommittee members provided significant input and advice that EPA considered in the context of public comments received. Ultimately, the Subcommittee did not provide a written report back to the FACA Committee, and the FACA Committee did not provide written advice and recommendations to EPA. The Agency, therefore, did not rely on group recommendations in developing today's rule, but does consider the process to have resulted in important public outreach.

B. Water Quality Concerns/Environmental Impact Studies and Assessments

Storm water runoff from lands modified by human activities can harm surface water resources and, in turn, cause or contribute to an exceedance of water quality standards by changing natural hydrologic patterns, accelerating stream flows, destroying aquatic habitat, and elevating pollutant concentrations and loadings. Such runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients (phosphorous and nitrogen), heavy metals and other toxic pollutants, pathogens, toxins, oxygen-demanding substances (organic material), and floatables (U.S. EPA. 1992. Environmental Impacts of Storm Water Discharges: A National Profile. EPA 841-R-92-001. Office of Water. Washington, DC). After a rain, storm water runoff carries these pollutants into nearby streams, rivers, lakes, estuaries, wetlands, and oceans. The highest concentrations of these contaminants often are contained in “first flush” discharges, which occur during the first major storm after an extended dry period (Schueler, T.R. 1994. “First Flush of Stormwater Pollutants Investigated in Texas.” Note 28. Watershed Protection Techniques 1(2)). Individually and combined, these pollutants impair water quality, threatening designated beneficial uses and causing habitat alteration or destruction.

Uncontrolled storm water discharges from areas of urban development and construction activity negatively impact receiving waters by changing the physical, biological, and chemical composition of the water, resulting in an unhealthy environment for aquatic organisms, wildlife, and humans. The following sections discuss the studies and data that address and support this finding.

Although water quality problems also can occur from agricultural storm water discharges and return flows from irrigated agriculture, this area of ***68725** concern is statutorily exempted from regulation as a point source under the Clean Water Act and is not discussed here. (See CWA section 502(14)). Other storm water sources not specifically identified in the regulations may be of concern in certain areas and can be addressed on a case-by-case (or category-by-category) basis through the NPDES designation authority preserved by CWA section 402(p)(2)(6), as well as today's rule.

1. Urban Development

Urbanization alters the natural infiltration capability of the land and generates a host of pollutants that are associated with the activities of dense populations, thus causing an increase in storm water runoff volumes and pollutant loadings in storm water discharged to receiving waterbodies (U.S. EPA, 1992). Urban development increases the amount of impervious surface in a watershed as farmland, forests, and meadowlands with natural infiltration characteristics are converted into buildings with rooftops, driveways, sidewalks, roads, and parking lots with virtually no ability to absorb storm water. Storm water and snow-melt runoff wash over these impervious areas, picking up pollutants along the way while gaining speed and volume because of their inability to disperse and filter into the ground. What results are storm water flows that are higher in volume, pollutants, and temperature than the flows in less impervious areas, which have more natural vegetation and soil to filter the runoff (U.S. EPA, 1997. Urbanization and Streams: Studies of Hydrologic Impacts. EPA 841-R-97-009. Office of Water. Washington, DC).

Studies reveal that the level of imperviousness in an area strongly correlates with the quality of the nearby receiving waters. For example, a study in the Puget Sound lowland ecoregion found that when the level of basin development exceeded 5 percent of the total impervious area, the biological integrity and physical habitat conditions that are necessary

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to support natural biological diversity and complexity declined precipitously (May, C.W., E.B. Welch, R.R. Horner, J.R. Karr, and B.W. May. 1997. Quality Indices for Urbanization Effects in Puget Sound Lowland Streams, Technical Report No. 154. University of Washington Water Resources Series). Research conducted in numerous geographical areas, concentrating on various variables and employing widely different methods, has revealed a similar conclusion: stream degradation occurs at relatively low levels of imperviousness, such as 10 to 20 percent (even as low as 5 to 10 percent according to the findings of the Washington study referenced above) (Schueler, T.R. 1994. "The Importance of Imperviousness." Watershed Protection Techniques 1(3); May, C., R.R. Horner, J.R. Karr, B.W. Mar, and E.B. Welch. 1997. "Effects Of Urbanization On Small Streams In The Puget Sound Lowland Ecoregion." Watershed Protection Techniques 2(4); Yoder, C.O., R.J. Miltner, and D. White. 1999. "Assessing the Status of Aquatic Life Designated Uses in Urban and Suburban Watersheds." In Proceedings: National Conference on Retrofits Opportunities in Urban Environments. EPA 625-R-99-002, Washington, DC; Yoder, C.O and R.J. Miltner. 1999. "Assessing Biological Quality and Limitations to Biological Potential in Urban and Suburban Watersheds in Ohio." In Comprehensive Stormwater & Aquatic Ecosystem Management Conference Papers, Auckland, New Zealand). Furthermore, research has indicated that few, if any, urban streams can support diverse benthic communities at imperviousness levels of 25 percent or more. An area of medium density single family homes can be anywhere from 25 percent to nearly 60 percent impervious, depending on the design of the streets and parking (Schueler, 1994).

In addition to impervious areas, urban development creates new pollution sources as population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, pet waste, litter, pesticides, and household hazardous wastes, which may be washed into receiving waters by storm water or dumped directly into storm drains designed to discharge to receiving waters. More people in less space results in a greater concentration of pollutants that can be mobilized by, or disposed into, storm water discharges from municipal separate storm sewer systems. A modeling system developed for the Chesapeake Bay indicated that contamination of the Bay and its tributaries from runoff is comparable to, if not greater than, contamination from industrial and sewage sources (Cohn-Lee, R. and D. Cameron. 1992. "Urban Stormwater Runoff Contamination of the Chesapeake Bay: Sources and Mitigation." The Environmental Professional, Vol. 14).

a. Large-Scale Studies and Assessments

In support of today's regulatory designation of MS4s in urbanized areas, the Agency relied on broad-based assessments of urban storm water runoff and related water quality impacts, as well as more site-specific studies. The first national assessment of urban runoff characteristics was completed for the Nationwide Urban Runoff Program (NURP) study (U.S. EPA. 1983. Results of the Nationwide Urban Runoff Program, Volume 1—Final Report. Office of Water. Washington, D.C.). The NURP study is the largest nationwide evaluation of storm water discharges, which includes adverse impacts and sources, undertaken to date.

EPA conducted the NURP study to facilitate understanding of the nature of urban runoff from residential, commercial, and industrial areas. One objective of the study was to characterize the water quality of discharges from separate storm sewer systems that drain residential, commercial, and light industrial (industrial parks) sites. Storm water samples from 81 residential and commercial properties in 22 urban/suburban areas nationwide were collected and analyzed during the 5-year period between 1978 and 1983. The majority of samples collected in the study were analyzed for eight conventional pollutants and three heavy metals.

Data collected under the NURP study indicated that discharges from separate storm sewer systems draining runoff from residential, commercial, and light industrial areas carried more than 10 times the annual loadings of total suspended solids (TSS) than discharges from municipal sewage treatment plants that provide secondary treatment. The NURP study also indicated that runoff from residential and commercial areas carried somewhat higher annual loadings of chemical oxygen demand (COD), total lead, and total copper than effluent from secondary treatment plants. Study findings showed that fecal coliform counts in urban runoff typically range from tens to hundreds of thousands per hundred milliliters of runoff during warm weather conditions, with the median for all sites being around 21,000/100

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ml. This is generally consistent with studies that found that fecal coliform mean values range from 1,600 coliform fecal units (CFU)/100 ml to 250,000 cfu/100 ml (Makepeace, D.K., D.W. Smith, and S.J. Stanley. 1995. "Urban Storm Water Quality: Summary of Contaminant Data." Critical Reviews in Environmental Science and Technology 25(2):93-139). Makepeace, et al., summarized ranges of contaminants from storm water, including physical contaminants such as total solids (76—36,200 mg/L) and copper (up to 1.41 mg/L); organic chemicals; organic compounds, such as oil and grease (up to 110 mg/L); and microorganisms. ***68726**

Monitoring data summarized in the NURP study provided important information about urban runoff from residential, commercial, and light industrial areas. The study concluded that the quality of urban runoff can be affected adversely by several sources of pollution that were not directly evaluated in the study, including illicit discharges, construction site runoff, and illegal dumping. Data from the NURP study were analyzed further in the U.S. Geological Survey (USGS) Urban Storm Water Data Base for 22 Metropolitan Areas Throughout the United States study (Driver, N.E., M.H. Mustard, R.B. Rhinesmith, and R.F. Middleburg. 1985. U.S. Geological Survey Urban Storm Water Data Base for 22 Metropolitan Areas Throughout the United States. Report No. 85-337 USGS. Lakewood, CO). The USGS report summarized additional monitoring data compiled during the mid-1980s, covering 717 storm events at 99 sites in 22 metropolitan areas and documented problems associated with metals and sediment concentrations in urban storm water runoff. More recent reports have confirmed the pollutant concentration data collected in the NURP study (Marsalek, J. 1990. "Evaluation of Pollutant Loads from Urban Nonpoint Sources." Wat. Sci. Tech. 22(10/11):23-30; Makepeace, et al., 1995).

Commenters argued that the NURP study does not support EPA's contention that urban activities significantly jeopardize attainment of water quality standards. One commenter argued that the NURP study and the 1985 USGS study are seriously out of date. Because they were issued 10 years or more before the implementation of the current storm water permit program, the data in those reports do not reflect conditions that exist after implementation of permits issued by authorized States and EPA for storm water from construction sites, large municipalities, and industrial activities.

In response, EPA notes that it is not relying solely on the NURP study to describe current water quality impairment. Rather, EPA is citing NURP as a source of data on typical pollutant concentrations in urban runoff. Recent studies have not found significantly different pollutant concentrations in urban runoff when compared to the original NURP data (see Makepeace, et al., 1995; Marsalek, 1990; and Pitt, et al., 1995).

America's Clean Water—the States' Nonpoint Source Assessment (Association of State and Interstate Water Pollution Control Administrators (ASIWPCA). 1985. America's Clean Water—The States' Nonpoint Source Assessment. Prepared in cooperation with the U.S. EPA, Office of Water, Washington, DC), a comprehensive study of diffuse pollution sources conducted under the sponsorship of the Association of State and Interstate Water Pollution Control Administrators (ASIWPCA) and EPA revealed that 38 States reported urban runoff as a major cause of designated beneficial use impairment and 21 States reported storm water runoff from construction sites as a major cause of beneficial use impairment. In addition, the 1996 305(b) Report (U.S. EPA. 1998. The National Water Quality Inventory, 1996 Report to Congress. EPA 841-R-97-008. Office of Water. Washington, DC), provides a national assessment of water quality based on biennial reports submitted by the States as required under CWA section 305(b) of the CWA. In the CWA 305(b) reports, States, Tribes, and Territories assess their individual water quality control programs by examining the attainment or nonattainment of the designated uses assigned to their rivers, lakes, estuaries, wetlands, and ocean shores. A designated use is the legally applicable use specified in a water quality standard for a watershed, waterbody, or segment of a waterbody. The designated use is the desirable use that the water quality should support. Examples of designated uses include drinking water supply, primary contact recreation (swimming), and aquatic life support. Each CWA 305(b) report indicates the assessed fraction of a State's waters that are fully supporting, partially supporting, or not supporting designated beneficial uses.

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In their reports, States, Tribes, and Territories first identified and then assigned the sources of water quality impairment for each impaired waterbody using the following categories: industrial, municipal sewage, combined sewer overflows, urban runoff/storm sewers, agricultural, silvicultural, construction, resource extraction, land disposal, hydrologic modification, and habitat modification. The 1996 Inventory, based on a compilation of 60 individual 305(b) reports submitted by States, Tribes, and Territories, assessed the following percentages of total waters nationwide: 19 percent of river and stream miles; 40 percent of lake, pond, and reservoir acres; 72 percent of estuary square miles; and 6 percent of ocean shoreline waters. The 1996 Inventory indicated that approximately 40 percent of the Nation's assessed rivers, lakes, and estuaries are impaired. Waterbodies deemed as "impaired" are either partially supporting designated uses or not supporting designated uses.

The 1996 Inventory also found urban runoff/discharges from storm sewers to be a major source of water quality impairment nationwide. Urban runoff/storm sewers were found to be a source of pollution in 13 percent of impaired rivers; 21 percent of impaired lakes, ponds, and reservoirs; and 45 percent of impaired estuaries (second only to industrial discharges). In addition, urban runoff was found to be the leading cause of ocean impairment for those ocean miles surveyed.

In addition, a recent USGS study of urban watersheds across the United States has revealed a link between urban development and contamination of local waterbodies. The study found the highest levels of organic contaminants, known as polycyclic aromatic hydrocarbons (PAHs) (products of combustion of wood, grass, and fossil fuels), in the reservoirs of urbanized watersheds (U.S. Geological Survey (USGS). 1998. Research Reveals Link Between Development and Contamination in Urban Watersheds. USGS news release. USGS National Water-Quality Assessment Program).

Urban storm water also can contribute significant amounts of toxicants to receiving waters. Pitt, et. al. (1993), found heavy metal concentrations in the majority of samples analyzed. Industrial or commercial areas were likely to be the most significant pollutant source areas (Pitt, R., R. Field, M. Lalor, M. Brown 1993. "Urban stormwater toxic pollutants: assessment, sources, and treatability" Water Environment Research, 67(3):260-75).

b. Local and Watershed-Based Studies

In addition to the large-scale nationwide studies and assessments, a number of local and watershed-based studies from across the country have documented the detrimental effects of urban storm water runoff on water quality. A study of urban streams in Milwaukee County, Wisconsin, found local streams to be highly degraded due primarily to urban runoff, while three studies in the Atlanta, Georgia, region were characterized as being "the first documentation in the Southeast of the strong negative relationship between urbanization and stream quality that has been observed in other ecoregions" (Masterson, J. and R. Bannerman. 1994. "Impacts of Storm Water Runoff on Urban Streams in Milwaukee County, Wisconsin." Paper presented at National Symposium on Water Quality: American Water Resources Association; Schueler, T.R. 1997. "Fish Dynamics in Urban Streams Near Atlanta, Georgia." ***68727** Technical Note 94. Watershed Protection Techniques 2(4)). Several other studies, including those performed in Arizona (Maricopa County), California (San Jose's Coyote Creek), Massachusetts (Green River), Virginia (Tuckahoe Creek), and Washington (Puget Sound lowland ecoregion), all had the same finding: runoff from urban areas greatly impair stream ecology and the health of aquatic life; the more heavily developed the area, the more detrimental the effects (Lopes, T. and K. Fossum. 1995. "Selected Chemical Characteristics and Acute Toxicity of Urban Stormwater, Streamflow, and Bed Material, Maricopa County, Arizona." Water Resources Investigations Report 95-4074. USGS; Pitt, R. 1995. "Effects of Urban Runoff on Aquatic Biota." In Handbook of Ecotoxicology; Pratt, J. and R. Coler. 1979. "Ecological Effects of Urban Stormwater Runoff on Benthic Macroinvertebrates Inhabiting the Green River, Massachusetts." Completion Report Project No. A-094. Water Resources Research Center. University of Massachusetts at Amherst.; Schueler, T.R. 1997. "Historical Change in a Warmwater Fish Community in an Urbanizing Watershed." Technical Note 93. Watershed Protection Techniques 2(4); May, C., R. Horner, J. Karr, B. Mar, and E. Welch. 1997. "Effects Of Urbanization On Small Streams In The Puget Sound Lowland Ecoregion." Watershed Protection Techniques 2(4)).

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Pitt and others also described the receiving water effects on aquatic organisms associated with urban runoff (Pitt, R.E. 1995. "Biological Effects of Urban Runoff Discharges" In Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment, ed. E.E Herricks, Lewis Publishers; Crunkilton, R., J. Kleist, D. Bierman, J. Ramcheck, and W. DeVita. 1999. "Importance of Toxicity as a Factor Controlling the Distribution of Aquatic Organisms in an Urban Stream." In Comprehensive Stormwater & Aquatic Ecosystem Management Conference Papers. Auckland, New Zealand).

In Wisconsin, runoff samples were collected from streets, parking lots, roofs, driveways, and lawns. Source areas were broken up into residential, commercial, and industrial. Geometric mean concentration data for residential areas included total solids of about 500-800 mg/L from streets and 600 mg/L from lawns. Fecal coliform data from residential areas ranged from 34,000 to 92,000 cfu/100 mL for streets and driveways. Contaminant concentration data from commercial and industrial source areas were lower for total solids and fecal coliform, but higher for total zinc (Bannerman, R.T., D.W. Owens, R.B. Dods, and N.J. Hornewer. 1993. "Sources of Pollutants in Wisconsin Stormwater." Wat. Sci. Tech. 28(3-5):241-59).

Bannerman, et al. also found that streets contribute higher loads of pollutants to urban storm water than any other residential development source. Two small urban residential watersheds were evaluated to determine that lawns and streets are the largest sources of total and dissolved phosphorus in the basins (Waschbusch, R.J., W.R. Selbig, and R.T. Bannerman. 1999. "Sources of Phosphorus in Stormwater and Street Dirt from Two Urban Residential Basins In Madison, Wisconsin, 1994-95." Water Resources Investigations Report 99-4021. U.S. Geological Survey). A number of other studies have indicated that urban roadways often contain significant quantities of metal elements and solids (Sansalone, J.J. and S.G. Buchberger. 1997. "Partitioning and First Flush of Metals in Urban Roadway Storm Water." ASCE Journal of Environmental Engineering 123(2); Sansalone, J.J., J.M. Koran, J.A. Smithson, and S.G. Buchberger. 1998. "Physical Characteristics of Urban Roadway Solids Transported During Rain Events" ASCE Journal of Environmental Engineering 124(5); Klein, L.A., M. Lang, N. Nash, and S.L. Kirschner. 1974. "Sources of Metals in New York City Wastewater" J. Water Pollution Control Federation 46(12):2653-62; Barrett, M.E, R.D. Zuber, E.R. Collins, J.F. Malina, R.J. Charbeneau, and G.H Ward., 1993. "A Review and Evaluation of Literature Pertaining to the Quantity and Control of Pollution from Highway Runoff and Construction." Research Report 1943-1. Center for Transportation Research, University of Texas, Austin).

c. Beach Closings/Advisories

Urban wet weather flows have been recognized as the primary sources of estuarine pollution in coastal communities. Urban storm water runoff, sanitary sewer overflows, and combined sewer overflows have become the largest causes of beach closings in the United States in the past three years. Storm water discharges from urban areas not only pose a threat to the ecological environment, they also can substantially affect human health. A survey of coastal and Great Lakes communities reports that in 1998, more than 1,500 beach closings and advisories were associated with storm water runoff (Natural Resources Defense Council. 1999. "A Guide to Water Quality at Vacation Beaches" New York, NY). Other reports also document public health, shellfish bed, and habitat impacts from storm water runoff, including more than 823 beach closings/advisories issued in 1995 and more than 407 beach closing/advisories issued in 1996 due to urban runoff (Natural Resources Defense Council. 1996. Testing the Waters Volume VI: Who Knows What You're Getting Into. New York, NY; NRDC. 1997. Testing the Waters Volume VII: How Does Your Vacation Beach Rate. New York, NY; Morton, T. 1997. Draining to the Ocean: The Effects of Stormwater Pollution on Coastal Waters. American Oceans Campaign, Santa Monica, CA). The Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay (Haile, R.W., et. al. 1996. "An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay." Final Report prepared for the Santa Monica Bay Restoration Project) concluded that there is a 57 percent higher rate of illness in swimmers who swim adjacent to storm drains than in swimmers who swim more than 400 yards away from storm drains. This and other studies document a relationship between gastrointestinal illness in swimmers and water quality, the latter of which can be heavily compromised by polluted storm water discharges.

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2. Non-Storm Water Discharges Through Municipal Storm Sewers

Studies have shown that discharges from MS4s often include wastes and wastewater from non-storm water sources. Federal regulations (§122.26(b)(2)) define an illicit discharge as "* * * any discharge to an MS4 that is not composed entirely of storm water * * *," with some exceptions. These discharges are "illicit" because municipal storm sewer systems are not designed to accept, process, or discharge such wastes. Sources of illicit discharges include, but are not limited to: sanitary wastewater; effluent from septic tanks; car wash, laundry, and other industrial wastewaters; improper disposal of auto and household toxics, such as used motor oil and pesticides; and spills from roadway and other accidents.

Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the MS4 from cracked sanitary systems, spills collected by drain outlets, and paint or used oil dumped directly into a drain). The result is untreated discharges that contribute high levels of pollutants, ***68728** including heavy metals, toxics, oil and grease, solvents, nutrients, viruses and bacteria into receiving waterbodies. The NURP study, discussed earlier, found that pollutant levels from illicit discharges were high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health. The study noted particular problems with illicit discharges of sanitary wastes, which can be directly linked to high bacterial counts in receiving waters and can be dangerous to public health.

Because illicit discharges to MS4s can create severe widespread contamination and water quality problems, several municipalities and urban counties performed studies to identify and eliminate such discharges. In Michigan, the Ann Arbor and Ypsilanti water quality projects inspected 660 businesses, homes, and other buildings and identified 14 percent of the buildings as having improper storm sewer drain connections. The program assessment revealed that, on average, 60 percent of automobile-related businesses, including service stations, automobile dealerships, car washes, body shops, and light industrial facilities, had illicit connections to storm sewer drains. The program assessment also showed that a majority of the illicit discharges to the storm sewer system resulted from improper plumbing and connections, which had been approved by the municipality when installed (Washtenaw County Statutory Drainage Board. 1987. Huron River Pollution Abatement Program).

In addition, an inspection of urban storm water outfalls draining into Inner Grays, Washington, indicated that 32 percent of these outfalls had dry weather flows. Of these flows, 21 percent were determined to have pollutant levels higher than the pollutant levels expected in typical urban storm water runoff characterized in the NURP study (U.S. EPA. 1993. Investigation of Inappropriate Pollutant Entries Into Storm Drainage Systems—A User's Guide. EPA 600/R-92/238. Office of Research and Development. Washington, DC). That same document reports a study in Toronto, Canada, that found that 59 percent of outfalls from the MS4 had dry-weather flows. Chemical tests revealed that 14 percent of these dry-weather flows were determined to be grossly polluted.

Inflows from aging sanitary sewer collection systems are one of the most serious illicit discharge-related problems. Sanitary sewer systems frequently develop leaks and cracks, resulting in discharges of pollutants to receiving waters through separate storm sewers. These pollutants include sanitary waste and materials from sewer main construction (e.g., asbestos cement, brick, cast iron, vitrified clay). Municipalities have long recognized the reverse problem of storm water infiltration into sanitary sewer collection systems; this type of infiltration often disrupts the operation of the municipal sewage treatment plant.

The improper disposal of materials is another illicit discharge-related problem that can result in contaminated discharges from separate storm sewer systems in two ways. First, materials may be disposed of directly in a catch basin or other storm water conveyance. Second, materials disposed of on the ground may either drain directly to a storm sewer or be washed into a storm sewer during a storm event. Improper disposal of materials to street catch basins and other storm sewer inlets often occurs when people mistakenly believe that disposal to such areas is an environmentally sound practice. Part of the confusion may occur because some areas are served by combined sewer systems, which are part of the sanitary sewer collection system, and people assume that materials discharged to a catch basin will reach a municipal

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sewage treatment plant. Materials that are commonly disposed of improperly include used motor oil; household toxic materials; radiator fluids; and litter, such as disposable cups, cans, and fast-food packages. EPA believes that there has been increasing success in addressing these problems through initiatives such as storm drain stenciling and recycling programs, including household hazardous waste special collection days.

Programs that reduce illicit discharges to separate storm sewers have improved water quality in several municipalities. For example, Michigan's Huron River Pollution Abatement Program found the elimination of illicit connections caused a measurable improvement in the water quality of the Washtenaw County storm sewers and the Huron River (Washtenaw County Statutory Drainage Board, 1987). In addition, an illicit detection and remediation program in Houston, Texas, has significantly improved the water quality of Buffalo Bayou. Houston estimated that illicit flows from 132 sources had a flow rate as high as 500 gal/min. Sources of the illicit discharges included broken and plugged sanitary sewer lines, illicit connections from sanitary lines to storm sewer lines, and floor drain connections (Glanton, T., M.T. Garrett, and B. Goloby. 1992. The Illicit Connection: Is It the Problem? Wat. Env. Tech. 4(9):63-8).

3. Construction Site Runoff

Storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical, and physical integrity of the waters may become severely compromised. Water quality impairment results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients (particularly phosphorus), metals, and organic compounds into aquatic systems (Novotny, V. and G. Chesters. 1989. "Delivery of Sediment and Pollutants from Nonpoint Sources: A Water Quality Perspective." Journal of Soil and Water Conservation, 44(6):568-76). Estimates indicate that 80 percent of the phosphorus and 73 percent of the Kjeldahl nitrogen in streams is associated with eroded sediment (U.S. Department of Agriculture. 1989. "The Second RCA Appraisal, Soil, Water and Related Resources on Nonfederal Land in the United States, Analysis of Condition and Trends." Cited in Fennessey, L.A.J., and A.R. Jarrett. 1994. "The Dirt in a Hole: a Review of Sedimentation Basins for Urban Areas and Construction Sites." Journal of Soil and Water Conservation, 49(4):317-23).

In watersheds experiencing intensive construction activity, the localized impacts of water quality may be severe because of high pollutant loads, primarily sediments. Siltation is the largest cause of impaired water quality in rivers and the third largest cause of impaired water quality in lakes (U.S. EPA, 1998). The 1996 305(b) report also found that construction site discharges were a source of pollution in: 6 percent of impaired rivers; 11 percent of impaired lakes, ponds, and reservoirs; and 11 percent of impaired estuaries. Introduction of coarse sediment (coarse sand or larger) or a large amount of fine sediment is also a concern because of the potential of filling lakes and reservoirs (along with the associated remediation costs for dredging), as well as clogging stream channels (e.g., Paterson, R.G., M.I. Luger, E.J. Burby, E.J. Kaiser, H.R. Malcolm, and A.C. Beard. 1993. "Costs and Benefits of Urban Erosion and Sediment Control: North Carolina Experience." Environmental Management 17(2):167-78). Large inputs of coarse sediment into ***68729** stream channels initially will reduce stream depth and minimize habitat complexity by filling in pools (U.S. EPA. 1991. Monitoring Guidelines to Evaluate Effects of Forestry Activities on Streams in the Pacific Northwest and Alaska. EPA 910/9-91-001. Seattle, WA). In addition, studies have shown that stream reaches affected by construction activities often extend well downstream of the construction site. For example, between 4.8 and 5.6 kilometers of stream below construction sites in the Patuxent River watershed were observed to be impacted by sediment inputs (Fox, H.L. 1974. "Effects of Urbanization on the Patuxent River, with Special Emphasis on Sediment Transport, Storage, and Migration." Ph.D. dissertation. Johns Hopkins University, Baltimore, MD. As Cited in Klein, R.D. 1979. "Urbanization and Stream Quality Impairment." Water Resources Bulletin 15(4): 948-63).

A primary concern at most construction sites is the erosion and transport process related to fine sediment because rain splash, rills (i.e., a channel small enough to be removed by normal agricultural practices and typically less than 1-foot deep), and sheetwash encourage the detachment and transport of this material to waterbodies (Storm Water Quality

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Task Force. 1993. California Storm Water Best Management Practice Handbooks—Construction Activity. Oakland, CA: Blue Print Service). Construction sites also can generate other pollutants associated with onsite wastes, such as sanitary wastes or concrete truck washout.

Although streams and rivers naturally carry sediment loads, erosion from construction sites and runoff from developed areas can elevate these loads to levels well above those in undisturbed watersheds. It is generally acknowledged that erosion rates from construction sites are much greater than from almost any other land use (Novotny, V. and H. Olem. 1994. Water Quality: Prevention, Identification, and Management of Diffuse Pollution. New York: Van Nostrand Reinhold). Results from both field studies and erosion models indicate that erosion rates from construction sites are typically an order of magnitude larger than row crops and several orders of magnitude greater than rates from well-vegetated areas, such as forests or pastures (USDA. 1970. "Controlling Erosion on Construction Sites." Agriculture Information Bulletin, Washington, DC; Meyer, L.D., W.H. Wischmeier, and W.H. Daniel. 1971. "Erosion, Runoff and Revegetation of Denuded Construction Sites." Transactions of the ASAE 14(1):138-41; Owen, O.S. 1975. Natural Resource Conservation. New York: MacMillan. As cited in Paterson, et al., 1993).

A recent review of the efficiency of sediment basins indicated that inflows from 12 construction sites had a mean TSS concentration of about 4,500 mg/L (Brown, W.E. 1997. "The Limits of Settling." Technical Note No. 83. Watershed Protection Techniques 2(3)). In Virginia, suspended sediment concentrations from housing construction sites were measured at 500-3,000 mg/L, or about 40 times larger than the concentrations from already-developed urban areas (Kuo, C.Y. 1976. "Evaluation of Sediment Yields Due to Urban Development." Bulletin No. 98. Virginia Water Resources Research Center, Virginia Polytechnic Institute and State University, Blacksburg, VA).

Similar impacts from storm water runoff have been reported in a number of other studies. For example, Daniel, et al., monitored three residential construction sites in southeastern Wisconsin and determined that annual sediment yields were more than 19 times the yields from agricultural areas (Daniel, T.C., D. McGuire, D. Stoffel, and B. Miller. 1979. "Sediment and Nutrient Yield from Residential Construction Sites" Journal of Environmental Quality 8(3):304-08). Daniel, et al., identified total storm runoff, followed by peak storm runoff, as the most influential factors controlling the sediment loadings from residential construction sites. Daniel, et al., also found that suspended sediment concentrations were 15,000-20,000 mg/L in moderate events and up to 60,000 mg/L in larger events.

Wolman and Schick (Wolman, M.G. and A.P. Schick. 1967. "Effects of Construction on Fluvial Sediment, Urban and Suburban Areas of Maryland." Water Resources Research 3(2): 451-64) studied the impacts of development on fluvial systems in Maryland and determined that sediment yields in areas undergoing construction were 1.5 to 75 times greater than detected in natural or agricultural catchments. The authors summarize the potential impacts of construction on sediment yields by stating that "the equivalent of many decades of natural or even agricultural erosion may take place during a single year from areas cleared for construction" (Wolman and Schick, 1967).

A number of studies have examined the effects of road construction on erosion rates and sediment yields. A highway construction project in West Virginia disturbed only 4.2 percent of a 4.72-square-mile basin, but resulted in a three-fold increase in suspended sediment yields (Downs, S.C. and D.H. Appel. 1986. Progress Report on the Effects of Highway Construction on Suspended-Sediment Discharge in the Coal River and Trace Fork, West Virginia, 1975-81. USGS Water Resources Investigations Report 84-4275. Charlestown, WV). During the largest storm event, it was estimated that 80 percent of the sediment in the stream originated from the construction site. As is often the case, the increase in suspended sediment load could not be detected further downstream, where the drainage area was more than 50 times larger (269 square miles).

Another study evaluated the effect of 290 acres of highway construction on watersheds ranging in size from 5 to 38 square miles. Suspended sediment loads in the smallest watershed increased by 250 percent, and the estimated sediment yield from the construction area was 37 tons/acre during a 2-year period (Hainly, R.A. 1980. The Effects of

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Highway Construction on Sediment Discharge into Blockhouse Creek and Stream Valley Run, Pennsylvania. USGS Water Resources Investigations Report 80-68. Harrisburg, PA). A more recent study in Hawaii showed that highway construction increased suspended sediment loads by 56 to 76 percent in three small (1 to 4 square mile) basins (Hill, B.R. 1996. Streamflow and Suspended-Sediment Loads Before and During Highway Construction, North Halawa, Haiku, and Kamooalii Drainage Basins, Oahu, Hawaii, 1983-91. USGS Water Resources Investigations Report 96-4259. Honolulu, HI). A 1970 study determined that sediment yields from construction areas can be as much as 500 times the levels detected in rural areas (National Association of Counties Research Foundation. 1970. Urban Soil Erosion and Sediment Control. Water Pollution Control Research Series, Program #15030 DTL. Federal Water Quality Administration, U.S. Department of Interior. Washington, DC)

Yorke and Herb (Yorke, T.H., and W.J. Herb. 1978. Effects of Urbanization on Streamflow and Sediment Transport in the Rock Creek and Anacostia River Basins, Montgomery County, Maryland, 1962-74. USGS Professional Paper 1003, Washington, DC) evaluated nine subbasins in the Maryland portion of the Anacostia watershed for more than a decade in an effort to define the impacts of changing land use/land cover on sediment in runoff. Average annual suspended sediment yields for construction sites ranged from 7 to 100 tons/acre. Storm water discharges from construction sites that occur when the land area is disturbed (and prior to ***68730** surface stabilization) can significantly impact designated uses. Examples of designated uses include public water supply, recreation, and propagation of fish and wildlife. The siltation process described previously can threaten all three designated uses by (1) depositing high concentrations of pollutants in public water supplies; (2) decreasing the depth of a waterbody, which can reduce the volume of a reservoir or result in limited use of a water body by boaters, swimmers, and other recreational enthusiasts; and (3) directly impairing the habitat of fish and other aquatic species, which can limit their ability to reproduce.

Excess sediment can cause a number of other problems for waterbodies. It is associated with increased turbidity and reduced light penetration in the water column, as well as more long-term effects associated with habitat destruction and increased difficulty in filtering drinking water. Numerous studies have examined the effect that excess sediment has on aquatic ecosystems. For example, sediment from road construction activity in Northern Virginia reduced aquatic insect and fish communities by up to 85 percent and 40 percent, respectively (Reed, J.R. 1997. “Stream Community Responses to Road Construction Sediments.” Bulletin No. 97. Virginia Water Resources Research Center, Virginia Polytechnic Institute, Blacksburg, VA. As cited in Klein, R.D. 1990. A Survey of Quality of Erosion and Sediment Control and Storm Water Management in the Chesapeake Bay Watershed. Annapolis, MD: Chesapeake Bay Foundation). Other studies have shown that fine sediment (fine sand or smaller) adversely affects aquatic ecosystems by reducing light penetration, impeding sight-feeding, smothering benthic organisms, abrading gills and other sensitive structures, reducing habitat by clogging interstitial spaces within a streambed, and reducing the intergravel dissolved oxygen by reducing the permeability of the bed material (Everest, F.H., J.C. Beschta, K.V. Scrivener, J.R. Koski, J.R. Sedell, and C.J. Cederholm. 1987. “Fine Sediment and Salmonid Production: A Paradox.” Streamside Management: Forestry and Fishery Interactions, Contract No. 57, Institute of Forest Resources, University of Washington, Seattle, WA). For example, 4.8 and 5.6 kilometers of stream below construction sites in the Patuxent River watershed in Maryland were found to have fine sediment amounts 15 times greater than normal (Fox, 1974. As cited in Klein, 1979). Benthic organisms in the streambed can be smothered by sediment deposits, causing changes in aquatic flora and fauna, such as fish species composition (Wolman and Schick, 1967). In addition, the primary cause of coral reef degradation in coastal areas is attributed to land disturbances and dredging activities due to urban development (Rogers, C.S. 1990. “Responses of Coral Reefs and Reef Organizations to Sedimentation.” Marine Ecology Progress Series, 62:185-202).

EPA believes that the water quality impact from small construction sites is as high as or higher than the impact from larger sites on a per acre basis. The concentration of pollutants in the runoff from smaller sites is similar to the concentrations in the runoff from larger sites. The proportion of sediment that makes it from the construction site to surface waters is likely the same for larger and smaller construction sites in urban areas because the runoff from either site is usually delivered directly to the storm drain network where there is no opportunity for the sediment to be filtered out.

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The expected contribution of total sediment yields from small sites depends, in part, on the extent to which erosion and sedimentation controls are being applied. Because current storm water regulations are more likely to require erosion and sedimentation controls on larger sites in urban areas, smaller construction sites that lack such programs are likely to contribute a disproportionate amount of the total sediment from construction activities (MacDonald, L.H. 1997. Technical Justification for Regulating Construction Sites 1-5 Acres in Size. Unpublished report submitted to U.S. EPA, Washington, DC). Smaller construction sites are less likely to have an effective plan to control erosion and sedimentation, are less likely to properly implement and maintain their plans, and are less likely to be inspected (Brown, W. and D. Caraco. 1997. Controlling Storm Water Runoff Discharges from Small Construction Sites: A National Review. Submitted to Office of Wastewater Management, U.S. EPA, Washington, DC., by the Center for Watershed Protection, Silver Spring, MD). The proportion of sediment that makes it from the construction site to surface waters is likely the same for larger and smaller construction sites in urban areas because the runoff from either site is usually delivered directly to the storm drain network, where there is no opportunity for the sediment to be filtered out.

To confirm its belief that sediment yields from small sites are as high as or higher than the 20 to 150 tons/acre/year measured from larger sites, EPA gave a grant to the Dane County, Wisconsin Land Conservation Department, in cooperation with the USGS, to evaluate sediment runoff from two small construction sites. The first was a 0.34 acre residential lot and the second was a 1.72 acre commercial office development. Runoff from the sites was channeled to a single discharge point for monitoring. Each site was monitored before, during, and after construction.

The Dane County study found that total solids concentrations from these small sites are similar to total solids concentrations from larger construction sites. Results show that for both of the study sites, total solids and suspended solids concentrations were significantly higher during construction than either before or after construction. For example, preconstruction total solids concentrations averaged 642 mg/L during the period when ryegrass was established, active construction total solids concentrations averaged 2,788 mg/L, and post-construction total solids concentrations averaged 132 mg/L (on a pollutant load basis, this equaled 7.4 lbs preconstruction, 35 lbs during construction, and 0.6 lbs post-construction for total solids). While this site was not properly stabilized before construction, after construction was complete and the site was stabilized, post-construction concentrations were more than 20 times less than during construction. The results were even more dramatic for the commercial site. The commercial site had one preconstruction event, which resulted in total solids concentrations of 138 mg/L, while active construction averaged more than 15,000 mg/L and post-construction averaged only 200 mg/L (on a pollutant load basis, this equaled 0.3 lbs preconstruction, 490 lbs during construction, and 13.4 lbs post-construction for total solids). The active construction period resulted in more than 75 times more sediment than either before or after construction (Owens, D.W., P. Jopke, D.W. Hall, J. Balousek and A. Roa. 1999. “Soil Erosion from Small Construction Sites.” Draft USGS Fact Sheet. USGS and Dane County Land Conservation Department, WI). The total solids concentrations from these small sites in Wisconsin are similar to total solids concentrations from larger construction sites. For example, a study evaluating the effects of highway construction in West Virginia found that a small storm produced a sediment concentration of 7,520 mg/L (Downs and Appel, 1986).

One important aspect of small construction sites is the number of small sites relative to larger construction sites ***68731** and total land area within the watershed. Brown and Caraco surveyed 219 local jurisdictions to assess erosion and sediment control (ESC) programs. Seventy respondents provided data on the number of ESC permits for construction sites smaller than 5 acres. In 27 cases (38 percent of the respondents), more than three-quarters of the permits were for sites smaller than 5 acres; in another 18 cases (26 percent), more than half of the permits were for sites smaller than 5 acres.

In addition, data on the total acreage disturbed by smaller construction sites have been collected recently in two States (MacDonald, 1997). The most recent and complete data set is the listing of the disturbed area for each of the 3,831 construction sites permitted in North Carolina for 1994-1995 and 1995-1996. Nearly 61 percent of the sites that were 1 acre or larger were between 1.0 and 4.9 acres in size. This proportion was consistent between years. Data showed that this range of sites accounted for 18 percent of the total area disturbed by construction. The values showed very little

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variation between the 2 years of data. The total disturbed area for all sites over this 2-year period was nearly 33,000 acres, or about 0.1 percent of the total area of North Carolina.

EPA estimates that construction sites disturbing greater than 5 acres disturb 2.1-million acres of land (78.1 percent of the total) while sites disturbing between 1 and 5 acres of land disturb 0.5-million acres of land (19.4 percent). The remaining sites on less than 1 acres of land disturb 0.07-million acres of land (only 2.5 percent of the total). Given the high erosion rates associated with most construction sites, small construction sites can be a significant source of water quality impairment, particularly in small watersheds that are undergoing rapid development. Exempting sites under 1 acre will exclude only about 2.5 percent of acreage from program coverage, but will exclude a far higher number of sites, approximately 25 percent.

Several studies have determined that the most effective construction runoff control programs rely on local plan review and field enforcement (Paterson, R. G. 1994. "Construction Practices: the Good, the Bad, and the Ugly." Watershed Protection Techniques 1(3)). In his review, Paterson suggests that, given the critical importance of field implementation of erosion and sediment control programs and the apparent shortcomings that exist, much more focus should be given to plan implementation.

Several commenters disputed the data presented in the proposed rule for storm water discharges from smaller construction sites. One commenter stated that EPA has not adequately explained the basis for permitting construction activity down to 1 disturbed acre. Another commenter stated that EPA did not present sufficient data on water quality impacts from construction sites disturbing less than 5 acres.

EPA believes that the data presented above sufficiently support nationwide designation of storm water discharges from construction activity disturbing more than 1 acre. Based on total disturbed land area within a watershed, the cumulative effects of numerous small construction sites can have impacts similar to those of larger sites in a particular area. In addition, waivers for storm water discharges from smaller construction activity will exclude sites not expected to impair water quality. EPA will continue to collect water quality data on construction site storm water runoff.

C. Statutory Background

In 1972, Congress enacted the CWA to prohibit the discharge of any pollutant to waters of the United States from a point source unless the discharge is authorized by an NPDES permit. Congress added CWA section 402(p) in 1987 to require implementation of a comprehensive program for addressing storm water discharges. Section 402(p)(1) required EPA or NPDES-authorized States or Tribes to issue NPDES permits for the following five classes of storm water discharges composed entirely of storm water ("storm water discharges") specifically listed under section 402(p)(2):

(A) a discharge subject to an NPDES permit before February 4, 1987

(B) a discharge associated with industrial activity

(C) a discharge from a municipal separate storm sewer system serving a population of 250,000 or more

(D) a discharge from a municipal separate storm sewer system serving a population of 100,000 or more but less than 250,000

(E) a discharge that an NPDES permitting authority determines to be contributing to a violation of a water quality standard or a significant contributor of pollutants to the waters of the United States.

Section 402(p)(3)(A) requires storm water discharges associated with industrial activity to meet all applicable provisions of section 402 and section 301 of the CWA, including technology-based requirements and any more stringent

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requirements necessary to meet water quality standards. Section 402(p)(3)(B) establishes NPDES permit standards for discharges from municipal separate storm sewer systems, or MS4s. NPDES permits for discharges from MS4s (1) may be issued on a system or jurisdiction-wide basis, (2) must include a requirement to effectively prohibit non-storm water discharges into the storm sewers, and (3) must require controls to reduce pollutant discharges to the maximum extent practicable, including best management practices, and other provisions as the Administrator or the States determine to be appropriate for the control of such pollutants. At this time, EPA determines that water quality-based controls, implemented through the iterative processes described today are appropriate for the control of such pollutants and will result in reasonable further progress towards attainment of water quality standards. See sections II.L and II.H.3 of the preamble.

In CWA section 402(p)(4), Congress established statutory deadlines for the initial steps in implementing the NPDES program for storm water discharges. This section required development of NPDES permit application regulations, submission of NPDES permit applications, issuance of NPDES permits for sources identified in section 402(p)(2), and compliance with NPDES permit conditions. In addition, this section required industrial facilities and large MS4s to submit NPDES permit applications for storm water discharges by February 4, 1990. Medium MS4s were to submit NPDES permit applications by February 4, 1992. EPA and authorized NPDES States were prohibited from requiring an NPDES permit for any other storm water discharges until October 1, 1994.

Section 402(p)(5) required EPA to conduct certain studies and submit a report to Congress. This requirement is discussed in the following section.

Section 402(p)(6) requires EPA, in consultation with States and local officials, to issue regulations for the designation of additional storm water discharges to be regulated to protect water quality. It also requires EPA to extend the existing storm water program to regulate newly designated sources. At a minimum, the extension must establish (1) priorities, (2) requirements for State storm water management programs, and (3) expeditious deadlines. Section 402(p)(6) specifies that the program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as ***68732** appropriate. Today's rule implements this section.

D. EPA's Reports to Congress

Under CWA section 402(p)(5), EPA, in consultation with the States, was required to conduct a study. The study was to identify unregulated sources of storm water discharges, determine the nature and extent of pollutants in such discharges, and establish procedures and methods to mitigate the impacts of such discharges on water quality. Section 402(p)(5) also required EPA to report the results of the first two components of that study to Congress by October 1, 1988, and the final report by October 1, 1989.

In March 1995, EPA submitted to Congress a report that reviewed and analyzed the nature of storm water discharges from municipal and industrialacilities that were not already regulated under the initial NPDES regulations for storm water (U.S. Environmental Protection Agency, Office of Water. 1995. Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System Storm Water Program: Report to Congress. Washington, D.C. EPA 833-K-94-002) (“Report”). The Report also analyzed associated pollutant loadings and water quality impacts from these unregulated sources. Based on identification of unregulated municipal sources and analysis of information on impacts of storm water discharges from municipal sources, the Report recommended that the NPDES program for storm water focus on the 405 “urbanized areas” identified by the Bureau of the Census. The Report further found that a number of discharges from unregulated industrial facilities warranted further investigation to determine the need for regulation. It classified these unregulated industrial discharges in two groups: Group A and Group B. Group A comprised sources that may be considered a high priority for inclusion in the NPDES program for storm water because discharges from these sources are similar or identical to already regulated sources. These “look alike” storm water discharge sources were not covered in the initial NPDES regulations for storm water due to the language used to define “associated with industrial activity.” In the initial regulations for storm water, “industrial activity” is identified

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using Standard Industrial Classification (SIC) codes. The use of SIC codes led to incomplete categorization of industrial activities with discharges that needed to be regulated to protect water quality. Group B consisted of 18 industrial sectors, which included sources that EPA expected to contribute to storm water contamination due to the activities conducted and pollutants anticipated onsite (e.g., vehicle maintenance, machinery and electrical repair, and intensive agricultural activities).

EPA reported on the latter component of the section 402(p)(5) study via President Clinton's Clean Water Initiative, which was released on February 1, 1994 (U.S. Environmental Protection Agency, Office of Water. 1994. President Clinton's Clean Water Initiative. Washington, D.C. EPA 800-R-94-001) ("Initiative"). The Initiative addressed a number of issues associated with NPDES requirements for storm water discharges and proposed (1) establishing a phased compliance with a water quality standards approach for discharges from municipal separate storm sewer systems with priority on controlling discharges from municipal growth and development areas, (2) clarifying that the maximum extent practicable standard should be applied in a site-specific, flexible manner, taking into account cost considerations as well as water quality effects, (3) providing an exemption from the NPDES program for storm water discharges from industrial facilities with no activities or significant materials exposed to storm water, (4) providing extensions to the statutory deadlines to complete implementation of the NPDES program for the storm water program, (5) targeting urbanized areas for the requirements in the NPDES program for storm water, and (6) providing control of discharges from inactive and abandoned mines located on Federal lands in a more targeted, flexible manner. Additionally, prior to promulgation of today's rule, section 431 of the Agency's Appropriation Act for FY 2000 (Departments of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act of 2000, Public Law 106-74, section 432 (1999)) directed EPA to report on certain matters to be covered in today's rule. That report supplements the study required by CWA Section 402(p)(5). EPA is publishing the availability of that report elsewhere in this issue of the Federal Register.

Several commenters asserted that the Report to Congress is an inadequate basis for the designation and regulation of sources covered under today's final rule, specifically the nationwide designation of small municipal separate storm sewer systems within urbanized areas and construction activities disturbing between one and five acres.

EPA believes that it has developed an adequate record for today's regulation both through the Report to Congress and the Clean Water Initiative and through more recent activities, including the FACA Subcommittee process, regulatory notices and evaluation of comments, and recent research and analysis. EPA does not interpret the congressional reporting requirements of CWA section 402(p)(5) to be the sole basis for determining sources to be regulated under today's final rule.

EPA's decision to designate on a national basis small MS4s in urbanized areas is supported by studies that clearly show a direct correlation between urbanization and adverse water quality impacts from storm water discharges. (Schueler, T. 1987. Controlling Urban Runoff: A Practical Manual for Planning & Designing Urban BMPs. Metropolitan Washington Council of Governments). "Urbanized areas"—within which all small MS4s would be covered—represent the most intensely developed and dense areas of the Nation. They constitute only two percent of the land area but 63 percent of the total population. See section I.B.1, Urban Development, above, for studies and assessments of the link between urban development and storm water impacts on water resources.

Commenters argued that the Report to Congress does not address storm water discharges from construction sites. They further argued that the designation of small construction sites per today's final rule goes beyond the President's 1994 Initiative because the Initiative only recommends requiring municipalities to implement a storm water management program to control unregulated storm water sources, "including discharges from construction of less than 5 acres, which are part of growth, development and significant redevelopment activities." They point out that the Initiative provides that unregulated storm water discharges not addressed through a municipal program would not be covered by the NPDES program. Commenters assert that EPA has not developed a record independent of its section 402(p)(5) studies

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that demonstrates the necessity of regulating under a separate NPDES permit storm water discharges from smaller construction sites "to protect water quality." EPA disagrees.

EPA evaluated the nature and extent of pollutants from construction site sources in a process that was separate and distinct from the development of the Report to Congress. Today's decision to regulate certain storm water discharges from construction sites disturbing less than 5 acres arose in part ***68733** out of the 9th Circuit remand in NRDC v. EPA, 966 F.2d 1292 (9th Cir. 1992). In that case, the court remanded portions of the Phase I storm water regulations related to discharges from construction sites. Those regulations define "storm water discharges associated with industrial activity" to include only those storm water discharges from construction sites disturbing 5 acres or more of total land area (see 40 CFR 122.26(b)(14)(x)). In its decision, the court concluded that the 5-acre threshold was improper because the Agency had failed to identify information "to support its perception that construction activities on less than 5 acres are non-industrial in nature" (966 F.2d at 1306). The court remanded the below 5 acre exemption to EPA for further proceedings (966 F.2d at 1310).

In a Federal Register notice issued on December 18, 1992, EPA noted that it did not believe that the Court's decision had the effect of automatically subjecting small construction sites to the existing application requirements and deadlines. EPA believed that additional notice and comment were necessary to clarify the status of these sites. The information received during the notice and comment process and additional research, as discussed in section I.B.3 Construction Site Runoff, formed the basis for the designation of construction activity disturbing between one and five acres on a nationwide basis. EPA's objectives in today's proposal include an effort to (1) address the 9th Circuit remand, (2) address water quality concerns associated with construction activities that disturb less than 5 acres of land, and (3) balance conflicting recommendations and concerns of stakeholders.

One commenter noted that EPA's proposal would fail to regulate industrial facilities identified as Group A and Group B in the March 1995 Report to Congress. EPA is relying on the analysis in the Report, which provided that the recommendation for coverage was meant as guidance and was not intended to be an identification of specific categories that must be regulated under Section 402(p)(6). Report to Congress, p. 4-1. The Report recognized the existence of limited data on which to base loadings estimates to support the nationwide designation of individual or categories of sources. Report to Congress, p. 4-44. Furthermore, during FACA Subcommittee discussion, EPA continued to urge stakeholders to provide further data relating to industrial and commercial storm water sources, which EPA did not receive. EPA concluded that, due to insufficient data, these sources were not appropriate for nationwide designation at this time.

E. Industrial Facilities Owned or Operated by Small Municipalities

Congress granted extensions to the NPDES permit application process for selected classes of storm water discharges associated with industrial activity. On December 18, 1991, Congress enacted the Intermodal Surface Transportation Efficiency Act (ISTEA), which postponed NPDES permit application deadlines for most storm water discharges associated with industrial activity at facilities that are owned or operated by small municipalities. EPA and States authorized to administer the NPDES program could not require any municipality with a population of less than 100,000 to apply for or obtain an NPDES permit for any storm water discharge associated with industrial activity prior to October 1, 1992, except for storm water discharges from airports, power plants, or uncontrolled sanitary landfills. See 40 CFR 122.26(e)(1); 57 FR 11524, April 2, 1992 (reservation of NPDES application deadlines for ISTEA facilities).

The facilities exempted by ISTEA discharge storm water in the same manner (and are expected to use identical processes and materials) as the industrial facilities regulated under the 1990 Phase I regulations. Accordingly, these facilities pose similar water quality problems. The extended moratorium for these facilities was necessary to allow municipalities additional time to comply with NPDES requirements. The proposal for today's rule would have maintained the existing deadline for seeking coverage under an NPDES permit (August 7, 2001).

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Today's rule changes the permit application deadline for such municipally owned or operated facilities discharging industrial storm water to make it consistent with the application date for small regulated MS4s. Because EPA missed its March 1999 deadline for promulgating today's rule, and the deadline for MS4s to submit permit applications has been extended to three years and 90 days from the date of this notice, the deadline for permitting ISTEA sources has been similarly extended. The permitting of these sources is discussed below in section "II.I.3. ISTEA Sources."

F. Related Nonpoint Source Programs

Today's rule addresses point source discharges of storm water runoff and non-storm water discharges into MS4s. Many of these sources have been addressed by nonpoint source control programs, which are described briefly below.

In 1987, section 319 was added to the CWA to provide a framework for funding State and local efforts to address pollutants from nonpoint sources not addressed by the NPDES program. To obtain funding, States are required to submit Nonpoint Source Assessment Reports identifying State waters that, without additional control of nonpoint sources of pollution, could not reasonably be expected to attain or maintain applicable water quality standards or other goals and requirements of the CWA. States are also required to prepare and submit for EPA approval a statewide Nonpoint Source Management Program for controlling nonpoint source water pollution to navigable waters within the State and improving the quality of such waters. State program submittals must identify specific best management practices (BMPs) and measures that the State proposes to implement in the first four years after program submission to reduce pollutant loadings from identified nonpoint sources to levels required to achieve the stated water quality objectives.

State nonpoint source programs funded under section 319 can include both regulatory and nonregulatory State and local approaches. Section 319(b)(2)(B) specifies that a combination of "nonregulatory or regulatory programs for enforcement, technical assistance, financial assistance, education, training, technology transfer, and demonstration projects' may be used, as necessary, to achieve implementation of the BMPs or measures identified in the section 319 submittals.

Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990 provides that States with approved coastal zone management programs must develop coastal nonpoint pollution control programs and submit them to EPA and the National Oceanic and Atmospheric Administration (NOAA) for approval. Failure to submit an approvable program will result in a reduction of Federal grants under both the Coastal Zone Management Act and section 319 of the CWA.

State coastal nonpoint pollution control programs under CZARA must include enforceable policies and mechanisms that ensure implementation of the management measures throughout the coastal management area. EPA issued Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters under section 6217(g) in ***68734** January 1993. The guidance identifies management measures for five major categories of nonpoint source pollution. The management measures reflect the greatest degree of pollutant reduction that is economically achievable for each of the listed sources. These management measures provide reference standards for the States to use in developing or refining their coastal nonpoint programs. A few management measures, however, contain quantitative standards that specify pollutant loading reductions. For example, the New Development Management Measure, which is applicable to construction in urban areas, requires (1) that by design or performance the average annual total suspended solid loadings be reduced by 80 percent and (2) to the extent practicable, that the pre-development peak runoff rate and average volume be maintained.

EPA and NOAA published Coastal Nonpoint Pollution Control Program: Program Development and Approval Guidance (1993). The document clarifies that States generally must implement management measures for each source category identified in the EPA guidance developed under section 6217(g). Coastal Nonpoint Pollution Control Programs are not required to address sources that are clearly regulated under the NPDES program as point source discharges.

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Specifically, such programs would not need to address small MS4s and construction sites covered under NPDES storm water permits (both general and individual).

II. Description of Program

A. Overview

1. Objectives EPA Seeks To Achieve in Today's Rule

EPA seeks to achieve several objectives in today's final rule. First, EPA is implementing the requirement under CWA section 402(p)(6) to provide a comprehensive storm water program that designates and controls additional sources of storm water discharges to protect water quality. Second, EPA is addressing storm water discharges from the activities exempted under the 1990 storm water permit application regulations that were remanded by the Ninth Circuit Court of Appeals in NRDC v. EPA, 966 F.2d 1292 (9th Circuit, 1992). These are construction activities disturbing less than 5 acres and so-called "light" industrial activities not exposed to storm water (see discussion of "no exposure" below). Third, EPA is providing coverage for the so-called "donut holes" created by the existing NPDES storm water program. Donut holes are geographic gaps in the NPDES storm water program's regulatory scheme. They are MS4s located within areas covered by the existing NPDES storm water program, but not currently addressed by the storm water program because it is based on political jurisdictions. Finally, EPA also is trying to promote watershed planning as a framework for implementing water quality programs where possible.

Although EPA had options for different approaches (see alternatives discussed in the January 9, 1998, proposed regulation), EPA believes it can best achieve its objectives through flexible innovations within the framework of the NPDES program. Unlike the interim section 402(p)(6) storm water regulations EPA promulgated in 1995, EPA no longer designates all of the unregulated storm water discharges for nationwide coverage under the NPDES program for storm water. The framework for today's final rule is one that balances automatic designation on a nationwide basis and locally-based designation and waivers. Nationwide designation applies to those classes or categories of storm water discharges that EPA believes present a high likelihood of having adverse water quality impacts, regardless of location. Specifically, today's rule designates discharges from small MS4s located in urbanized areas and storm water discharges from construction activities that result in land disturbance equal to or greater than one and less than five acres. As noted under Section I.B., Water Quality Concerns/Environmental Impact Studies and Assessments, these two categories of storm water sources, when unregulated, tend to cause significant adverse water quality impacts. Additional sources are not covered on a nationwide basis either because EPA currently lacks information indicating a consistent potential for adverse water quality impact or because EPA believes that the likelihood of adverse impacts on water quality is low, with some localized exceptions. Additional individual sources or categories of storm water discharges could, however, be covered under the program through a local designation process. A permitting authority may designate additional small MS4s after developing designation criteria and applying those criteria to small MS4s located outside of an urbanized area, in particular those with a population of 10,000 or more and a population density of at least 1,000. Exhibit 1 illustrates the designation framework for today's final rule.

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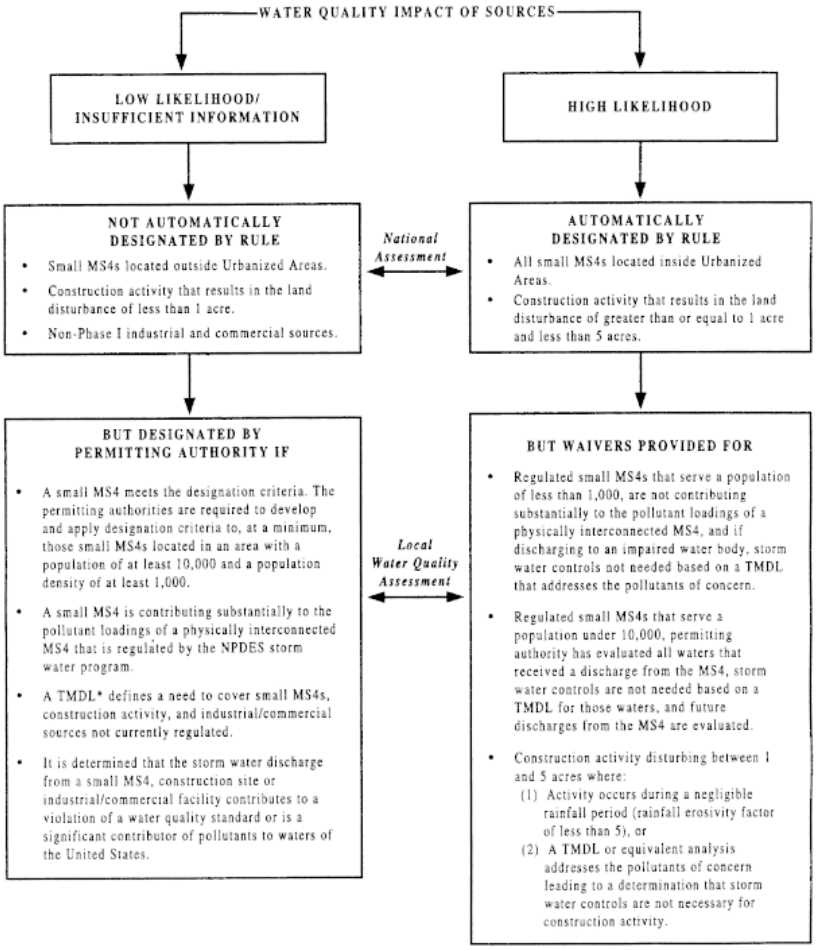
EXHIBIT 1.—PHASE II SOURCE DECISIONS



*EPA will continue to require States to comply with their Total Maximum Daily Load (TMDL) implementation schedules.

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***68736** The designation framework for today's final rule provides a significant degree of flexibility. The proposed provisions for nationwide designation of storm water discharges from construction and from small MS4s in urbanized areas allowed for a waiver of applicable requirements based on appropriate water quality conditions. Today's final rule expands and simplifies those waivers.

The permitting authority may waive the requirement for a permit for any small MS4 serving a jurisdiction with a population of less than 1,000 unless storm water controls are needed because the MS4 is contributing to a water quality impairment. The permitting authority may also waive permit coverage for MS4s serving a jurisdiction with a population of less than 10,000 if all waters that receive a discharge from the MS4 have been evaluated and discharges from the MS4 do not significantly contribute to a water quality impairment or have the potential to cause an impairment. Today's rule also allows States with a watershed permitting approach to phase in coverage for MS4s in jurisdictions with populations under 10,000.

Water quality conditions are also the basis for a waiver of requirements for storm water discharges from construction activities disturbing between one and five acres. For these small construction sources, the rule provides significant flexibility for waiving otherwise applicable regulatory requirements where a permitting authority determines, based on water quality and watershed considerations, that storm water discharge controls are not needed.

Coverage can be extended to municipal and construction sources outside the nationwide designated classes or categories based on watershed and case-by-case assessments. For the municipal storm water program, today's rule provides broad discretion to NPDES permitting authorities to develop and implement criteria for designating storm water discharges from small MS4s outside of urbanized areas. Other storm water discharges from unregulated industrial, commercial, and residential sources will not be subject to the NPDES permit requirements unless a permitting authority determines on a case-by-case basis (or on a categorical basis within identified geographic areas such as a State or watershed) that regulatory controls are needed to protect water quality. EPA believes that the flexibility provided in today's rule facilitates watershed planning.

2. General Requirements for Regulated Entities Under Today's Rule

As previously noted, today's final rule defines additional classes and categories of storm water discharges for coverage under the NPDES program. These designated dischargers are required to seek coverage under an NPDES permit. Furthermore, all NPDES-authorized States and Tribes are required to implement these provisions and make any necessary amendments to current State and Tribal NPDES regulations to ensure consistency with today's final rule. EPA remains the NPDES permitting authority for jurisdictions without NPDES authorization.

Today's final rule includes some new requirements for NPDES permitting authorities implementing the CWA section 402(p)(6) program. EPA has made a significant effort to build flexibility into the program while attempting to maintain an appropriate level of national consistency. Permitting authorities must ensure that NPDES permits issued to MS4s include the minimum control measures established under the program. Permitting authorities also have the ability to make numerous decisions including who is regulated under the program, i.e., case-by-case designations and waivers, and how responsibilities should be allocated between regulated entities.

Today's final rule extends the NPDES program to include discharges from the following: small MS4s within urbanized areas (with the exception of systems waived from the requirements by the NPDES permitting authority); other small MS4s meeting designation criteria to be established by the permitting authority; and any remaining MS4 that contributes substantially to the storm water pollutant loadings of a physically interconnected MS4 already subject to regulation under the NPDES program. Small MS4s include urban storm sewer systems owned by Tribes, States, political subdivisions of States, as well as the United States, and other systems located within an urbanized area that fall within the definition of an MS4. These include, for example, State departments of transportation (DOTs), public universities, and federal military bases.

Today's final rule requires all regulated small MS4s to develop and implement a storm water management program. Program components include, at a minimum, 6 minimum measures to address: public education and outreach; public involvement; illicit discharge detection and elimination; construction site runoff control; post-construction storm water management in new development and redevelopment; and pollution prevention and good housekeeping of municipal operations. These program components will be implemented through NPDES permits. A regulated small MS4 is required to submit to the NPDES permitting authority, either in its notice of intent (NOI) or individual permit application, the BMPs to be implemented and the measurable goals for each of the minimum control measures listed above.

The rule addresses all storm water discharges from construction site activities involving clearing, grading and excavating land equal to or greater than 1 acre and less than 5 acres, unless requirements are otherwise waived by the NPDES permitting authority. Discharges from such sites, as well as construction sites disturbing less than 1 acre of land that are designated by the permitting authority, are required to implement requirements set forth in the NPDES permit, which may reference the requirements of a qualifying local program issued to cover such discharges.

The rule also addresses certain other sources regulated under the existing NPDES program for storm water. For municipally-owned industrial sources required to be regulated under the existing NPDES storm water program but exempted from immediate compliance by the Intermodal Surface Transportation Act of 1991 (ISTEA), the rule revises

the existing deadline for seeking coverage under an NPDES permit (August 7, 2001) to make it consistent with the application date for small regulated MS4s. (See section I.3. below.) The rule also provides relief from NPDES storm water permitting requirements for industrial sources with no exposure of industrial materials and activities to storm water.

3. Integration of Today's Rule With the Existing Storm Water Program

In developing an approach for today's final rule, numerous early interested stakeholders encouraged EPA to seek opportunities to integrate, where possible, the proposed Phase II requirements with existing Phase I requirements, thus facilitating a unified storm water discharge control program. EPA believes that this objective is met by using the NPDES framework. This framework is already applied to regulated storm water discharge sources and is extended to those sources designated under today's rule. This approach facilitates program consistency, public access to information, and program oversight. ***68737**

EPA believes that today's final rule provides consistency in terms of program coverage and requirements for existing and newly designated sources. For example, the rule includes most of the municipal donut holes, those MS4s located in incorporated places, townships or towns with a population under 100,000 that are within Phase I counties. These MS4s are not addressed by the existing NPDES storm water program while MS4s in the surrounding county are currently addressed. In addition, the minimum control measures required in today's rule for regulated small MS4s are very similar to a number of the permit requirements for medium and large MS4s under the existing storm water program. Following today's rule, permit requirements for all regulated MS4s (both those under the existing program and those under today's rule) will require implementation of BMPs. Furthermore, with regard to the development of NPDES permits to protect water quality, EPA intends to apply the August 1, 1996, Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits (hereinafter, “Interim Permitting Approach”) (see Section II.L.1. for further description) to all MS4s covered by the NPDES program.

EPA is applying NPDES permit requirements to construction sites below 5 acres that are similar to the existing requirements for those above 5 acres and above. In addition, today's rule allows compliance with qualifying local, Tribal, or State erosion and sediment controls to meet the erosion and sediment control requirements of the general permits for storm water discharges associated with construction, both above and below 5 acres.

4. General Permits

EPA recommends using general permits for all newly regulated storm water sources under today's rule. The use of general permits, instead of individual permits, reduces the administrative burden on permitting authorities, while also limiting the paperwork burden on regulated parties seeking permit authorization. Permitting authorities may, of course, require individual permits in some cases to address specific concerns, including permit non-compliance.

EPA recommends that general permits for MS4s, in particular, be issued on a watershed basis, but recognizes that each permitting authority must decide how to develop its general permit(s). Permit conditions developed to address concerns and conditions of a specific watershed could reflect a watershed plan; such permit conditions must provide for attainment of applicable water quality standards (including designated uses), allocations of pollutant loads established by a TMDL, and timing requirements for implementation of a TMDL. If the permitting authority issues a State-wide general permit, the permitting authority may include separate conditions tailored to individual watersheds or urbanized areas. Of course, for a newly regulated MS4, modification of an existing individual MS4 permit to include the newly regulated MS4 as a “limited co-permittee” also remains an option.

5. Tool Box

During the FACA process, many Storm Water Phase II FACA Subcommittee representatives expressed an interest, which was endorsed by the full Committee, in having EPA develop a “tool box” to assist States, Tribes, municipalities,

and other parties involved in the Phase II program. EPA made a commitment to work with Storm Water Phase II FACA Subcommittee representatives in developing such a tool box, with the expectation that a tool box would facilitate implementation of the storm water program in an effective and cost-efficient manner. EPA has developed a preliminary working tool box (available on EPA's web page at www.epa.gov/owm/sw/toolbox). EPA intends to have the tool box fully developed by the time of the first general permits. EPA also intends to update the tool box as resources and data become available. The tool box will include the following eight main components: fact sheets; guidances; a menu of BMPs for the six MS4 minimum measures; an information clearinghouse; training and outreach efforts; technical research; support for demonstration projects; and compliance monitoring/assistance tools. EPA intends to issue the menu of BMPs, both structural and non-structural, by October 2000. In addition, EPA will issue by October 2000 a "model" permit and will issue by October 2001 guidance materials on the development of measurable goals for municipal programs.

In an attempt to avoid duplication, the Agency has undertaken an effort to identify and coordinate sources of information that relate to the storm water discharge control program from both inside and outside the Agency. Such information includes research and demonstration projects, grants, storm water management-related programs, and compendiums of available documents, including guidances, related directly or indirectly to the comprehensive NPDES storm water program. Based on this effort, EPA is developing a tool box containing fact sheets and guidance documents pertaining to the overall program and rule requirements (e.g., guidance on municipal and construction programs, and permitting authority guidance on designation and waiver criteria); models of current programs aimed at assisting States, Tribes, municipalities, and others in establishing programs; a comprehensive list of reference documents organized according to subject area (e.g., illicit discharges, watersheds, water quality standards attainment, funding sources, and similar types of references); educational materials; technical research data; and demonstration project results. The information collected by EPA will not only provide the background for tool box materials, but will also be made available through an information clearinghouse on the world wide web.

With assistance from EPA, the American Public Works Association (APWA) developed a workbook and series of workshops on the proposed Phase II rule. Ten workshops were held from September 1998 through May 1999. Depending on available funding, these workshops may continue after publication of today's final rule. EPA also intends to provide training to enable regional offices to educate States, Tribes, and municipalities about the storm water program and the availability of the tool box materials.

The CWA currently provides funding mechanisms to support activities related to storm water. These mechanisms will be described in the tool box. Activities funded under grant and loan programs, which could be used to assist in storm water program development, include programs in the nonpoint source area, storm water demonstration projects, source water protection and wastewater construction projects. EPA has already provided funding for numerous research efforts in these areas, including a database of BMP effectiveness studies (described below), an assessment of technologies for storm water management, a study of the effectiveness of storm water BMPs for controlling the impacts of watershed imperviousness, protocols for wet weather monitoring, development of a dynamic model for wet weather flows, and numerous outreach projects.

EPA has entered into a cooperative agreement with the Urban Water Resources Research Council of the American Society of Civil Engineers (ASCE) to develop a scientifically-based management tool for the information ***68738** needed to evaluate the effectiveness of urban storm water runoff BMPs nationwide. The long-term goal of the National Stormwater BMP Database project is to promote technical design improvements for BMPs and to better match their selection and design to the local storm water problems being addressed. The project team has collected and evaluated hundreds of existing published BMP performance studies and created a database covering about 75 test sites. The database includes detailed information on the design of each BMP and its watershed characteristics, as well as its performance. Eventually the database will include the nationwide collection of information on the characteristics of structural and non-structural BMPs, data collection efforts (e.g., sampling and flow gaging equipment), climatological characteristics, watershed characteristics, hydrologic data, and constituent data. The database will continue to grow as

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new BMP data become available. The initial release of the database, which includes data entry and retrieval software, is available on CD-ROM and operates on Windows (R) -compatible personal computers. The ASCE project team envisions that periodic updates to the database will be distributed through the Internet. The team is currently developing a system for Internet retrieval of selected database records, and this system is expected to be available in early 2000.

EPA and ASCE invite BMP designers, owners and operators to participate in the continuing database development effort. To make this effort successful, a large database is essential. Interested persons are encouraged to submit their BMP performance evaluation data and associated BMP watershed characteristics for potential entry into the database. The software included in the CD-ROM allows data providers to enter their BMP data locally, retain and edit the data as needed, and submit them to the ASCE Database Clearinghouse when ready.

To obtain a copy of the database, please contact Jane Clary, Database Clearinghouse Manager, Wright Water Engineers, Inc., 2490 W. 26th Ave., Suite 100A, Denver, CO 80211; Phone 303-480-1700; E-mail clary@wrightwater.com.

In addition, EPA requests that researchers planning to conduct BMP performance evaluations compile and collect BMP reporting information according to the standard format developed by ASCE. The format is provided with the database software and is also available on the ASCE website at www.asce.org/peta/tech/nsbd01.html.

6. Deadlines Established in Today's Action

Exhibit 2 outlines the various deadlines established under today's final rule. EPA believes that the dates allow sufficient time for completion of both the NPDES permitting authority's and the permittee's program responsibilities.

Exhibit 2-Storm Water Phase II Actions Deadlines

Activity	Deadline date
NPDES-authorized States modify NPDES program if no statutory change is required	1 year from date of publication of today's rule in the Federal Register.
NPDES-authorized States modify NPDES program if statutory change is required	2 years from date of publication of today's rule in the Federal Register.
EPA issues a menu of BMPs for regulated small MS4s	October 27, 2000
ISTEA sources submit permit application	3 years and 90 days from date of publication of today's rule in the Federal Register.
Permitting authority issues general permit(s) (if this type of permit coverage is selected)	3 years from date of publication of today's rule in the Federal Register.
Regulated small MS4s submit permit application:	
a. If designated under §122.32(a)(1) unless the permitting authority has established a phasing schedule under §123.35(d)(3)	a. 3 years and 90 days from date of publication of today's rule in the Federal Register.
b. If designated under §122.32(a)(2) or §§122.26(a)(9)(i)(C) or (D)	b. Within 180 days of notice.
Storm water discharges associated with small construction activity submit permit application:	

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a. If designated under §122.26(b)(15)(i)	a. 3 years and 90 days from date of publication of today's rule in the Federal Register
b. If designated under §122.26(b)(15)(ii)	b. Within 180 days of notice.
Permitting authority designates small MS4s under §123.35(b)(2)	3 years from date of publication of today's rule in the Federal Register or 5 years from date of publication of today's rule in the Federal Register if a watershed plan is in place
Regulated small MS4s' program fully developed and implemented	Up to 5 years from date of permit issuance.
Reevaluation of the municipal storm water rules by EPA	13 years from date of publication of today's rule in the Federal Register
Permitting authority determination on a petition	Within 180 days of receipt.
Non-municipal sources designated under §122.26(a)(9)(i)(C) or (D) submit permit application	Within 180 days of notice.
Submission of No Exposure Certification	Every 5 years.

B. Readable Regulations

Today, EPA is finalizing new regulations in a "readable regulation" format. This reader-friendly, plain language approach is a departure from traditional regulatory language and should enhance the rule's readability. These plain language regulations use questions and answers, "you" to identify the person who must comply, and terms like "must" rather than "shall" to identify a mandate. This new format, which minimizes layers of subparagraphs, should also allow the reader to easily locate specific provisions of the regulation.

Some sections of today's final rule are presented in the traditional language and format because these sections amend existing regulations. The readable regulation format was not used in these existing provisions in an attempt to avoid confusion or disruption ***68739** of the readability of the existing regulations.

Most commenters supported EPA's use of plain language and agreed with EPA that the question and answer format makes the rule easier to understand. Three commenters thought that EPA should retain the traditional rule format. The June 1, 1998, Presidential memorandum directs all government agencies to write documents in plain language. Based on the majority of the comments, EPA has retained the plain language format used in the January 9, 1998, proposal in today's final rule.

The proposal to today's final rule included guidance as well as legal requirements. The word "must" indicates a requirement. Words like "should," "could," or "encourage" indicate a recommendation or guidance. In addition, the guidance was set off in parentheses to distinguish it from requirements.

EPA received numerous comments supporting the inclusion of guidance in the text of the Code of Federal Regulations (CFR), as well as comments opposing inclusion of guidance. Supporters stated that preambles and guidance documents are often not accessible when rules are implemented. Any language not included in the CFR is therefore not available when it may be most needed. Commenters that opposed including guidance in the CFR expressed the concern that any language in the rule might be interpreted as a requirement, in spite of any clarifying language. They suggested that guidance be presented in the preamble and additional guidance documents.

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The majority of commenters on this issue thought that the guidance should be retained but the distinction between requirements and guidance should be better clarified. Suggestions included clarifying text, symbols, and a change from use of the word “should” to “EPA recommends” or “EPA suggests”. EPA believes that it is important to include the guidance in the rule and agrees that the distinction between requirements and EPA recommendations must be very clear. In today's final rule, EPA has put the guidance in paragraphs entitled “Guidance” and replaced the word “should” with “EPA recommends.” This is intended to clarify that the recommendations contained in the guidance paragraphs are not legally binding.

C. Program Framework: NPDES Approach

Today's rule regulates Phase II sources using the NPDES permit program. EPA interprets Clean Water Act section 402(p)(6) as authorizing the Agency to develop a storm water program for Phase II sources either as part of the existing NPDES permit program or as a stand alone non-NPDES program such as a self-implementing rule. Under either approach, EPA interprets section 402(p)(6) as directing EPA to publish regulations that “regulate” the remaining unregulated sources, specifically to establish requirements that are federally enforceable under the CWA. Although EPA believes that it has the discretion to not require sources regulated under CWA section 402(p)(6) to be covered by NPDES permits, the Agency has determined, for the reasons discussed below, that it is most appropriate to use NPDES permits in implementing the program to address the sources designated for regulation in today's rule.

As discussed in Section II.A, Overview, EPA sought to achieve certain goals in today's final rule. EPA believes that the NPDES program best achieves EPA's goals for today's final rule for the reasons discussed below.

Requiring Phase II sources to be covered by NPDES permits helps address the consistency problems currently caused by municipal “donut holes.” Donut holes are gaps in program coverage where a small unregulated MS4 is located next to or within a regulated larger MS4 that is subject to an NPDES permit under the Phase I NPDES storm water program. The existence of such “donut holes” creates an equity problem because similar discharges may remain unregulated even though they cause or contribute to the same adverse water quality impacts. Using NPDES permits to regulate the unregulated discharges in these areas is intended to facilitate the development of a seamless regulatory program for the mitigation and control of contaminated storm water discharges in an urbanized area. For example, today's rule allows a newly regulated MS4 to join as a “limited” co-permittee with a regulated MS4 by referencing a common storm water management program. Such cooperation should be further encouraged by the fact that the minimum control measures required in today's rule for regulated small MS4s are very similar to a number of the permit requirements for medium and large MS4s under the Phase I storm water program. The minimum control measures applicable to discharges from smaller MS4s are described with slightly more generality than under the Phase I permit application regulations for larger MS4s, thus enabling maximum flexibility for operators of smaller MS4s to optimize efforts to protect water quality.

Today's rule also applies NPDES permit requirements to construction sites below 5 acres that are similar to the existing requirements for those 5 acres and above. In addition, the rule would allow compliance with qualifying local, Tribal, or State erosion and sediment controls to meet the erosion and sediment control requirements of the general permits for storm water discharges associated with construction, both above and below 5 acres.

Incorporating the CWA section 402(p)(6) program into the NPDES program capitalizes upon the existing governmental infrastructure for administration of the NPDES program. Moreover, much of the regulated community already understands the NPDES program and the way it works.

Another goal of the NPDES program approach is to provide flexibility in order to facilitate and promote watershed planning and sensitivity to local conditions. NPDES permits promote those goals in several ways. NPDES general permits may be used to cover a category of regulated sources on a watershed basis or within political boundaries. The NPDES permitting process provides a mechanism for storm water controls tailored on a case-by-case basis, where necessary. In addition, the NPDES permit requirements of a permittee may be satisfied by another cooperating

entity. Finally, NPDES permits may incorporate the requirements of existing State, Tribal and local programs, thereby accommodating State and Tribes seeking to coordinate the storm water program with other programs, including those that focus on watershed-based nonpoint source regulation.

In promoting the watershed approach to program administration, EPA believes NPDES general permits can cover a category of dischargers within a defined geographic area. Areas can be defined very broadly to include political boundaries (e.g., county), watershed boundaries, or State or Tribal land.

NPDES permits generally require an application or a notice of intent(NOI) to trigger coverage. This information exchange assures communication between the permitting authority and the regulated community. This communication is critical in ensuring that the regulated community is aware of the requirements and the permitting authority is aware of the potential for adverse impacts to water quality from identifiable locations. The NPDES permitting process includes the public as a valuable stakeholder and ensures ***68740** that the public is included and information is made publicly available.

Another concern for EPA and several stakeholders was that the program ensure citizen participation. The NPDES approach ensures opportunities for citizen participation throughout the permit issuance process, as well as in enforcement actions. NPDES permits are also federally enforceable under the CWA.

EPA believes that the use of NPDES permits makes a significant difference in the degree of compliance with regulations in the storm water program. The NPDES program provides for public participation in the development, enforcement and revision of storm water management programs. Citizen suit enforcement has assisted in focusing attention on adverse water quality impacts on a localized, public priority basis. Citizens frequently rely on the NPDES permitting process and the availability of NOIs to track program implementation and help them enforce regulatory requirements.

NPDES permits are also advantageous to the permittee. The NPDES permit informs the permittee about the scope of what it is expected do to be in compliance with the Clean Water Act. As explained more fully in EPA's April 1995 guidance, Policy Statement on Scope of Discharge Authorization and Shield Associated with NPDES Permits, compliance with an NPDES permit constitutes compliance with the Clean Water Act (see CWA section 402(k)). In addition, NPDES permittees are excluded from duplicative regulatory regimes under the Resource Conservation and Recovery Act and the Comprehensive Emergency Response, Compensation and Liability Act under RCRA's exclusions to the definition of “solid waste” and CERCLA's exemption for “federally permitted releases.”

EPA considered suggestions that the Agency authorize today's rule to be implemented as a self-implementing rule. This would be a regulation promulgated at the Federal, State, or Tribal level to control some or all of the storm water dischargers regulated under today's rule. Under this approach, a rule would spell out the specific requirements for dischargers and impose the restrictions and conditions that would otherwise be contained in an NPDES permit. It would be effective until modified by EPA, a State, or a Tribe, unlike an NPDES permit which cannot exceed a duration of five years. Some stakeholders believed that this approach would reduce the burden on the regulated community (e.g., by not requiring permit applications), and considerably reduce the amount of additional paperwork, staff time and accounting required to administer the proposed permit requirements.

EPA is sensitive to the interest of some stakeholders in having a streamlined program that minimizes the burden associated with permit administration and maximizes opportunities for field time spent by regulatory authorities. Key provisions in today's rule address some of these concerns by promoting a streamlined approach to permit issuance by, for example, using general permits and allowing the incorporation of existing programs. By adopting the NPDES approach rather than a self-implementing rule, today's rule also allows for consistent regulation between larger MS4s and construction sites regulated under the existing storm water management rule and smaller sources regulated under today's rule.

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EPA believes that it is most appropriate to use NPDES permits to implement a program to address the sources regulated by today's rule. In addition to the reasons discussed above, NPDES permits provide a better mechanism than would a self-implementing rule for tailoring storm water controls on a case-by-case basis, where necessary. One commenter reasoned this concern could be addressed by including provisions in the regulation that allow site-specific BMPs (i.e., case-by-case permits), suggesting storm water discharges that might require site-specific BMPs can be identified during the designation process of the regulatory authority. EPA believes that, in addition to its complexity, the commenter's approach lacks the other advantages of the NPDES permitting process.

A self-implementing rule would not ensure the degree of public participation that the NPDES permit process provides for the development, enforcement and revision of the storm water management program. A self-implementing rule also might not have provided the regulated community the "permit shield" under CWA section 402(k) that is provided by an NPDES permit. Based on all these considerations, EPA declined to adopt a self-implementing rule approach and adopted the NPDES approach.

Some State representatives sought alternative approaches for State implementation of the storm water program for Phase II sources. These State representatives asserted that a non-NPDES alternative approach best facilitated watershed management and avoided duplication and overlapping regulations. These representatives believed the NPDES approach would undercut State programs that had developed storm water controls tailored to local watershed concerns. Finally, a number of commenters expressed the view that States implement a variety of programs not based on the CWA that are effective in controlling storm water, and that EPA should provide incentives for their implementation and improvement in performance.

Throughout the development of the rule, State representatives sought alternatives to the NPDES approach for State implementation of the storm water program for Phase II sources. Discussions focused on an approach whereby States could develop an alternative program that EPA would approve or disapprove based on identified criteria, including that the alternative non-NPDES program would result in "equivalent or better protection of water quality." The State representatives, however, were unable to propose or recommend criteria for gauging whether a program would provide equivalent protection. EPA also did not receive any suggestions for objective, workable criteria in response to the Agency's explicit request for specific criteria (by which EPA could objectively judge such programs) in the preamble to the proposed rule.

EPA evaluated several existing State initiatives to address storm water and found many cases where standards under State programs may be coordinated with the Federal storm water program. Where the NPDES permit is developed in coordination with State standards, there are opportunities to avoid duplication and overlapping requirements. Under today's rule, an NPDES permitting authority may include conditions in the NPDES permit that direct an MS4 to follow the requirements imposed under State standards, rather than the requirements of §122.34(b). This is allowed as long as the State program at a minimum imposes the relevant requirements of §122.34(b). Additional opportunities follow from other provisions in today's rule.

Seeking to further explore the feasibility of a non-NPDES approach, the Agency, after the proposal, had extensive discussions with representatives of a number of States. Discussions related specifically to possible alternatives for regulations of urban storm water discharges and MS4s specifically. The Agency also sought input on these issues from other stakeholders.

As a result of these discussions, many of the commenters provided input on issues such as: whether or not the Agency should require NPDES permits; whether location of MS4s in urbanized ***68741** areas should be the basis for designation or whether designation should be based on other determinations relating to water quality; whether States should be

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allowed to satisfy the conditions of the rule through the use of existing State programs; and issues concerning timing and resources for program implementation.

In response, today's rule still follows the regulatory scheme of the proposed rule, but incorporates additional flexibility to address some of the concerns raised by commenters.

In order to facilitate implementation by States that utilize a watershed permitting approach or similar approach (i.e., based on a State's unified watershed assessments), today's rule allows States to phase in coverage for MS4s in jurisdictions with a population less than 10,000. Under such an approach, States could focus their resources on a rolling basis to assist smaller MS4s in developing storm water programs.

In addition, in response to concerns that the rule should not require permit coverage for MS4s that do not significantly contribute to water quality impairments, today's rule provides options for two waivers for small MS4s. The rule allows permitting authorities to exempt from the requirement for a permit any MS4 serving a jurisdiction with a population less than 1,000, unless the State determines that the MS4 must implement storm water controls because it is significantly contributing to a water quality impairment. A second waiver option applies to MS4s serving a jurisdiction with a population less than 10,000. For those MS4s, the State must determine that discharges from the MS4 do not significantly contribute to a water quality impairment, or have the potential for such an impairment, in order to provide the exemption. The State must review this waiver on a periodic basis no less frequently than once every five years.

Throughout the development of today's rule, commenters questioned whether the Clean Water Act authorized the use of the NPDES permit program, pointing out that the text of CWA 402(p)(6) does not use the word “permit.” Based on the absence of the word “permit” and the express mention of State storm water management programs, the commenters asserted that Congress did not intend for Phase II sources to be regulated using NPDES permits.

EPA disagrees with the commenters' interpretation of section 402(p)(6). Section 402(p)(6) does not preclude use of permits as part of the “comprehensive program” to regulate designated sources. The language provides EPA with broad discretion in the establishment of the “comprehensive program.” Absence of the word “permit” (a term that the statute does not otherwise define) does not preclude use of a permit, which is a familiar and reasonably well understood regulatory implementation vehicle. First, section 402(p)(6) says that EPA must establish a comprehensive program that “shall, at a minimum, establish priorities, establish requirements for State stormwater management programs, and establish expeditious deadlines.” The “at a minimum” language suggests that the Agency may, and perhaps should, develop a comprehensive program that does more than merely attend to these minimum criteria. Use of the term “at a minimum” preserves for the Agency broad discretion to establish a comprehensive program that includes use of NPDES permits.

Further, in the final sentence of the section, Congress included additional language to affirm the Agency's discretion. The final sentence clarifies that the Phase II program “may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate.” Under existing CWA programs, performance standards, (effluent limitations) guidelines, management practices, and treatment requirements are typically implemented through NPDES or dredge and fill permits.

Although EPA believes that it had the discretion to not require permits, the Agency has determined that it is reasonable to interpret section 402(p)(6) to authorize permits. Moreover, for the reasons discussed above, the Agency believes that it is appropriate to use NPDES permits in implementing today's rule.

D. Federal Role

Today's final rule describes EPA's approach to expand the existing storm water program under CWA section 402(p)(6). As in all other Federal programs, the Federal government plays an integral role in complying with, developing,

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implementing, overseeing, and enforcing the program. This section describes EPA's role in the revised storm water program.

1. Develop Overall Framework of the Program

The storm water discharge control program under CWA section 402(p)(6) consists of the rule, tool box, and permits. EPA's primary role is to ensure timely development and implementation of all components. Today's rule is a refinement of the first step in developing the program. EPA is fully committed to continuing to work with involved stakeholders on developing the tool box and issuing permits. As noted in today's rule, EPA will assess the municipal storm water program based on (1) evaluations of data from the NPDES municipal storm water program, (2) research concerning water quality impacts on receiving waters from storm water, and (3) research on BMP effectiveness. (Section II.H, Municipal Role, provides a more detailed discussion of this provision.)

EPA is planning to standardize minimum requirements for construction and post-construction BMPs in a new rulemaking under Title III of the CWA. While larger construction sites are already subject to NPDES permits (and smaller sites will be subject to permits pursuant to today's rule), the permits generally do not contain specific requirements for BMP design or performance. The permits require the preparation of storm water pollution prevention plans, but actual BMP selection and design is at the discretion of permittees, in conformance with applicable State and local requirements. Where there are existing State and local requirements specific to BMPs, they vary widely, and many jurisdictions do not have such requirements.

In developing these regulations, EPA intends to evaluate the inclusion of design and maintenance criteria as minimum requirements for a variety of BMPs used for erosion and sediment control at construction sites, as well as for permanent BMPs used to manage post-construction storm water discharges. The Agency plans to consider the merits and performance of all appropriate management practices (both structural and non-structural) that can be used to reduce adverse water quality impacts. EPA does not intend to require the use of particular BMPs at specific sites, but plans to assist builders and developers in BMP selection by publishing data on the performance to be expected by various BMP types. EPA would like to build upon the successes of some of the effective State and local storm water programs currently in place around the country, and to establish nation-wide criteria to support builders and local jurisdictions in appropriate BMP selection.

2. Encourage Consideration of Smart Growth Approaches

In the proposal, EPA invited comment on possible approaches for providing ***68742** incentives for local decision making that would limit the adverse impacts of growth and development on water quality. EPA asked for comments on this “smart growth” approach.

EPA received comments on all sides of this issue. A number of commenters supported the idea of “smart growth” incentives but did not present concrete ideas. Several commenters suggested “smart growth” criteria. States that have adopted “smart growth” laws were worried that EPA's focus on urbanized areas for municipal requirements could encourage development outside of designated growth areas. Today's final rule clearly allows States to expand coverage of their municipal storm water program outside of urbanized areas. In addition, the flexibility of the six municipal minimum measures should avoid encouragement of development into rural rather than urban areas. For example, as part of the post-construction minimum measure, EPA recommends that municipalities consider policies and ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure, in order to meet the measure's intent.

EPA also received several comments expressing concern that incorporating “smart growth” incentives threatened the autonomy of local governments. One commenter was worried that “incentives” could become more onerous than the minimum measures. EPA is very aware of municipal concerns about possible federal interference with local land use

planning. EPA is also cognizant of the difficulty surrounding incentives for "smart growth" activities due to these concerns. However, the Agency believes it has addressed these concerns by proposing a flexible approach and will continue to support the concept of "smart growth" by encouraging policies that limit the adverse impacts of growth and development on water quality.

3. Provide Financial Assistance

Although Congress has not established a fund to fully finance implementation of the proposed extension of the existing NPDES storm water program under CWA section 402(p)(6), numerous federal financing programs (administered by EPA and other federal agencies) can provide some financial assistance. The primary funding mechanism is the Clean Water State Revolving Fund (SRF) program, which provides sources of low-cost financing for a range of water quality infrastructure projects, including storm water. In addition to the SRF, federal financial assistance programs include the Water Quality Cooperative Agreements under CWA section 104(b)(3), Water Pollution Control Program grants to States under CWA section 106, and the Transportation Equity Act for the 21st Century (TEA-21) among others. In addition, Section 319 funds may be used to fund any urban storm water activities that are not specifically required by a draft or final NPDES permit. EPA will develop a list of potential funding sources as part of the tool box implementation effort. EPA anticipates that some of these programs will provide funds to help develop and, in limited circumstances, implement the CWA section 402(p)(6) storm water discharge control program.

EPA received numerous comments that requested additional funding. Congress provided one substantial new source of potential funding for transportation related storm water projects—TEA-21. The Department of Transportation has included a number of water-related provisions in its TEA-21 planning. These include Transportation Enhancements, Environmental Restoration and Pollution Abatement, and Environmental Streamlining. More information on TEA-21 is available at the following internet sites: www.fhwa.dot.gov/tea21/outreach.htm and www.tea21.org.

4. Implement the Program in Jurisdictions Not Authorized To Administer the NPDES Program

Because today's final rule uses the NPDES framework, EPA will be the NPDES permitting authority in several States, Tribal jurisdictions, and Territories. As such, EPA will have the same responsibilities as any other NPDES permitting authority—issuing permits, designating additional sources, and taking appropriate enforcement actions—and will seek to tailor the storm water discharge control program to the specific needs in that State, Tribal jurisdiction, or Territory. EPA also plans to provide support and oversight, including outreach, training, and technical assistance to the regulated communities. Section II.G. of today's preamble provides a separate discussion related to the NPDES permitting authority's responsibilities for today's final rule.

5. Oversee State and Tribal Programs

Under the NPDES program, EPA plays an oversight role for NPDES-approved States and Tribes. In this role, EPA and the State or Tribe work together to implement, enforce, and improve the NPDES program. Part of this oversight role includes working with States and Tribes to modify their programs where programmatic or implementation concerns impede program effectiveness. This role will be vitally important when States and Tribes make adjustments to develop, implement, and enforce today's extension of the existing NPDES storm water discharge control program. In addition, States maintain a continuing planning process (CPP) under CWA section 303(e), which EPA periodically reviews to assess the program's achievements.

In its oversight role, EPA takes action to address States and Tribes who have obtained NPDES authorization but are not fulfilling their obligations under the NPDES program. If an NPDES-authorized State or Tribe fails to implement an adequate NPDES storm water program, for example, EPA typically enters into extensive discussions to resolve outstanding issues. EPA has the authority to withdraw the entire NPDES program when resolution cannot be reached. Partial program withdrawal is not provided for under the CWA except for partial approvals.

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EPA is also working with the States and Tribes to improve nonpoint source management programs and assessments to incorporate key program elements. Key nonpoint source program elements include setting short and long term goals and objectives; establishing public and private partnerships; using a balanced approach incorporating Statewide and watershed-wide abatement of existing impairments; preventing future impairments; developing processes to address both impaired and threatened waters; reviewing and upgrading all program components, including program revisions on a 5-year cycle; addressing federal land management and activities inconsistent with State programs; and managing State nonpoint source management programs effectively.

In particular, EPA works with the States and Tribes to strengthen their nonpoint source pollution programs to address all significant nonpoint sources, including agricultural sources, through the CWA section 319 program. EPA is working with other government agencies, as well as with community groups, to effect voluntary changes regarding watershed protection and reduced nonpoint source pollution.

In addition, EPA and NOAA have published programmatic and technical guidance to address coastal nonpoint source pollution. Under Section 6217 of the CZARA, States are developing and implementing coastal nonpoint pollution control programs approved by EPA and NOAA. ***68743**

6. Comply With Applicable Requirements as a Discharger

Today's final rule covers federally operated facilities in a variety of ways. These facilities are generally areas where people reside, such as a federal prison, hospital, or military base. It also includes federal parkways and road systems with separate storm sewer systems. Today's rule requires federal MS4s to comply with the same application deadlines that apply to regulated small MS4s generally. EPA believes that all federal MS4s serve populations of less than 100,000.

EPA received several comments that asked if individual buildings like post offices are considered to be small MS4s and thereby regulated in today's rule if they are in an urbanized area. Most of these buildings have at most a parking lot with runoff or a storm sewer that connects with a municipality's MS4. EPA does not intend that individual federal buildings be considered to be small MS4s. This is discussed in section II.H.2.b. of today's preamble.

Federal facilities can also be included under requirements addressing storm water discharges associated with small construction activities. In any case, discharges from these facilities will need to comply with all applicable NPDES requirements and any additional water quality-related requirements imposed by a State, Tribal, or local government. Failure to comply can result in enforcement actions. Federal facilities can act as models for municipal and private sector facilities and implement or test state-of-the-art management practices and control measures.

E. State Role

Today's final rule sets forth an NPDES approach for implementing the extension of the existing storm water discharge control program under CWA section 402(p)(6). State assumption of the NPDES program is voluntary, consistent with the principles of federalism. Because most States are approved to implement the NPDES program, they will tailor their storm water discharge control programs to address their water quality needs and objectives. While today's rule establishes the basic framework for the section 402(p)(6) program, States as well as Tribes (see discussion in section II.F) have an important role in fine-tuning the program to address the water quality issues within their jurisdictions. The basic framework allows for adjustments based on factors that vary geographically, including climate patterns and terrain.

Where States do not have NPDES authority, they are not required to implement the storm water discharge control program, but they may still participate in water quality protection through participation in the CWA section 401 certification process (for any permits) and through development of water quality standards and TMDLs.

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1. Develop the Program

In expanding the existing NPDES program for storm water discharges, States must evaluate whether revisions to their NPDES programs are necessary. If so, modifications must be made in accordance with §123.62. Under §123.62, States must revise their NPDES programs within 1 year, or within 2 years if statutory changes are necessary.

Some States and departments of transportation (DOTs) commented that this timeframe is too short, anticipating that the State legislative process and the modification of regulations combined would take beyond 2 years. The deadline language in §123.62 is not new language for the storm water discharge control program; it applies to all NPDES programs. EPA believes the vast majority of States will meet the deadline and will work with States in those cases where there may be difficulty meeting this deadline due to the timing of legislative sessions and the regulatory development process.

An authorized State NPDES program must meet the requirements of CWA section 402(b) and conform to the guidelines issued under CWA section 304(i)(2). Today's final rule under §123.25 adds specific cross references to the storm water discharge control program components to ensure that States adequately address these requirements.

2. Comply With Applicable Requirements as a Discharger

Today's final rule covers State operated separate storm sewer systems in a variety of ways. These systems generally drain areas where people reside, such as a prison, hospital, or other populated facility. These systems are included under the definition of a regulated small MS4, which specifically identifies systems operated by State departments of transportation. Alternatively, storm water discharges from State activities may be regulated under the section addressing storm water discharges associated with small construction activities. In any case, discharges from these facilities must comply with all applicable NPDES requirements. Failure to comply can result in enforcement actions. State facilities can act as models for municipal and private sector facilities and implement or test state-of-the-art management practices and control measures.

3. Communicate With EPA

Under approved NPDES programs, States have an ongoing obligation to share information with EPA. This dialogue is particularly important in the CWA section 402(p)(6) storm water program where these governments continue to develop a great deal of the guidance and outreach related to water quality.

F. Tribal Role

The proposal to today's final rule provides background information on EPA's 1984 Indian Policy and the criteria for treatment of an Indian Tribe in the same manner as a State. Today's final rule extends the existing NPDES program for storm water discharges to two types of dischargers located in Indian country. First, the final rule designates storm water discharges from any regulated small MS4, including Tribal systems. Second, the final rule regulates discharges associated with construction activity disturbing between one and five acres of land, including sites located in Indian country. Operators in each of these categories of regulated activity must apply for coverage under an NPDES permit by 3 years and 90 days from the date of publication of today's final rule. Under existing regulations, however, EPA or an authorized NPDES Tribe may require a specified storm water discharger to apply for NPDES permit coverage before this deadline based on a determination that the discharge is contributing to a violation of a water quality standard (including designated uses) or is a significant contributor of pollutants.

Under today's rule, a Tribal governmental entity may regulate storm water discharges on its reservation in two ways—as either an NPDES-authorized Tribe or as a regulated MS4. If a Tribe is authorized to operate the NPDES program, the Tribe must implement today's final rule for the NPDES program for storm water for covered dischargers located within the EPA recognized boundaries. Otherwise, EPA is generally the permitting/program authority within Indian country.

Discussions about the State Role in the preceding section also apply to NPDES authorized Tribes. For additional information on the role and responsibilities of the permitting authority in the NPDES storm water program, see §123.35 (and Section II.G. of today's preamble) and § 123.25(a). ***68744**

Under today's final rule, if the Indian reservation is located entirely or partially within an "urbanized area," as defined in §122.32(a)(1), the Tribe must obtain an NPDES permit if it operates a small MS4 within the urbanized area portion. Tribal MS4s located outside an urbanized area are not automatically covered, but may be designated by EPA pursuant to §122.32(a)(2) of today's rule or may request designation as a regulated small MS4 from EPA. A Tribe that is a regulated MS4 for NPDES program purposes is required to implement the six minimum control measures to the extent allowable under Federal law.

The Tribal representative on the Storm Water Phase II FACA Subcommittee asked EPA to provide a list of the Tribes located in urbanized areas that would fall within the NPDES storm water program under today's final rule. In December 1996, EPA developed a list of federally recognized American Indian Areas located wholly or partially in Bureau of the Census-designated urbanized areas (see Appendix 1). Appendix 1 not only provides a listing of reservations and individual Tribes, but also the name of the particular urbanized area in which the reservation is located and an indication of whether the urbanized area contains a medium or large MS4 that is already covered by the existing Phase I regulations.

Some of the Tribes listed in Appendix 1 are only partially located in an urbanized area. If the Tribe's MS4 serves less than 1,000 people within an urbanized area, the permitting authority may waive the Tribe's MS4 storm water requirements if it meets the conditions of §122.32(c). EPA does not have information on the Tribal populations within the urbanized areas, so it can not identify the Tribes that are eligible for a waiver. Therefore, a Tribe that believes it qualifies for a waiver should contact its permitting authority.

G. NPDES Permitting Authority's Role for the NPDES Storm Water Small MS4 Program

As noted previously, the NPDES permitting authority can be EPA or an authorized State or an authorized Tribe. The following discussion describes the role of the NPDES permitting authority under today's final rule.

1. Comply With Implementation Requirements

NPDES permitting authorities must perform certain duties to implement the NPDES storm water municipal program.Section 123.35(a) of today's final rule emphasizes that permitting authorities have existing obligations under the NPDES program. Section 123.35 focuses on specific issues related to the role of the NPDES authority to support administration and implementation of the municipal storm water program under CWA section 402(p)(6).

2. Designate Sources

Section 123.35(b) of today's final rule addresses the requirements for the NPDES permitting authority to designate sources of storm water discharges to be regulated under §§122.32 through 122.36. NPDES permitting authorities must develop a process, as well as criteria, to designate small MS4s. They must also have the authority to designate a small MS4 if and when circumstances that support a waiver under §122.32(c) change. EPA may make designations if an NPDES-approved State or Tribe fails to do so.

NPDES permitting authorities must examine geographic jurisdictions that they believe should be included in the storm water discharge control program but are not located in an "urbanized area". Small MS4s in these areas are not designated automatically. Discharges from such areas should be brought into the program if found to have actual or potential exceedances of water quality standards, including impairment of designated uses, or other adverse impacts on water quality, as determined by local conditions or watershed and TMDL assessments. EPA's aim is to address discharges to impaired waters and to protect waters with the potential for problems. EPA encourages NPDES permitting authorities,

local governments, and the interested public to work together in the context of a watershed plan to address water quality issues, including those associated with municipal storm water runoff.

EPA received comments stating that the process of developing criteria and applying it to all MS4s outside an urbanized area serving a population of 10,000 or greater and with a density of 1,000 people per square mile is too time-consuming and resource-intensive. These commenters believe that the permitting authority should decide which MS4s must be brought into the storm water discharge control program and that population and density should not be an overriding criteria. One suggested way of doing so was to only designate MS4s with demonstrated contributions to the impairment of water quality uses as shown by a TMDL. EPA disagrees with this suggestion. The TMDL process is time-consuming. MS4s outside of urbanized areas may cause water quality problems long before a TMDL is completed.

EPA believes that permitting authorities should consider the potential water quality impacts of storm water from all jurisdictions with a population of 10,000 or greater and a density of 1,000 people per square mile. EPA is using data summarized in the NURP study and in the CWA section 305(b) reports to support this approach for targeted designation outside of urbanized areas. EPA is not mandating which criteria are to be used, but has provided examples of criteria that may be useful in evaluating potential water quality impacts. EPA believes that the flexibility provided in this section of today's final rule allows the permitting authority to develop criteria and a designation process that is easy to use and protects water quality. Therefore, the provisions of § 123.35(b) remain as proposed.

a. Develop Designation Criteria

Under §123.35(b), the NPDES permitting authority must establish designation criteria to evaluate whether a storm water discharge results in or has the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including adverse habitat and biological impacts.

EPA recommends that NPDES permitting authorities consider, in a balanced manner, certain locally-focused criteria for designating any MS4 located outside of an urbanized area on the basis of significant water quality impacts. EPA recommends consideration of criteria such as discharge to sensitive waters, high growth or growth potential, high population density, contiguity to an urbanized area, significant contribution of pollutants to waters of the United States, and ineffective control of water quality concerns by other programs. These suggested designation criteria are intended to help encourage the permitting authority to use an objective method for identifying and designating, on a local basis, sources that adversely impact water quality. More information about these criteria and the reasons why they are suggested by EPA is included in the January 9, 1998, proposal (63 FR 1561) for today's final rule.

The suggested criteria are meant to be taken in the aggregate, with a great deal of flexibility as to how each should be weighed in order to best account for watershed and other local conditions and to allow for a more tailored case-by-case analysis. The application of criteria is meant to be geographically specific. Furthermore, each criterion does not have to be met in order for a small MS4 ***68745** to qualify for designation, nor should an MS4 necessarily be designated on the basis of one or two criteria alone.

EPA believes that the application of the recommended designation criteria provides an objective indicator of real and potential water quality impacts from urban runoff on both the local and watershed levels. EPA encourages the application of the recommended criteria in a watershed context, thereby allowing for the evaluation of the water quality impacts of the portions of a watershed outside of an urbanized area. For example, situations exist where the urbanized area represents a small portion of a degraded watershed, and the adjacent nonurbanized areas of the watershed have significant cumulative effects on the quality of the receiving waters.

EPA received numerous suggestions of additional criteria that should be added and reasons why some of the criteria in the proposal to today's final rule were not appropriate. EPA developed its suggested designation criteria based on findings of the NURP study and other studies that indicate pollutants of concern, including total suspended solids, chemical oxygen

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demand, and temperature. These criteria were the subject of considerable discussion by the Storm Water Phase II FACA Subcommittee. EPA developed them in response to recommendations from the subcommittee during development of the proposed rule. The listed criteria are only suggestions. Permitting authorities are required to develop their own criteria. EPA has not found any reason to change its suggested list of criteria and the suggestions remain as proposed.

b. Apply Designation Criteria

After customizing the designation criteria for local conditions, the permitting authority must apply such criteria, at a minimum, to any MS4 located outside of an urbanized area serving a jurisdiction with a population of at least 10,000 and a population density of 1,000 people per square mile or greater (see §123.35(b)(2)). If the NPDES permitting authority determines that an MS4 meets the criteria, the permitting authority must designate it as a regulated small MS4. This designation must occur within 3 years of publication of today's final rule. Alternatively, the NPDES authority can designate within 5 years from the date of final regulation if the designation criteria are applied on a watershed basis where a comprehensive watershed plan exists (a comprehensive watershed plan is one that includes the equivalents of TMDLs) (see §123.35(b)(3)). The extended 5 year deadline is intended to provide incentives for watershed-based designations. If an NPDES-authorized State or Tribe does not develop and apply designation criteria within this timeframe, then EPA has the opportunity to do so in lieu of the authorized State or Tribe.

NPDES permitting authorities can designate any small MS4, including one below 10,000 in population and 1,000 in density. EPA established the 10,000/1,000 threshold based on the likelihood of adverse water quality impacts at these population and density levels. In addition, the 1,000 persons per square mile threshold is consistent with both the Bureau of the Census definition of an "urbanized area" (see Section II.H.2. below) and stakeholder discussions concerning the definition of a regulated small MS4.

One commenter requested that EPA develop interim deadlines for development of designation criteria. EPA believes that the designation deadline identified in today's final rule at §123.35(b)(3) provides States and Tribes with a flexibility that allows them to develop and apply the criteria locally in a timely fashion, while at the same time establishing an expeditious deadline.

c. Designate Physically Interconnected Small MS4s

In addition to applying criteria on a local basis for potential designation, the NPDES permitting authority must designate any MS4 that contributes substantially to the pollutant loadings of a physically interconnected municipal separate storm sewer that is regulated by the NPDES program for storm water discharges (see §123.35(b)(4)). To be "physically interconnected," the MS4 of one entity, including roads with drainage systems and municipal streets, is physically connected directly to the municipal separate storm sewer of another entity. This provision applies to all MS4s located outside of an urbanized area. EPA added this section in recognition of the concerns of local government stakeholders that a local government should not have to shoulder total responsibility for a storm water program when storm water discharges from another MS4 are also contributing pollutants or adversely affecting water quality. This provision also helps to provide some consistency among MS4 programs and to facilitate watershed planning in the implementation of the NPDES storm water program. EPA recommended physical interconnectedness in the existing NPDES storm water regulations as a factor for consideration in the designation of additional sources.

Today's final rule does not include interim deadlines for identifying physically interconnected MS4s. However, consistent with the deadlines identified in §123.35(b)(3) of today's final rule, EPA encourages the permitting authority to make these determinations within 3 years from the date of publication of the final rule or within 5 years if the permitting authority is implementing a comprehensive watershed plan. Alternatively, the affected jurisdiction could use the petition process under 40 CFR 122.26(f) in seeking to have the permitting authority designate the contributing jurisdiction.

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Several commenters expressed concerns about who could be designated under this provision (§123.35(b)(4)). One commenter requested that the word "substantially" be deleted from the rule because they believe any MS4 that contributes at all to a physically interconnected municipal separate storm sewer should be regulated. EPA believes that the word "substantially" provides necessary flexibility to the permitting authorities. The permitting authority can decide if an MS4 is contributing discharges to another municipal separate storm sewer in a manner that requires regulation. If the operator of a regulated municipal separate storm sewer believes that some of its pollutant loadings are coming from an unregulated MS4, it can petition the permitting authority to designate the unregulated MS4 for regulation.

d. Respond to Public Petitions for Designation

Today's final rule reiterates the existing opportunity for the public to petition the permitting authority for designation of a point source to be regulated to protect water quality. The petition opportunity also appears in existing NPDES regulations at 40 CFR 122.26(f). Any person may petition the permitting authority to require an NPDES permit for a discharge composed entirely of storm water that contributes to a violation of a water quality standard or is a significant contributor of pollutants to the waters of the United States (see §123.32(b)). The NPDES permitting authority must make a final determination on any petition within 180 days after receiving the petition (see §123.35(c)). EPA believes that a 180 day limit balances the public's need for a timely final determination with the NPDES permitting authority's need to prioritize its workload. If an NPDES-approved State or Tribe fails to act ***68746** within the 180-day timeframe, EPA may make a determination on the petition. EPA believes that public involvement is an important component of the NPDES program for storm water and feels that this provision encourages public participation. Section II.K, Public Involvement/Public Role, further discusses this topic.

3. Provide Waivers

Today's rule provides two opportunities for the NPDES permitting authority to exempt certain small MS4s from the need for a permit based on water quality considerations. See §§122.32(d) and (e). The two waiver opportunities have different size thresholds and take different approaches to considering the water quality impacts of discharges from the MS4.

In the proposal, EPA requested comment on the option of waiving coverage for all MS4s with less than 1,000 people unless the permitting authority determined that the small MS4 should be regulated based on significant adverse water quality impacts. A number of commenters supported this option. They expressed concern that compliance with the rule requirements and certification of one of the waiver provisions were both costly for very small communities. They stated that the permitting authority should identify a water quality problem before requiring compliance. Today's rule essentially adopts this alternative approach for MS4s serving a population under 1,000.

The final rule has expanded the waiver provision that EPA proposed for small MS4s with a population less than 1,000. The proposed rule would have required a small MS4 operator to certify that storm water controls are not needed based on either wasteload allocations that are part of TMDLs that address the pollutants of concern, or a comprehensive watershed plan implemented for the waterbody that includes the equivalents of TMDLs and addresses the pollutant(s) of concern. Commenters noted that the proposed waivers would be unattainable if a TMDL or equivalent analysis was required for every pollutant that could possibly be present in any amount in discharges from an MS4 regardless of whether the pollutant is causing water quality impairment. Commenters asked that EPA identify what constitutes the "pollutant(s) of concern" for which a TMDL or its equivalent must be developed. For example, §122.30(c) indicates that the MS4 program is intended to control "sediment, suspended solids, nutrients, heavy metals, pathogens, toxins, oxygen-demanding substances, and floatables." Commenters asked whether TMDLs or equivalent analyses have to address all of these.

EPA has revised the proposed waiver in response to these concerns. Under today's rule, NPDES permitting authorities may waive the requirements of today's rule for any small MS4 with a population less than 1,000 that does not contribute substantially to the pollutant loadings of a physically interconnected MS4, unless the small MS4 discharges pollutants

that have been identified as a cause of impairment of the waters to which the small MS4 discharges. If the small MS4 does discharge pollutants that have been identified as impairing the water body into which the small MS4 discharges, the NPDES permitting authority may grant a waiver only if it determines that storm water controls are not needed based on an EPA approved or established TMDL that addresses the pollutant(s) of concern.

Unlike the proposed rule, §122.32(d) does not allow the waiver for MS4s serving a population under 1,000 to be based on "the equivalent of a TMDL." Because §122.32(d) requires a pollutant specific analysis only for a pollutant that has been identified as a cause of impairment, a TMDL is required for such pollutant before the waiver may be granted. Once a pollutant has been identified as the cause of impairment of a water body, the State should develop a TMDL for that pollutant for that water body. Thus, §122.32(d) takes a different approach than that taken for the waiver in §122.32(e) for MS4s serving a population under 10,000, which can be based upon an analysis that is "the equivalent of a TMDL." This is because §122.32(d) requires an analysis to support the waiver for MS4s under 1,000 only if a waterbody to which the MS4 discharges has been identified as impaired. The §122.32(e) waiver, on the other hand, would be available for larger MS4s but only after the State affirmatively establishes lack of impairment based upon a comprehensive analysis of smaller urban waters that might not otherwise be evaluated for the purposes of CWA section 303. Since §122.32(e) requires the analysis of waters that have not been identified as impaired, an actual TMDL is not required and an analysis that is the equivalent of a TMDL can suffice to support the waiver.

Where a State is the NPDES permitting authority, the permitting authority is responsible for the development of the TMDLs as well as the assessment of the extent to which a small MS4's discharge contributes pollutants to a neighboring regulated system. In States where EPA is the permitting authority, EPA will use a State's TMDLs to determine whether storm water controls are required for the small MS4s.

The proposed rule would have required the operator of the small MS4 serving a population under 1,000 to certify that its discharge was covered under a TMDL that indicated that discharges from its particular system were not having an adverse impact on water quality (i.e., it was either not assigned wasteload allocations under TMDLs or its discharge is within an assigned allocation). Many commenters expressed concerns that MS4 operators serving less than 1,000 persons may lack the technical capacity to certify that their discharges are not contributing to adverse water quality impacts. These commenters thought that the permitting authority should make such a certification. Today's rule provides flexibility as to how the waiver is administered. Permitting authorities are ultimately responsible for granting the waiver, but are free to determine whether or not to require small MS4 operators that are seeking waivers to submit information or a written certification.

Under §122.32(e) a State may grant a waiver to an MS4 serving a population between 1,000 and 10,000 only if the State has made a comprehensive effort to ensure that the MS4 will not cause or contribute to water quality impairment. To grant a §122.32(e) waiver, the NPDES permitting authority must evaluate all waters of the U.S. that receive a discharge from the MS4 and determine that storm water controls are not needed. The permitting authority's evaluation must be based on wasteload allocations that are part of an EPA approved or established TMDL or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern. The pollutants of concern that the permitting authority must evaluate include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the MS4. Finally, the permitting authority must have determined that future discharges from the MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant ***68747** water quality impacts, including habitat and biological impacts.

Although EPA did not propose this specific approach, the Agency did request comment on whether to increase the proposed 1,000 population threshold for a waiver. The §122.32(e) waiver was developed in response to comments, including States' concerns that they needed greater flexibility to focus their efforts on MS4s that were causing water

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quality impairment. Several commenters thought that the threshold should be increased from 1,000 to 5,000 or 10,000. Others suggested additional ways of qualifying for a waiver for MS4s that discharge to waters that are not covered by a TMDL or watershed plan. EPA carefully considered all the options for expanding the waiver provisions and has decided to expand the waiver only in the very narrow circumstances described above where a comprehensive analysis has been undertaken to demonstrate that the MS4 is not causing water quality impairment.

The NPDES permitting authority can, at any time, mandate compliance with program requirements from a previously waived small MS4 if circumstances change. For example, a waiver can be withdrawn in circumstances where the permitting authority later determines that a waived small MS4's storm water discharge to a small stream will cause adverse impacts to water quality or significantly interfere with attainment of water quality standards. A “change in circumstances” could involve receipt of new information. Changed circumstances can also allow a regulated small MS4 operator to request a waiver at any time.

Some commenters expressed concerns about allowing any small MS4 waivers. One commenter stated that storm water pollution prevention plans are necessary to control storm water pollution and should be required from all regulated small MS4s. For the reasons stated in the Background section above, EPA agrees that the discharges from most MS4s in urbanized areas should be addressed by a storm water management program outlined in today's rule. For MS4s serving very small areas, however, the TMDL development process provides an opportunity to determine whether an MS4 serving a population less than 1,000 is having a negative impact on any receiving water that is impaired by a pollutant that the MS4 discharges. MS4s serving populations up to 10,000 may receive a waiver only if a comprehensive analysis of its impact on receiving water has been performed.

Other commenters said that waivers should not be allowed for small MS4s that discharge into another regulated MS4. These commenters stated that the word “substantially” should be removed from §122.32(d)(i) so that a waiver would not be allowed for any system “contributing to the storm water pollutant loadings of a physically interconnected regulated MS4.” As previously mentioned under the designation discussion of section II.G.2.c, EPA believes that the word “substantially” provides needed flexibility to the permitting authorities. It is important to note that this is only one aspect that the permitting authority must consider when deciding on the appropriateness of a waiver.

4. Issue Permits

NPDES permitting authorities have a number of responsibilities regarding the permit process. Sections 123.35(d) through (g) ensure a certain level of consistency for permits, yet provide numerous opportunities for flexibility. NPDES permitting authorities must issue NPDES permits to cover municipal sources to be regulated under §122.32, unless waived under §122.32(c). EPA encourages permitting authorities to use general permits as the vehicle for permitting and regulating small MS4s. The Agency notes, however, that some operators may wish to take advantage of the option to join as a co-permittee with an MS4 regulated under the existing NPDES storm water program.

Today's final rule includes a provision, §123.35(f), that requires NPDES permitting authorities to either include the requirements in §122.34 for NPDES permits issued for regulated small MS4s or to develop permit limits based on a permit application submitted by a small MS4. See Section II.H.3.a, Minimum Control Measures, for more details on the actual §122.34 requirements. See Section II.H.3.c for alternative and joint permitting options.

In an attempt to avoid duplication of effort, §122.34(c) allows NPDES permitting authorities to include permit conditions that direct an MS4 to meet the requirements of a qualifying local, Tribal, or State municipal storm water management program. For a local, Tribal, or State program to “qualify,” it must impose, at a minimum, the relevant requirements of §122.34(b). A regulated small MS4 must still follow the procedural requirements for an NPDES permit (i.e., submit an application, either an individual application or an NOI under a general permit) but will instead follow the substantive pollutant control requirements of the qualifying local, Tribal, or State program.

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Under §122.35(b), NPDES permitting authorities may also recognize existing responsibilities among governmental entities for the minimum control measures in an NPDES small MS4 storm water permit. For example, the permit might acknowledge the existence of a State administered program that addresses construction site runoff and require that the municipalities only develop substantive controls for the remaining minimum control measures. By acknowledging existing programs, this provision is meant to reduce the duplication of efforts and to increase the flexibility of the NPDES storm water program.

Section 123.35(e) of today's final rule requires permitting authorities to specify a time period of up to 5 years from the issuance date of an NPDES permit for regulated small MS4 operators to fully develop and implement their storm water programs. As discussed more fully below, permitting authorities should be providing extensive support to the local governments to assist them in developing and implementing their programs.

In the proposed rule, EPA stated that the permitting authority would develop the menu of BMPs and if they failed to do so, EPA would develop the menu. Commenters felt that EPA should develop a menu of BMPs, rather than just providing guidance. In the settlement agreement for seeking an extension to the deadline for issuing today's rule, EPA committed to developing a menu of BMPs by October 27, 2000. Permitting authorities can adopt EPA's menu or develop their own. The menu itself is not intended to replace more comprehensive BMP guidance materials. As part of the tool box efforts, EPA will provide separate guidance documents that discuss the results from EPA-sponsored nationwide studies on the design, operation and maintenance of BMPs. Additionally, EPA expects that the new rulemaking on construction BMPs may provide more specific design, operation and maintenance criteria.

5. Support and Oversee the Local Programs

NPDES permitting authorities are responsible for supporting and overseeing the local municipal programs. Section 123.35(h) of today's final rule highlights issues associated with these responsibilities.

To the extent possible, NPDES permitting authorities should provide financial assistance to MS4s, which ***68748** often have limited resources, for the development and implementation of local programs. EPA recognizes that funding for programs at the State and Tribal levels may also be limited, but strongly encourages States and Tribes to provide whatever assistance is possible. In lieu of actual dollars, NPDES permitting authorities can provide cost-cutting assistance in a number of ways. For example, NPDES permitting authorities can develop outreach materials for MS4s to distribute or the NPDES permitting authority can actually distribute the materials. Another option is to implement an erosion and sediment control program across an entire State (or Tribal land), thus alleviating the need for the MS4 to implement its own program. The NPDES permitting authority must balance the need for site-specific controls, which are best handled by a local MS4, with its ability to offer financial assistance. EPA, States, Tribes, and MS4s should work as a team in making these kinds of decisions.

NPDES permitting authorities are responsible for overseeing the local programs. Permitting authorities should work with the regulated community and other stakeholders to assist in local program development and implementation. This might include sharing information, analyzing reports, and taking enforcement actions, as necessary. NPDES permitting authorities play a vital role in supporting local programs by providing technical and programmatic assistance, conducting research projects, and monitoring watersheds. The NPDES permitting authority can also assist the MS4 permittee in obtaining adequate legal authority at the local level in order to implement the local component of the CWA section 402(p)(6) program.

NPDES permitting authorities are encouraged to coordinate and utilize the data collected under several programs. States and Tribes address point and nonpoint source storm water discharges through a variety of programs. In developing programs to carry out CWA section 402(p)(6), EPA recommends that States and Tribes coordinate all of their water pollution evaluation and control programs, including the continuing planning process under CWA section 303(e), the existing NPDES program, the CZARA program, and nonpoint source pollution control programs.

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In addition, NPDES permitting authorities are encouraged to provide a brief (e.g., two-page) reporting format to facilitate compilation and analysis of data from reports submitted under §122.34(g)(3). EPA intends to develop a model form for this purpose.

H. Municipal Role

1. Scope of Today's Rule

Today's final rule attempts to establish an equitable and comprehensive four-pronged approach for the designation of municipal sources. First, the approach defines for automatic coverage the municipal systems believed to be of highest threat to water quality. Second, the approach designates municipal systems that meet a set of objective criteria used to measure the potential for water quality impacts. Third, the approach designates on a case-by-case basis municipal systems that "contribute substantially to the pollutant loadings of a physically-interconnected [regulated] MS4." Finally, the approach designates on a case-by-case basis, upon petition, municipal systems that "contribute to a violation of a water quality standard or are a significant contributor of pollutants."

Today's final rule automatically designates for regulation small MS4s located in urbanized areas, and requires that NPDES permitting authorities examine for potential designation, at a minimum, a particular subset of small MS4s located outside of urbanized areas. Today's rule also includes provisions that allow for waivers from the otherwise applicable requirements for the smallest MS4s that are not causing impairment of a receiving water body. Qualifications for the waivers vary depending on whether the MS4 serves a population under 1,000 or a population under 10,000. See §§122.32(d) and (e). These waivers are discussed further in section II.G.3. Any small MS4 automatically designated by the final rule or designated by the permitting authority under today's final rule is defined as a "regulated" small MS4 unless it receives a waiver.

In today's final rule, all regulated small MS4s must establish a storm water discharge control program that meets the requirements of six minimum control measures. These minimum control measures are public education and outreach on storm water impacts, public involvement participation, illicit discharge detection and elimination, construction site storm water runoff control, post-construction storm water management in new development and redevelopment, and pollution prevention/good housekeeping for municipal operations.

Today's rule allows for a great deal of flexibility in how an operator of a regulated small MS4 is authorized to discharge under an NPDES permit, by providing various options for obtaining permit coverage and satisfying the required minimum control measures. For example, the NPDES permitting authority can incorporate by reference qualifying State, Tribal, or local programs in an NPDES general permit and can recognize existing responsibilities among different governmental entities for the implementation of minimum control measures. In addition, a regulated small MS4 can participate in the storm water management program of an adjoining regulated MS4 and can arrange to have another governmental entity implement a minimum control measure on their behalf.

2. Municipal Definitions

a. Municipal Separate Storm Sewer Systems (MS4s)

The CWA does not define the term "municipal separate storm sewer." EPA defined municipal separate storm sewer in the existing storm water permit application regulations to mean, in part, a conveyance or system of conveyances (including roads with drainage systems and municipal streets) that is "owned or operated by a State, city, town borough, county, parish, district, association, or other public body * * * designed or used for collecting or conveying storm water which is not a combined sewer and which is not part of a Publicly Owned Treatment Works as defined at 40 CFR 122.2" (see §122.26(b)(8)(i)). Section 122.26 contains definitions of medium and large municipal separate storm sewer systems but

no definition of a municipal separate storm sewer system, even though the term MS4 is commonly used. In today's rule, EPA is adding a definition of municipal separate storm sewer system and small municipal separate storm sewer system along with the abbreviations MS4 and small MS4.

The existing municipal permit application regulations define "medium" and "large" MS4s as those located in an incorporated place or county with a population of at least 100,000 (medium) or 250,000 (large) as determined by the latest Decennial Census (see §§122.26(b)(4) and 122.26(b)(7)). In today's final rule, these regulations have been revised to define all medium and large MS4s as those meeting the above population thresholds according to the 1990 Decennial Census.

Today's rule also corrects the titles and contents of Appendices F, G, H,& I to Part 122. EPA is adding those incorporated places and counties whose 1990 population caused them to be defined as a "medium" or "large" MS4. All of these MS4s have applied for ***68749** permit coverage so the effect of this change to the appendices is simply to make them more accurate. They will not need to be revised again because today's rule "freezes" the definition of "medium" and "large" MS4s at those that qualify based on the 1990 census.

EPA received several comments supporting and opposing the proposal to "freeze" the definitions based on the 1990 census. Commenters who disagreed with EPA's position cited the unfairness of municipalities that reach the medium or large threshold at a later date having fewer permitting requirements compared to those that were already at the population thresholds when the existing storm water regulations took effect. EPA recognizes this disparity but does not believe it is unfair, as explained in the proposed rule. The decision was based on the fact that the deadlines from the existing regulations have lapsed, and because the permitting authority can always require more from operators of MS4s serving "newly over 100,000" populations.

b. Small Municipal Separate Storm Sewer Systems

The proposal to today's final rule added "the United States" as a potential owner or operator of a municipal separate storm sewer. This addition was intended to address an omission from existing regulations and to clarify that federal facilities are, in fact, covered by the NPDES program for municipal storm water discharges when the federal facility is like other regulated MS4s. EPA received a comment that this change would cause federal facilities located in Phase 1 areas to be considered Phase 1 dischargers due to the definition of medium and large MS4s. All MS4s located in Phase 1 cities or counties are defined as Phase 1 medium or large MS4s. EPA believes that all federal facilities serve a population of under 100,000 and should be regulated as small MS4s. Therefore, in §122.26(a)(16) of today's final rule, EPA is adding federal facilities to the NPDES storm water discharge control program by changing the proposed definition of small municipal separate storm sewer system. Paragraph (i) of this section restates the definition of municipal separate storm sewer with the addition of "the United States" as a owner or operator of a small municipal separate storm sewer. Paragraph (ii) repeats the proposed language that states that a small MS4 is a municipal separate storm sewer that is not medium or large.

Most commenters agreed that federal facilities should be covered in the same way as other similar MS4s. However, EPA received several comments asking whether individual federal buildings such as post offices or urban offices of the U.S. Park Service must apply for coverage as regulated small MS4s. Most of these buildings have, at most, a parking lot with runoff or a storm sewer that connects with a municipality's MS4. In §122.26(a)(16)(iii), EPA clarifies that the definition of small MS4 does not include individual buildings. These buildings may have a municipal separate storm sewer but they do not have a "system" of conveyances. The minimum measures for small MS4s were written to apply to storm sewer "systems" providing storm water drainage service to human populations and not to individual buildings. This is true of municipal separate storm sewers from State buildings as well as from federal buildings.

There will likely be situations where the permitting authority must decide if a federal or State complex should be regulated as a small MS4. A federal complex of two or three buildings could be treated as a single building and not be required to apply for coverage. In these situations, permitting authorities will have to use their best judgment as to the nature of

the complex and its storm water conveyance system. Permitting authorities should also consider whether the federal or State complex cooperates with its municipality's efforts to implement their storm water management program.

Along with the questions about individual buildings, EPA received many questions about how various provisions of the rule should be interpreted for federal and State facilities. EPA acknowledges that federal and State facilities are different from municipalities. EPA believes, however, that the minimum measures are flexible enough that they can be implemented by these facilities. As an example, DOD commenters asked about how to interpret the term "public" for military installations when implementing the public education measure. EPA agrees with the suggested interpretation of "public" for DOD facilities as "the resident and employee population within the fence line of the facility."

EPA also received many comments from State departments of transportation (DOTs) that suggested the ways in which they are different from municipalities and should therefore be regulated differently. Storm water discharges from State DOTs in Phase 1 areas should already be regulated under Phase I. The preamble to Phase 1 clearly states that "all systems within a geographical area including highways and flood control districts will be covered." Many permitting authorities regulated State DOTs as co-permittees with the Phase 1 municipality in which the highway is located. State DOTs that are already regulated under Phase I are not required to comply with Phase II. State DOTs that are not already regulated have various options for meeting the requirements of today's rule. These options are discussed in Section II.H.3.c.iv below. Several DOTs commented that some of the minimum measures are outside the scope of their mission or that they do not have the legal authority required for implementation. EPA believes that the flexibility of the minimum measures allows them to be implemented by most MS4s, including DOTs. When a DOT does not have the necessary legal authority, EPA encourages the DOT to coordinate their storm water management efforts with the surrounding municipalities and other State agencies. Under today's rule, DOTs can use any of the options of §122.35 to share their storm water management responsibilities. DOTs may also want to work with their permitting authority to develop a State-wide DOT storm water permit.

There are many storm water discharges from State DOTs and other State MS4s located in Phase 1 areas that were not regulated under Phase 1. Today's rule adds many more State facilities as well as all federal facilities located in urbanized areas. All of these State and federal facilities that fit the definition of a small MS4 must be covered by a storm water management program. The individual permitting authorities must decide what type of permit is most applicable.

The existing NPDES storm water program already regulates storm water from federally or State-operated industrial sources. Federal or State facilities that are currently regulated due to their industrial discharges may already be implementing some of today's rule requirements.

EPA received comments that questioned the apparent inconsistency between regulating a federal facility such as a hospital and not regulating a similar private facility. Normally, this type of private facility is regulated by the MS4. EPA believes that federal facilities are subject to local water quality regulations, including storm water requirements, by virtue of the waiver of sovereign immunity in CWA section 313. However, there are special problems faced by MS4s in their efforts to regulate federal facilities that have not been encountered in regulating ***68750** similar private facilities. To ensure comprehensive coverage, today's rule merely clarifies the need for permit coverage for these federal facilities.

i. Combined Sewer Systems (CSS). The definition of small MS4s does not include combined sewer systems. A combined sewer system is a wastewater collection system that conveys sanitary wastewater and storm water through a single set of pipes to a publicly-owned treatment works (POTW) for treatment before discharging to a receiving waterbody. During wet weather events when the capacity of the combined sewer system is exceeded, the system is designed to discharge prior to the POTW treatment plant directly into a receiving waterbody. Such an overflow is a combined sewer overflow or CSO. Combined sewer systems are not subject to existing regulations for municipal storm water discharges, nor will they be subject to today's regulations. EPA addresses combined sewer systems and CSOs in the National Combined Sewer Overflow (CSO) Control Policy issued on April 19, 1994 (59 FR 18688). The CSO Control Policy contains provisions

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for developing appropriate, site-specific NPDES permit requirements for combined sewer systems. CSO discharges are subject to limitations based on the best available technology economically achievable for toxic pollutants and based on the best conventional pollutant control technology for conventional pollutants. MS4s are subject to a different technology standard for all pollutants, specifically to reduce pollutants to the maximum extent practicable.

Some municipalities are served by both separate storm sewer systems and combined sewer systems. If such a municipality is located within an urbanized area, only the separate storm sewer systems within that municipality is included in the NPDES storm water program and subject to today's final rule. If the municipality is not located in an urbanized area, then the NPDES permitting authority has discretion as to whether the discharges from the separate storm sewer system is subject to today's final rule. The NPDES permitting authority will use the same process to designate discharges from portions of an MS4 for permit coverage where the municipality is also served by a combined sewer system.

EPA recognizes that municipalities that have both combined and separate storm sewer systems may wish to find ways to develop a unified program to meet all wet weather water pollution control requirements more efficiently. In the proposal to today's final rule, EPA sought comment on ways to achieve such a unified program. Many municipalities that are served by CSSs and MS4s commented that it is inequitable to force them to comply with Phase II at this time because implementation of the CSO Control Policy through their NPDES permits already imposes a significant financial burden. They requested an extension of the implementation time frame. They did not provide ideas on how to unify the two programs. EPA encourages permitting authorities to work with these municipalities as they develop and begin implementation of their CSO and storm water management programs. If both sets of requirements are carefully coordinated early, a cost-effective wet weather program can be developed that will address both CSO and storm water requirements.

ii. Owners/Operators. Several commenters mentioned the difference between the existing storm water application requirement for municipal operators and the proposed municipal requirement for owners or operators to apply. They felt that this inconsistency is confusing. The preamble to the existing regulations makes numerous references to owner/operator so there was no intent to make a clear distinction between Phase I and Phase II. Section 122.21(b) states that when the owner and operator are different, the operator must obtain the permit. MS4s often have several operators. The owner may be responsible for one part of the system and a regional authority may be responsible for other aspects. EPA proposed the “owner or operator” language to convey this dual responsibility. However, when the owner is responsible for some part of a storm water management plan, it is also an operator.

EPA has revised the regulation language to clarify that “an operator” must apply for a permit. When responsibilities for the MS4 are shared, all operators must apply.

c. Regulated Small MS4s

In today's final rule, all small MS4s located in an urbanized area are automatically designated as “regulated” small MS4s provided that they were not previously designated into the existing storm water program. Unlike medium and large MS4s under the existing storm water regulations, not all small MS4s are designated under today's final rule. Therefore, today's rule distinguishes between “small” MS4s and “regulated small” MS4s.

EPA's definition of “regulated small MS4s” in the proposal to today's rule included mention of incorporated places and counties. Along with the definition, EPA included Appendices 6 and 7 to assist in the identification of areas that would probably require coverage as “automatically designated” (Appendix 6) or “potentially designated” (Appendix 7). The definition and the appendices raised many questions about exactly who was required to comply with the proposed requirements. Commenters raised issues about the definition of “incorporated place” and the status of towns, townships, and other places that are not considered incorporated by the Census Bureau. They also asked about special districts, regional authorities, MS4s already regulated, and other questions in order to clarify the rule's coverage.

EPA has revised §122.32(a) to clarify that discharges are regulated under today's rule if they are from a small MS4 that is in an urbanized area and has not received a waiver or they are designated by the permitting authority. Today's rule does not regulate the county, city, or town. Today's rule regulates the MS4. Therefore, even though a county may be listed in Appendix 6, if that county does not own or operate the municipal storm sewer systems, the county does not have to submit an application or develop a storm water management program. If another entity does own or operate an MS4 within the county, for example, a regional utility district, that other entity needs to submit the application and develop the program.

Some commenters suggested that EPA should change the rule language to specifically allow regional authorities to be the permitted entity and to allow small MS4s to apply as co-permittees. EPA believes that the best way to clarify that regional authorities can be the primary permitted entity is the change to §122.32(a) and the explanation above. Because EPA assumes that today's regulation will be implemented through general permits, MS4s will not be co-permittees under a general permit in the same manner as under individual permits. EPA has added §122.33(a)(4) and made a minor change to §122.35(a) to clarify that small MS4s can work together to share the responsibilities of a storm water management program. This is discussed further in Section II.H.3.c.iv below.

The proposed rule stated that when a county or Federal Indian reservation is only partially included in an urbanized area, only MS4s in the urbanized portion of the county or Federal Indian reservation would be regulated. In the rare cases when an incorporated place is only partially included in the urbanized area, the entire incorporated place would be regulated. EPA received comments asking about towns and ***68751** townships, because they were not considered to be incorporated areas according to the Census Bureau's definition. Would the whole town/township be covered or only the part of the town/township in the urbanized area? States use many different types of systems in their geographical divisions. Some towns are similar to incorporated cities and others are large areas that are more similar to counties. Some commenters thought that the urbanized area boundary was arbitrary, and if part of a town or county was covered, it all should be covered. Other commenters noted that some townships and counties encompass very large areas of which only a small portion is urbanized. Due to the great variety of situations, EPA has decided that for all geographical entities, only MS4s in the urbanized area are automatically designated. The population densities associated with the Census Bureau's designation of urbanized areas provide the basis for designation of these areas to protect water quality. This focused designation provides for consistency and allows for flexibility on the part of the MS4 and the permitting authority. In those situations where an incorporated place or a town is not all in an "urbanized area", there is a good possibility that it is served by more than one MS4. In those cases where the area is served by the same MS4, it makes sense to develop a storm water program for the whole area. Permitting authorities may also decide to designate all MS4s within a county or township, if they believe it is necessary to protect water quality.

Most operators of MS4s will not need to independently determine the status of coverage under today's rule. EPA has revised the proposed Appendices 6 and 7 to include towns and townships. Therefore, these appendices will alert most MS4s as to whether they are likely to be covered under today's rule. However, each permitting authority must make the decision as to who requires coverage. Most likely, an illustrative list of the regulated areas will be published with the general permit. If not, the operator can contact its permitting authority or the Bureau of the Census to find out if their separate storm sewer systems are within an urbanized area.

i. Urbanized Area Description. Under the Bureau of the Census definition of "urbanized area," adopted by EPA for the purposes of today's final rule, "an urbanized area (UA) comprises a place and the adjacent densely settled surrounding territory that together have a minimum population of 50,000 people." The proposal to today's rule provided the full definition and case studies to help explain the census category of "urbanized area." Appendix 2 is a simplified urbanized area illustration to help demonstrate the concept of urbanized areas in relation to today's final rule. The "urbanized area" is the shaded area that includes within its boundaries incorporated places, a portion of a Federal Indian reservation, portions of two counties, an entire town, and portions of another town. All small MS4s located in the shaded area are

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covered by the rule, unless and until waived by the permitting authority. Any small MS4s located outside of the shaded area are subject to potential designation by the permitting authority.

There are 405 urbanized areas in the United States that cover 2 percent of total U.S. land area and contain approximately 63 percent of the nation's population (see Appendix 3 for a listing of urbanized areas of the United States and Puerto Rico). These numbers include U.S. Territories, although Puerto Rico is the only territory to have Census-designated urbanized areas. Urbanized areas constitute the largest and most dense areas of settlement. The purpose of determining an "urbanized area" is to delineate the boundaries of development and map the actual built-up urban area. The Bureau of the Census geographers liken it to flying over an urban area and drawing a line around the boundary of the built-up area as seen from the air.

Using data from the latest decennial census, the Census Bureau applies the urbanized area definition nationwide (including U.S. Tribes and Territories) and determines which places and counties are included within each urbanized area. For each urbanized area, the Bureau provides full listings of who is included, as well as detailed maps and special CD-ROM files for use with computerized mapping systems (such as GIS). Each State's data center receives a copy of the list, and some maps, automatically. The States also have the CD-ROM files and a variety of publications available to them for reference from the Bureau of the Census. In addition, local or regional planning agencies may have urbanized area files already. New listings for urbanized areas based on the 2000 Census will be available by July/August 2001, but the more comprehensive computer files will not be available until late 2001/early 2002.

Additional designations based on subsequent census years will be governed by the Bureau of the Census' definition of an urbanized area in effect for that year. Based on historical trends, EPA expects that any area determined by the Bureau of the Census to be included within an urbanized area as of the 1990 Census will not later be excluded from the urbanized area as of the 2000 Census. However, it is important to note that even if this situation were to occur, for example, due to a possible change in the Bureau of the Census' urbanized area definition, a small MS4 that is automatically designated into the NPDES program for storm water under an urbanized area calculation for any given Census year will remain regulated regardless of the results of subsequent urbanized area calculations.

ii. Rationale for Using Urbanized Areas. EPA is using urbanized areas to automatically designate regulated small MS4s on a nationwide basis for several reasons: (1) studies and data show a high correlation between degree of development/ urbanization and adverse impacts on receiving waters due to storm water (U.S. EPA, 1983; Driver et al., 1985; Pitt, R.E. 1991. "Biological Effects of Urban Runoff Discharges." Presented at the Engineering Foundation Conference: Urban Runoff and Receiving Systems; An Interdisciplinary Analysis of Impact, Monitoring and Management, August 1991. Mt. Crested Butte, CO. American Society of Civil Engineers, New York. 1992.; Pitt, R.E. 1995. "Biological Effects of Urban Runoff Discharges," in Storm water Runoff and Receiving Systems: Impact, Monitoring, and Assessment. Lewis Publishers, New York.; Galli, J. 1990. Thermal Impacts Associated with Urbanization and Storm water Management Best Management Practices. Prepared for the Sediment and Storm water Administration of the Maryland Department of the Environment.; Klein, 1979), (2) the blanket coverage within the urbanized area encourages the watershed approach and addresses the problem of "donut-holes," where unregulated areas are surrounded by areas currently regulated (storm water discharges from donut hole areas present a problem due to their contributing uncontrolled adverse impacts on local waters, as well as by frustrating the attainment of water quality goals of neighboring regulated communities), (3) this approach targets present and future growth areas as a preventative measure to help ensure water quality protection, and (4) the determination of urbanized areas by the Bureau of the Census allows operators of small MS4s to quickly determine whether they are included in the NPDES storm water program as a regulated small MS4.

Urbanized areas have experienced significant growth over the past 50 years. According to EPA calculations ***68752** based on Census data from 1980 to 1990, the national average rate of growth in the United States during that 10-year period was more than 4 percent. For the same period, the average growth within urbanized areas was 15.7 percent and

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the average for outside of urbanized areas was just more than 1 percent. The new development occurring in these growing areas can provide some of the best opportunities for implementing cost-effective storm water management controls.

EPA received many comments on the proposal to designate discharges based on location within urbanized areas. EPA considered numerous other approaches, several of which are discussed in the proposal to today's final rule. Several commenters wanted designation to be based on proven water quality problems rather than inclusion in an urbanized area. One commenter proposed an approach based on the CWA 303(d) listing of impaired waters and the wasteload allocation conducted under the TMDL process. (See section II.L. on the section 303(d) and TMDL process). The commenter's proposal would designate small MS4s on a case-by-case basis, covering only those discharges where receiving streams are shown to have water quality problems, particularly a failure to meet water quality standards, including designated uses. The commenter further described a non-NPDES approach where a State would require cost-effective measures based on a proportionate share under a waste load allocation, equitably allocated among all pollutant contributors. These waste load allocations would be developed with input from all stakeholders, and remedial measures would be implemented in a phased manner based on the probability of results and/or economic feasibility. The States would then periodically reassess the receiving streams to determine whether the remedial measures are working, and if not, require additional control measures using the same procedure used to establish the initial measures. What the commenter describes is almost a TMDL.

EPA considered a remedial approach based on water quality impairment and rejected it for failure to prevent almost certain degradation caused by urban storm water. EPA's main concern in opting not to take a case-by-case approach to designation was that this approach would not provide controls for storm water discharges in receiving streams until after a site-specific demonstration of adverse water quality impact. The commenter's suggestion would do nothing to prevent pollution in waters that may be meeting water quality standards, including supporting designated uses. The approach would also rely on identifying storm water management programs following comprehensive watershed plans and TMDL development. In most States, water quality assessments have traditionally been conducted for principal mainstream rivers and their major tributaries, not all surface waters. The establishment of TMDLs nationwide will take many years, and many States will conduct additional monitoring to determine water quality conditions prior to establishing TMDLs. In addition, a case-by-case approach would not address the problem of “donut holes” within urbanized areas and a lack of consistency among similarly situated municipal systems would remain commonplace. After careful consideration of all comments, EPA still believes that the approach in today's rule is the most appropriate to protect water quality. Protection includes prevention as well as remediation.

d. Municipal Designation by the Permitting Authority

Today's final rule also allows NPDES permitting authorities to designate MS4s that should be included in the storm water program as regulated small MS4s but are not located within urbanized areas. The final rule requires, at a minimum, that a set of designation criteria be applied to all small MS4s within a jurisdiction that serves a population of at least 10,000 and has a population density of at least 1,000. Appendix 7 to this preamble provides an illustrative list of places that the Agency anticipates meet this criteria. In addition, any small MS4 may be the subject of a petition to the NPDES permitting authority for designation. See Section II.G, NPDES Permitting Authority's Role for more details on the designation and petition processes. EPA believes that the approach of combining nationwide and local designation to determine municipal coverage balances the potential for significant adverse impacts on water quality with local watershed protection and planning efforts.

e. Waiving the Requirements for Small MS4s

Today's final rule includes some flexibility in the nationwide coverage of all small MS4s located in urbanized areas by providing the NPDES permitting authority with the discretion to waive the otherwise applicable requirements of the smallest MS4s that are not causing the impairment of a receiving water body. Qualifications for the waiver vary depending on whether the MS4 serves a population under 1,000 or a population between 1,000 and 10,000. Note that

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even if a small MS4 has requirements waived, it can subsequently be brought back into the program if circumstances change. See Section II.G, NPDES Permitting Authority's Role, for more details on this process.

3. Municipal Permit Requirements

a. Overview

i. Summary of Permitting Options. Today's rule outlines six minimum control measures that constitute the framework for a storm water discharge control program for regulated small MS4s that, when properly implemented, will reduce pollutants to the maximum extent practicable (MEP). These six minimum control measures are specified in §122.34(b) and are discussed below in section "II.H.3.b, Program Requirements-Minimum Control Measures." All operators of regulated small MS4s are required to obtain coverage under an NPDES permit, unless the requirement is waived by the permitting authority in accordance with today's rule. Implementation of §122.34(b) may be required either through an individual permit or, if the State or EPA makes one available to the facility, through a general permit. The process for issuing and obtaining these permits is discussed below in section "II.H.3.c, Application Requirements."

As an alternative to implementing a program that complies with the requirements of §122.34, today's rule provides operators of regulated small MS4s with the option of applying for an individual permit under §122.26(d). The permit application requirements in §122.26 were originally drafted to apply to medium and large MS4s. Although EPA believes that the requirements of § 122.34 provide a regulatory option that is appropriate for most small MS4s, the operators of some small MS4s may prefer more individualized requirements. This alternative permitting option for regulated small MS4s that wish to develop their own program is discussed below in section "II.H.3.c.iii. Alternative Permit Option." The second alternative permitting option for regulated small MS4s is to become co-permittees with a medium or large MS4 regulated under § 122.26(d), as discussed below in section "II.H.3.c.v. Joint Permit Programs."

ii. Water Quality-Based Requirements. Any NPDES permit issued under today's rule must, at a minimum, require the operator to develop, implement, and ***68753** enforce a storm water management program designed to reduce the discharge of pollutants from a regulated system to the MEP, to protect water quality, and satisfy the appropriate water quality requirements of the Clean Water Act (see MEP discussion in the following section). Absent evidence to the contrary, EPA presumes that a small MS4 program that implements the six minimum measures in today's rule does not require more stringent limitations to meet water quality standards. Proper implementation of the measures will significantly improve water quality. As discussed further below, however, small MS4 permittees should modify their programs if and when available information indicates that water quality considerations warrant greater attention or prescriptiveness in specific components of the municipal program. If the program is inadequate to protect water quality, including water quality standards, then the permit will need to be modified to include any more stringent limitations necessary to protect water quality.

Regardless of the basis for the development of the effluent limitations (whether designed to implement the six minimum measures or more stringent or prescriptive limitations to protect water quality), EPA considers narrative effluent limitations requiring implementation of BMPs to be the most appropriate form of effluent limitations for MS4s. CWA section 402(p)(3)(b)(iii) expresses a preference for narrative rather than numeric effluent limits, for example, by reference to "management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. 1342(p)(3)(B)(iii). EPA determines that pollutants from wet weather discharges are most appropriately controlled through management measures rather than end-of-pipe numeric effluent limitations. As explained in the Interim Permitting Policy for Water Quality-Based Effluent Limitations in Storm Water Permits, issued on August 1, 1996 [61 FR 43761 (November 26, 1996), EPA believes that the currently available methodology for derivation of numeric water quality-based effluent limitations is significantly complicated when applied to wet weather discharges from MS4s (compared to continuous or periodic batch discharges from most other types of discharge). Wet weather discharges from MS4s introduce a high degree of variability in the inputs to the models currently available for derivation of water quality based effluent

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limitations, including assumptions about instream and discharge flow rates, as well as effluent characterization. In addition, EPA anticipates that determining compliance with any such numeric limitations may be confounded by practical limitations in sample collection.

In the first two to three rounds of permit issuance, EPA envisions that a BMP-based storm water management program that implements the six minimum measures will be the extent of the NPDES permit requirements for the large majority of regulated small MS4s. Because the six measures represent a significant level of control if properly implemented, EPA anticipates that a permit for a regulated small MS4 operator implementing BMPs to satisfy the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards, so that additional, more stringent and/or more prescriptive water quality based effluent limitations will be unnecessary.

If a small MS4 operator implements the six minimum control measures in § 122.34(b) and the discharges are determined to cause or contribute to non-attainment of an applicable water quality standard, the operator needs to expand or better tailor its BMPs within the scope of the six minimum control measures. EPA envisions that this process will occur during the first two to three permit terms. After that period, EPA will revisit today's regulations for the municipal separate storm sewer program.

If the permitting authority (rather than the regulated small MS4 operator) needs to impose additional or more specific measures to protect water quality, then that action will most likely be the result of an assessment based on a TMDL or equivalent analysis that determines sources and allocations of pollutant(s) of concern. EPA believes that the small MS4's additional requirements, if any, should be guided by its equitable share based on a variety of considerations, such as cost effectiveness, proportionate contribution of pollutants, and ability to reasonably achieve wasteload reductions. Narrative effluent limitations in the form of BMPs may still be the best means of achieving those reductions.

See Section II.L, Water Quality Issues, for further discussion of this approach to permitting, consistent with EPA's interim permitting guidance. Pursuant to CWA section 510, States implementing their own NPDES programs may develop more stringent or more prescriptive requirements than those in today's rule.

EPA's interpretation of CWA section 402(p)(3)(B)(iii) was recently reviewed by the Ninth Circuit in Defenders of Wildlife, et al v. Browner, No. 98-71080 (September 15, 1999). The Court upheld the Agency's action in issuing five MS4 permits that included water quality-based effluent limitations. The Court did, however, disagree with EPA's interpretation of the relationship between CWA sections 301 and 402(p). The Court reasoned that MS4s are not compelled by section 301(b)(1)(C) to meet all State water quality standards, but rather that the Administrator or the State may rely on section 402(p)(3)(B)(iii) to require such controls. Accordingly, the Defenders of Wildlife decision is consistent with the Agency's 1996 “Interim Permitting Policy for Water Quality-Based Effluent Limitations in Storm Water Permits.”

As noted, the 1996 Policy describes how permits would implement an iterative process using BMPs, assessment, and refocused BMPs, leading toward attainment of water quality standards. The ultimate goal of the iteration would be for water bodies to support their designated uses. EPA believes this iterative approach is consistent with and implements section 301(b)(1)(C), notwithstanding the Ninth Circuit's interpretation. As an alternative to basing these water quality-based requirements on section 301(b)(1)(C), however, EPA also believes the iterative approach toward attainment of water quality standards represents a reasonable interpretation of CWA section 402(p)(3)(B)(iii). For this reason, today's rule specifies that the “compliance target” for the design and implementation of municipal storm water control programs is “to reduce pollutants to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the CWA.” The first component, reductions to the MEP, would be realized through implementation of the six minimum measures. The second component, to protect water quality, reflects the overall design objective for municipal programs based on CWA section 402(p)(6). The third component, to implement other applicable water quality requirements of the CWA, recognizes the Agency's specific determination under CWA section 402(p)(3)

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(B)(iii) of the need to achieve reasonable further progress toward attainment of water quality standards according to the iterative BMP process, as well as the determination that State or EPA officials who establish TMDLs could allocate waste loads to ***68754** MS4s, as they would to other point sources.

EPA does not presume that water quality will be protected if a small MS4 elects not to implement all of the six minimum measures and instead applies for alternative permit limits under §122.26(d). Operators of such small MS4s that apply for alternative permit limits under §122.26(d) must supply additional information through individual permit applications so that the permit writer can determine whether the proposed program reduces pollutants to the MEP and whether any other provisions are appropriate to protect water quality and satisfy the appropriate water quality requirements of the Clean Water Act.

iii. Maximum Extent Practicable. Maximum extent practicable (MEP) is the statutory standard that establishes the level of pollutant reductions that operators of regulated MS4s must achieve. The CWA requires that NPDES permits for discharges from MS4s "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods." CWA Section 402(p)(3)(B)(iii). This section also calls for "such other provisions as the [EPA] Administrator or the State determines appropriate for the control of such pollutants." EPA interprets this standard to apply to all MS4s, including both existing regulated (large and medium) MS4s, as well as the small MS4s regulated under today's rule.

For regulated small MS4s under today's rule, authorization to discharge may be under either a general permit or individual permit, but EPA anticipates and expects that general permits will be the most common permit mechanism. The general permit will explain the steps necessary to obtain permit authorization. Compliance with the conditions of the general permit and the series of steps associated with identification and implementation of the minimum control measures will satisfy the MEP standard. Implementation of the MEP standard under today's rule will typically require the permittee to develop and implement appropriate BMPs to satisfy each of the required six minimum control measures.

In issuing the general permit, the NPDES permitting authority will establish requirements for each of the minimum control measures. Permits typically will require small MS4 permittees to identify in their NOI the BMPs to be performed and to develop the measurable goals by which implementation of the BMPs can be assessed. Upon receipt of the NOI from a small MS4 operator, the NPDES permitting authority will have the opportunity to review the NOI to verify that the identified BMPs and measurable goals are consistent with the requirement to reduce pollutants under the MEP standard, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. If necessary, the NPDES permitting authority may ask the permittee to revise their mix of BMPs, for example, to better reflect the MEP pollution reduction requirement. Where the NPDES permit is not written to implement the minimum control measures specified under §122.34(b), for example in the case of an individual permit under §122.33(b)(2)(ii), the MEP standard will be applied based on the best professional judgment of the permit writer.

Commenters argued that MEP is, as yet, an undefined term and that EPA needs to further clarify the MEP standards by providing a regulatory definition that includes recognition of cost considerations and technical feasibility. Commenters argued that, without a definition, the regulatory community is not adequately on notice regarding the standard with which they need to comply. EPA disagrees that affected MS4 permittees will lack notice of the applicable standard. The framework for the small MS4 permits described in this notice provides EPA's interpretation of the standard and how it should be applied.

EPA has intentionally not provided a precise definition of MEP to allow maximum flexibility in MS4 permitting. MS4s need the flexibility to optimize reductions in storm water pollutants on a location-by-location basis. EPA envisions that this evaluative process will consider such factors as conditions of receiving waters, specific local concerns, and other aspects included in a comprehensive watershed plan. Other factors may include MS4 size, climate, implementation

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schedules, current ability to finance the program, beneficial uses of receiving water, hydrology, geology, and capacity to perform operation and maintenance.

The pollutant reductions that represent MEP may be different for each small MS4, given the unique local hydrologic and geologic concerns that may exist and the differing possible pollutant control strategies. Therefore, each permittee will determine appropriate BMPs to satisfy each of the six minimum control measures through an evaluative process. Permit writers may evaluate small MS4 operator's proposed storm water management controls to determine whether reduction of pollutants to the MEP can be achieved with the identified BMPs.

EPA envisions application of the MEP standard as an iterative process. MEP should continually adapt to current conditions and BMP effectiveness and should strive to attain water quality standards. Successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards. If, after implementing the six minimum control measures there is still water quality impairment associated with discharges from the MS4, after successive permit terms the permittee will need to expand or better tailor its BMPs within the scope of the six minimum control measures for each subsequent permit. EPA envisions that this process may take two to three permit terms.

One commenter observed that MEP is not static and that if the six minimum control measures are not achieving the necessary water quality improvements, then an MS4 should be expected to revise and, if necessary, expand its program. This concept, it is argued, must be clearly part of the definition of MEP and thus incorporated into the binding and operative aspects of the rule. As is explained above, EPA believes that it is. The iterative process described above is intended to be sensitive to water quality concerns. EPA believes that today's rule contains provisions to implement an approach that is consistent with this comment.

b. Program Requirements'Minimum Control Measures

A regulated small MS4 operator must develop and implement a storm water management program designed to reduce the discharge of pollutants from their MS4 to protect water quality. The storm water management program must include the following six minimum measures.

i. Public Education and Outreach on Storm Water Impacts. Under today's final rule, operators of small MS4s must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps to reduce storm water pollution. The public education program should inform individuals and households about the problem and the steps they can take to reduce or prevent storm water pollution.

EPA believes that as the public gains a greater understanding of the storm water program, the MS4 is likely to gain ***68755** more support for the program (including funding initiatives). In addition, compliance with the program will probably be greater if the public understands the personal responsibilities expected of them. Well-informed citizens can act as formal or informal educators to further disseminate information and gather support for the program, thus easing the burden on the municipalities to perform all educational activities.

MS4s are encouraged to enter into partnerships with their States in fulfilling the public education requirement. It may be more cost-effective to utilize a State education program instead of numerous MS4s developing their own programs. MS4 operators are also encouraged to work with other organizations (e.g., environmental, nonprofit and industry organizations) that might be able to assist in fulfilling this requirement.

The public education program should be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities (particularly minority and disadvantaged communities). Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service

announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups. Operators of MS4s may use storm water educational information provided by the State, Tribe, EPA, or environmental, public interest, trade organizations, or other MS4s. Examples of successful public education efforts concerning polluted runoff can be found in many State nonpoint source pollution control programs under CWA section 319.

The public education program should inform individuals and households about steps they can take to reduce storm water pollution, such as ensuring proper septic system maintenance, ensuring the use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or household hazardous wastes. Additionally, the program could inform individuals and groups on how to become involved in local stream and beach restoration activities as well as activities coordinated by youth service and conservation corps and other citizen groups. Finally, materials or outreach programs should be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, MS4 operators should provide information to restaurants on the impact of grease clogging storm drains and to auto garages on the impacts of used oil discharges.

EPA received comments from representatives of State DOTs and U.S. Department of Defense (DOD) installations seeking exemption from the public education requirement. While today's rule does not exempt DOTs and military bases from the user education requirement, the Agency believes the flexibility inherent in the Rule addresses many of the concerns expressed by these commenters.

Certain DOT representatives commented that if their agencies were not exempt from the user education measure's requirements, they should at least be allowed to count DOT employee education as an adequate substitute. EPA supports the use of existing materials and programs, granted such materials and programs meet the rule's requirement that the MS4 user community (i.e., the public) is also educated concerning the impacts of storm water discharges on water bodies and the steps to reduce storm water pollution.

Finally, certain DOD representatives requested that “public,” as applied to their installations, be defined as the resident and employee populations within the fence line of the facility. EPA agrees that the education effort should be directed toward those individuals who frequent the federally owned land (i.e., residents and individuals who come there to work and use the MS4 facilities).

EPA also received a number of comments from municipalities stating that education would be more thorough and cost effective if accomplished by EPA on the national level. EPA believes that a collaborative State and local approach, in conjunction with significant EPA technical support, will best meet the goal of targeting, and reaching, specific local audiences. EPA technical support will include a tool box which will contain fact sheets, guidance documents, an information clearinghouse, and training and outreach efforts.

Finally, EPA received comments expressing concern that the public education program simply encourages the distribution of printed material. EPA is sensitive to this concern. Upon evaluation, the Agency made changes to the proposal's language for today's rule. The language has been changed to reflect EPA's belief that a successful program is one that includes a variety of strategies locally designed to reach specific audiences.

ii. Public Involvement/Participation. Public involvement is an integral part of the small MS4 storm water program. Accordingly, today's final rule requires that the municipal storm water management program must comply with applicable State and local public notice requirements. Section 122.34(b)(2) recommends a public participation process with efforts to reach out and engage all economic and ethnic groups. EPA believes there are two important reasons why the public should be allowed and encouraged to provide valuable input and assistance to the MS4's program.

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First, early and frequent public involvement can shorten implementation schedules and broaden public support for a program. Opportunities for members of the public to participate in program development and implementation could include serving as citizen representatives on a local storm water management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts. Moreover, members of the public may be less likely to raise legal challenges to a MS4's storm water program if they have been involved in the decision making process and program development and, therefore, internalize personal responsibility for the program themselves.

Second, public participation is likely to ensure a more successful storm water program by providing valuable expertise and a conduit to other programs and governments. This is particularly important if the MS4's storm water program is to be implemented on a watershed basis. Interested stakeholders may offer to volunteer in the implementation of all aspects of the program, thus conserving limited municipal resources.

EPA recognizes that there are a number of challenges associated with public involvement. One challenge is in engaging people in the public meeting and program design process. Another challenge is addressing conflicting viewpoints. Nevertheless, EPA strongly believes that these challenges can be addressed by use of an aggressive and inclusive program. Section II.K. provides further discussion on public involvement.

A number of municipalities sought clarification from EPA concerning what the public participation program must ***68756** actually include. In response, the actual requirements are minimal, but the Agency's recommendations are more comprehensive. The public participation program must only comply with applicable State and local public notice requirements. The remainder of the preamble, as well as the Explanatory Note accompanying the regulatory text, provide guidance to the MS4s concerning what elements a successful and inclusive program should include. EPA will provide technical support as part of the tool box (i.e., providing model public involvement programs, conducting public workshops, etc.) to assist MS4 operators meet the intent of this measure.

Finally, the Agency encourages MS4s to seek public participation prior to submitting an NOI. For example, public participation at this stage will allow the MS4 to involve the public in developing the BMPs and measurable goals for their NOI.

iii. Illicit Discharge Detection and Elimination. Discharges from small MS4s often include wastes and wastewater from non-storm water “illicit” discharges. Illicit discharge is defined at 40 CFR 122.26(b)(2) as any discharge to a municipal separate storm sewer that is not composed entirely of storm water, except discharges pursuant to an NPDES permit and discharges resulting from fire fighting activities. As detailed below, other sources of non-storm water, that would otherwise be considered illicit discharges, do not need to be addressed unless the operator of the MS4 identifies one or more of them as a significant source of pollutants into the system. EPA's Nationwide Urban Runoff Program (NURP) indicated that many storm water outfalls still discharge during substantial dry periods. Pollutant levels in these dry weather flows were shown to be high enough to significantly degrade receiving water quality. Results from a 1987 study conducted in Sacramento, California, revealed that slightly less than one-half of the water discharged from a municipal separate storm sewer system was not directly attributable to precipitation runoff (U.S. Environmental Protection Agency, Office of Research and Development. 1993. Investigation of Inappropriate Pollutant Entries Into Storm Drainage Systems—A User's Guide. Washington, DC EPA 600/R-92/238.) A significant portion of these dry weather flows results from illicit and/or inappropriate discharges and connections to the municipal separate storm sewer system. Illicit discharges enter the system through either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system or spills collected by drain inlets).

Under the existing NPDES program for storm water, permit applications for large and medium MS4s are to include a program description for effective prohibition against non-storm water discharges into their storm sewers (see 40 CFR

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122.26 (d)(1)(v)(B) and (d)(1)(iv)(B)). Further, EPA believes that in implementing municipal storm water management plans under these permits, large and medium MS4 operators generally found their illicit discharge detection and elimination programs to be cost-effective. Properly implemented programs also significantly improved water quality.

In today's rule, any NPDES permit issued to an operator of a regulated small MS4 must, at a minimum, require the operator to develop, implement and enforce an illicit discharge detection and elimination program. Inclusion of this measure for regulated small MS4s is consistent with the "effective prohibition" requirement for large and medium MS4s. Under today's rule, the NPDES permit will require the operator of a regulated small MS4 to: (1) Develop (if not already completed) a storm sewer system map showing the location of all outfalls, and names and location of all waters of the United States that receive discharges from those outfalls; (2) to the extent allowable under State, Tribal, or local law, effectively prohibit through ordinance, or other regulatory mechanism, illicit discharges into the separate storm sewer system and implement appropriate enforcement procedures and actions as needed; (3) develop and implement a plan to detect and address illicit discharges, including illegal dumping, to the system; and (4) inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

The illicit discharge and elimination program need only address the following categories of non-storm water discharges if the operator of the small MS4 identifies them as significant contributors of pollutants to its small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the definition of illicit discharge and only need to be addressed where they are identified as significant sources of pollutants to waters of the United States). If the operator of the MS4 identifies one or more of these categories of sources to be a significant contributor of pollutants to the system, it could require specific controls for that category of discharge or prohibit the discharges completely.

Several comments were received on the mapping requirements of the proposal. Most comments said that more flexibility should be given to the MS4s to determine their mapping needs, and that resources could be better spent in addressing problems once the illicit discharges are detected. EPA reviewed the mapping requirements in the proposed rule and agrees that some of the information is not necessary in order to begin an illicit discharge detection and elimination program. Today's rule requires a map or set of maps that show the locations of all outfalls and names and locations of receiving waters. Knowing the locations of outfalls and receiving waters are necessary to be able to conduct dry weather field screening for non-storm water flows and to respond to illicit discharge reports from the public. EPA recommends that the operator collect any existing information on outfall locations (e.g., review city records, drainage maps, storm drain maps), and then conduct field surveys to verify the locations. It will probably be necessary to "walk" (i.e. wade small receiving waters or use a boat for larger receiving waters) the streambanks and shorelines, and it may take more than one trip to locate all outfalls. A coding system should be used to mark and identify each outfall. MS4 operators have the flexibility to determine the type (e.g. topographic, GIS, hand or computer drafted) and size of maps which best meet their needs. The map scale should be such that the outfalls can be accurately located. Once an illicit discharge is detected at an outfall, it may be necessary to map that portion of the storm sewer system leading to the outfall in order to locate the source of the discharge.

Several comments requested clarification of the requirement to develop and implement a plan to detect and eliminate illicit discharges. EPA recommends that plans include procedures for the following: locating priority areas; tracing the source of an illicit discharge; removing the source of the discharge; and program evaluation ***68757** and assessment. EPA recommends that MS4 operators identify priority areas (i.e., problems areas) for more detailed screening of their system based on higher likelihood of illicit connections (e.g., areas with older sanitary sewer lines), or by conducting ambient sampling to locate impacted reaches. Once priority areas are identified, EPA recommends

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visually screening outfalls during dry weather and conducting field tests, where flow is occurring, of selected chemical parameters as indicators of the discharge source. EPA's manual for investigation of inappropriate pollutant entries into the storm drainage system (EPA, 1993) suggests the following parameter list: specific conductivity, fluoride and/or hardness concentration, ammonia and/or potassium concentration, surfactant and/or fluorescence concentration, chlorine concentration, pH and other chemicals indicative of industrial sources. The manual explains why each parameter is a good indicator and how the information can be used to determine the type of source flow. The Agency is not recommending that fluoride and chlorine, generally used to locate potable water discharges, be addressed under this program, therefore a short list of parameters may include conductivity, ammonia, surfactant and pH. Some MS4s have found it useful to measure for fecal coliform or E. coli in their testing program. Observations of physical characteristics of the discharge are also helpful such as flow rate, temperature, odor, color, turbidity, floatable matter, deposits and stains, and vegetation.

The implementation plan should also include procedures for tracing the source of an illicit discharge. Once an illicit discharge is detected and field tests provide source characteristics, the next step is to determine the actual location of the source. Techniques for tracing the discharge to its place of origin may include: following the flow up the storm drainage system via observations and/or chemical testing in manholes or in open channels; televising storm sewers; using infrared and thermal photography; conducting smoke or dye tests.

The implementation plan should also include procedures for removing the source of the illicit discharge. The first step may be to notify the property owner and specify a length of time for eliminating the discharge. Additional notifications and escalating legal actions should also be described in this part of the plan.

Finally, the implementation plan should include procedures for program evaluation and assessment. Procedures could include documentation of actions taken to locate and eliminate illicit discharges such as: number of outfalls screened, complaints received and corrected, feet of storm sewers televised, numbers of discharges and quantities of flow eliminated, number of dye or smoke tests conducted. Appropriate records of such actions should be kept and should be submitted as part of the annual reports for the first permit term, as specified by the permitting authority (reports only need to be submitted in years 2 and 4 in later permits). For more on reporting requirements, see § 122.34(g).

EPA received comments regarding an MS4's legal authority beyond its jurisdictional boundaries to inspect or take enforcement against illicit discharges. EPA recognizes that illicit flows may originate in one jurisdiction and cross into one or more jurisdictions before being discharged at an outfall. In such instances, EPA expects the MS4 that detects the illicit flow to trace it to the point where it leaves their jurisdiction and notify the adjoining MS4 of the flow, and any other physical or chemical information. The adjoining MS4 should then trace it to the source or to the location where it enters their jurisdiction. The process of notifying the adjoining MS4 should continue until the source is located and eliminated. In addition, because any non-storm water discharge to waters of the U.S. through an MS4 is subject to the prohibition against unpermitted discharges pursuant to CWA section 301 (a), remedies are available under the federal enforcement provisions of CWA sections 309 and 505.

EPA requested and received comments regarding the prohibition and enforcement provision for this minimum measure. Commenters specifically questioned the proposal that the operator only has to implement the appropriate prohibition and enforcement procedures “to the extent allowable under State or Tribal law.” They raised concerns that by qualifying prohibition and enforcement procedures in this manner, the operator could altogether ignore this minimum measure where affirmative legal authority did not exist. Comments suggested that EPA require States to grant authority to those municipalities where it did not exist. Other comments, however, stated that municipalities cannot exercise legal authority not granted to them under State law, which varies considerably from one State to another. EPA has no intention of directing State legislatures on how to allocate authority and responsibility under State law. As noted above, there is at least one remedy (the federal CWA) to control non-storm water discharges through MS4s. If State law prevents political

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subdivisions from controlling discharges through storm sewers, EPA anticipates common sense will prevail to provide those MS4 operators with the ability to meet the requirements applicable for their discharges.

One comment reinforced the importance of public information and education to the success of this measure. EPA agrees and suggests that MS4 operators consider a variety of ways to inform and educate the public which could include storm drain stenciling; a program to promote, publicize, and facilitate public reporting of illicit connections or discharges; and distribution of visual and/or printed outreach materials. Recycling and other public outreach programs could be developed to address potential sources of illicit discharges, including used motor oil, antifreeze, pesticides, herbicides, and fertilizers.

EPA received comments that State DOT's lack authority to implement this measure. EPA believes that most DOTs can implement most parts of this measure. If a DOT does not have the necessary legal authority to implement any part of this measure, EPA encourages them to coordinate their storm water management efforts with the surrounding MS4s and other State agencies. Many DOTs that are regulated under Phase I of this program are co-permittees with the local regulated MS4. Under today's rule, DOTs can use any of the options of §122.35 to share their storm water management responsibilities.

EPA received comments requesting clarification of various terms such as “outfall” and “illicit discharge.” One comment asked EPA to reinforce the point that a “ditch” could be considered an outfall. The term “outfall” is defined at 40 CFR 122.26(b)(9) as “a point source at the point where a municipal separate storm sewer discharges to waters of the United States * * *”. The term municipal separate storm sewer is defined at 40 CFR § 122.26(b)(8) as “a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) * * *”. Following the logic of these definitions, a “ditch” may be part of the municipal separate storm sewer, and at the point where the ditch discharges to waters of the United States, it would be an outfall. As with any determination about jurisdictional provisions of the CWA, however, final decisions require case specific evaluations of fact. ***68758**

One commenter specifically requested clarification on the relationship between the term “illicit discharge” and non-storm water discharges from fire fighting. The comment suggested that it would be impractical to attempt to determine whether the flow from a specific fire (i.e., during a fire) is a significant source of pollution. EPA intends that MS4s will address all allowable non-storm water flows categorically rather than individually. If an MS4 is concerned that flows from fire fighting are, as a category, contributing substantial amounts of pollutants to their system, they could develop a program to address those flows prospectively. The program may include an analysis of the flow from several sources, steps to minimize the pollutant contribution, and a plan to work with the sources of the discharge to minimize any adverse impact on water quality. During the development of such a program, the MS4 may determine that only certain types of flows within a particular category are a concern, for example, fire fighting flows at industrial sites where large quantities of chemicals are present. In this example, a review of existing procedures with the fire department and/or hazardous materials team may reveal weaknesses or strengths previously unknown to the MS4 operator.

EPA received comments requesting modifications to the rule to include on-site sewage disposal systems (i.e., septic systems) in the scope of the illicit discharge program. On-site sewage disposal systems that flow into storm drainage systems are within the definition of illicit discharge as defined by the regulations. Where they are found to be the source of an illicit discharge, they need to be eliminated similar to any other illicit discharge source. Today's rule was not modified to include discharges from on-site sewage disposal systems specifically because those sources are already within the scope of the existing definition of illicit discharge.

iv. Construction Site Storm Water Runoff Control. Over a short period of time, storm water runoff from construction site activity can contribute more pollutants, including sediment, to a receiving stream than had been deposited over several decades (see section I.B.3). Storm water runoff from construction sites can include pollutants other than sediment,

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such as phosphorus and nitrogen, pesticides, petroleum derivatives, construction chemicals, and solid wastes that may become mobilized when land surfaces are disturbed. Generally, properly implemented and enforced construction site ordinances effectively reduce these pollutants. In many areas, however, the effectiveness of ordinances in reducing pollutants is limited due to inadequate enforcement or incomplete compliance with such local ordinances by construction site operators (Paterson, R.G. 1994. "Construction Practices: The Good, the Bad, and the Ugly." Watershed Protection Techniques 1(2)).

Today's rule requires operators of regulated small MS4s to develop, implement, and enforce a pollutant control program to reduce pollutants in any storm water runoff from construction activities that result in land disturbance of 1 or more acres (see §122.34(b)(4)). Construction activity on sites disturbing less than one acre must be included in the program if the construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

The construction runoff control program of the regulated small MS4 must include an ordinance or other regulatory mechanism to require erosion and sediment controls to the extent practicable and allowable under State, Tribal or local law. The program also must include sanctions to ensure compliance (for example, non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance). The program must also include, at a minimum: requirements for construction site operators to implement appropriate erosion and sediment control BMPS, such as silt fences, temporary detention ponds and diversions; procedures for site plan review by the small MS4 which incorporate consideration of potential water quality impacts; requirements to control other waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may adversely impact water quality; procedures for receipt and consideration of information submitted by the public to the MS4; and procedures for site inspection and enforcement of control measures by the small MS4.

Today's rule provides flexibility for regulated small MS4s by allowing them to exclude from their construction pollutant control program runoff from those construction sites for which the NPDES permitting authority has waived NPDES storm water small construction permit requirements. For example, if the NPDES permitting authority waives permit coverage for storm water discharges from construction sites less than 5 acres in areas where the rainfall erosivity factor is less than 5, then the regulated small MS4 does not have to include these sites in its storm water management program. Even if requirements for a discharge from a given construction site are waived by the NPDES permitting authority, however, the regulated small MS4 may still chose to control those discharges under the MS4's construction pollutant control program, particularly where such discharges may cause siltation problems in storm sewers. See Section II.I.1.b for more information on construction waivers by the permitting authority.

Some commenters suggested that the proposed construction minimum measure requirements went beyond the permit application requirements concerning construction for medium and large MS4s. In response, EPA has made changes to the proposed measure so that it more closely resembles the MS4 permit application requirements in existing regulations. For example, as described below, the Agency revised the proposed requirements for "pre-construction review of site management plans" to require "procedures for site plan review."

One commenter expressed concerns that addressing runoff from construction sites within urbanized areas (through the small MS4 program) differently from construction sites outside urbanized areas (which will not be covered by the small MS4 program) will encourage urban sprawl. Today's rule, together with the existing requirements, requires all construction greater than or equal to 1 acre, unless waived, to be covered by an NPDES permit whether it is located inside or outside of an urbanized area (see §122.26(b)(15)). Today's rule does not require small MS4s to control runoff from construction sites more stringently or prescriptively than is required for construction site runoff outside urbanized areas. Therefore, today's rule imposes no substantively different onsite controls on runoff of storm water from construction sites in urbanized areas than from construction sites outside of urbanized areas.

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One commenter recommended that the small MS4 construction site storm water runoff control program address all storm water runoff from construction sites, not just the runoff into the MS4. The commenter also believed that MS4s should provide clear, objective standards for all construction sites. EPA agrees. Because today's rule only regulates discharges from the MS4, the construction pollutant control measure only requires small MS4 operators to control runoff into its system. As a practical matter, however, EPA anticipates that MS4 operators will find that regulation of all construction site ***68759** runoff, whether they runoff into the MS4 or not, will prove to be the most simple and efficient program. The Agency may provide more specific criteria for construction site BMPs in the forthcoming rule being developed under CWA section 402(m). See section II.D.1 of today's rule.

One commenter stated that there is no need for penalties at the local level by the small MS4 because the CWA already imposes sufficient penalties to ensure compliance. EPA disagrees and believes that enforcement and compliance at the local level is both necessary and preferable. Examples of sanctions, some not available under the CWA, include non-monetary penalties, monetary fines, bonding requirements, and denial of future or other local permits.

One commenter recommended that EPA should not include the requirement to control pollutants other than sediment from construction sites in this measure. EPA disagrees with this comment. The requirement is to control waste that "may cause adverse impacts on water quality." Such wastes may include discarded building materials, concrete truck washout, chemicals, pesticides, herbicides, litter, and sanitary waste. These wastes, when exposed to and mobilized by storm water, can contribute to water quality impairment.

The proposed rule required "procedures for pre-construction review of site management plans." EPA requested comment on expanding this provision to require both review and approval of construction site storm water plans. Many commenters expressed the concern that review and approval of site plans is not only costly and time intensive, but may unnecessarily delay construction projects and unduly burden staff who administer the local program. In addition, some commenters expressed confusion whether EPA proposed pre-construction review for all site management plans or only higher priority sites. To address these comments, and be consistent with the permit application requirements for larger MS4s, EPA changed "procedures for pre-construction review of site management plans" to "procedures for site plan review." Today's rule requires the small MS4 to develop procedures for site plan review so as to incorporate consideration of adverse potential water quality impacts. Procedures should include review of site erosion and sediment control plans, preferably before construction activity begins on a site. The objective is for the small MS4 operator and the construction site operator to address storm water runoff from construction activity early in the project design process so that potential consequences to the aquatic environment can be assessed and adverse water quality impacts can be minimized or eliminated.

One commenter requested that EPA delete the requirement for "procedures for receipt and consideration of information submitted by the public" because it went beyond existing storm water requirements. Another commenter stated that establishing a separate process to respond to public inquiries on a project is a burden to small communities, especially if the project has gone through an environmental review. One commenter requested clarification of this provision. EPA has retained this requirement in today's final rule to require some formality in the process for addressing public inquiries regarding storm water runoff from construction activities. EPA does not intend that small MS4s develop a separate, burdensome process to respond to every public inquiry. A small MS4 could, for example, simply log public complaints on existing storm water runoff problems from construction sites and pass that information on to local inspectors. The inspectors could then investigate complaints based on the severity of the violation and/or priority area.

One commenter believed that the proposed requirement of "regular inspections during construction" would require every construction project to be inspected more than once by the small MS4 during the term of a construction project. EPA has deleted the reference to "regular inspections." Instead, the small MS4 will be required to "develop procedures for site inspection and enforcement of control measures." Procedures could include steps to identify priority sites for inspection

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and enforcement based on the nature and extent of the construction activity, topography, and the characteristics of soils and receiving water quality.

In order to avoid duplication of small MS4 construction requirements with NPDES construction permit requirements, today's rule adds §122.44(s) to recognize that the NPDES permitting authority can incorporate qualifying State, Tribal, or local erosion and sediment control requirements in NPDES permits for construction site discharges. For example, a construction site operator who complies with MS4 construction pollutant control programs that are referenced in the NPDES construction permit would satisfy the requirements of the NPDES permit. See section II.I.1.d for more information on incorporating qualifying programs by reference into NPDES construction permits. This provision has no impact on, or direct relation to, the small MS4 operator's responsibilities under the construction site storm water runoff control minimum measure. Conversely, under §122.35(b), the permitting authority may recognize in the MS4's permit that another governmental entity, or the permitting authority itself, is responsible for implementing one or more of the minimum measures (including construction site storm water runoff control), and not include this measure in the small MS4's permit. In this case, the other governmental entity's program must satisfy all of the requirements of the omitted measure.

v. Post-Construction Storm Water Management in New Development and Redevelopment. The NURP study and more recent investigations indicate that prior planning and designing for the minimization of pollutants in storm water discharges is the most cost-effective approach to storm water quality management. Reducing pollutant concentrations in storm water after the discharge enters a storm sewer system is often more expensive and less efficient than preventing or reducing pollutants at the source. Increased human activity associated with development often results in increased pollutant loading from storm water discharges. If potential adverse water quality impacts are considered from the beginning stages of a project, new development and redevelopment provides more opportunities for water quality protection. For example, minimization of impervious areas, maintenance or restoration of natural infiltration, wetland protection, use of vegetated drainage ways, and use of riparian buffers have been shown to reduce pollutant loadings in storm water runoff from developed areas. EPA encourages operators of regulated small MS4s to identify specific problem areas within their jurisdictions and initiate innovative solutions and designs to focus attention on those areas through local planning.

In today's rule at §122.34(b)(5), NPDES permits issued to an operator of a regulated small MS4 will require the operator to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that result in land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into the MS4. Specifically, the NPDES permit will require the operator of a regulated small MS4 to: (1) Develop and implement ***68760** strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for the community; (2) use an ordinance, or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; (3) ensure adequate long-term operation and maintenance of BMPs; and (4) ensure that controls are in place that would minimize water quality impacts. EPA intends the term “redevelopment” to refer to alterations of a property that change the “footprint” of a site or building in such a way that results in the disturbance of equal to or greater than 1 acre of land. The term is not intended to include such activities as exterior remodeling, which would not be expected to cause adverse storm water quality impacts and offer no new opportunity for storm water controls.

EPA received comments requesting guidance and clarification of the rule requirements. The scope of the comments ranged from general requests for more details on how MS4 operators should accomplish the four requirements listed above, to specific requests for information regarding transfer of ownership for structural controls, as well as ongoing responsibility for operation and maintenance. By the term “combination” of BMPs, EPA intends a combination of structural and/or non-structural BMPs. For this requirement, the term “combination” is meant to emphasize that multiple BMPs should be considered and adopted for use in the community. A single BMP generally cannot significantly

reduce pollutant loads because pollutants come from many sources within a community. The BMPs chosen should: (1) Be appropriate for the local community; (2) minimize water quality impacts; and (3) attempt to maintain pre-development runoff conditions. In choosing appropriate BMPs, EPA encourages small MS4 operators to participate in locally-based watershed planning efforts which attempt to involve a diverse group of stakeholders. Each new development and redevelopment project should have a BMP component. If an approach is chosen that primarily focuses on regional or non-structural BMPs, however, then the BMPs may be located away from the actual development site (e.g., a regional water quality pond).

Non-structural BMPs are preventative actions that involve management and source controls such as: (1) Policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; (2) policies or ordinances that encourage infill development in higher density urban areas, and areas with existing storm sewer infrastructure; (3) education programs for developers and the public about project designs that minimize water quality impacts; and (4) other measures such as minimization of the percentage of impervious area after development, use of measures to minimize directly connected impervious areas, and source control measures often thought of as good housekeeping, preventive maintenance and spill prevention. Detailed examples of non-structural BMPs follow.

Preserving open space may help to protect water quality as well as provide other benefits such as recharging groundwater supplies, detaining storm water, supporting wildlife and providing recreational opportunities. Although securing funding for open space acquisition may be difficult, various funding mechanisms have been used. New Jersey uses a portion of their State sales tax (voter approved for a ten year period) as a stable source of funding to finance the preservation of historic sites, open space and farmland. Colorado uses part of the proceeds from the State lottery to acquire and manage open space. Some local municipalities use a percentage of the local sales tax revenue to pay for open space acquisition (e.g., Jefferson County, CO has had an open space program in place since 1977 funded by a 0.50 percent sales tax). Open space can be acquired in the form of: fee simple purchase; easements; development rights; purchase and sellback or leaseback arrangements; purchase options; private land trusts; impact fees; and land dedication requirements. Generally, fee simple purchases provide the highest level of development control and certainty of preservation, whereas the other forms of acquisition may provide less control, though they would also generally be less costly.

Cluster development, while allowing housing densities comparable to conventional zoning practice, concentrates housing units in a portion of the total site area which provides for greater open space, recreation, stream protection and storm water control. This type of development, by reducing lot sizes, can protect sensitive areas and result in less impervious surface, as well as reduce the cost for roads and other infrastructure.

Minimizing directly connected impervious areas (DCIAs) is a drainage strategy that seeks to reduce paved areas and directs storm water runoff to landscaped areas or to structural controls such as grass swales or buffer strips. This strategy can slow the rate of runoff, reduce runoff volumes, attenuate peak flows, and encourage filtering and infiltration of storm water. It can be made an integral part of drainage planning for any development (Urban Drainage and Flood Control District, Denver, CO. 1992. Urban Storm Drainage Criteria Manual, Volume 3—Best Management Practices). The Urban Drainage and Flood Control District manual describes three levels for minimizing DCIAs. At Level 1 all impervious surfaces are made to drain over grass-covered areas before reaching a storm water conveyance system. Level 2 adds to Level 1 and replaces street curb and gutter systems with low-velocity grass-lined swales and pervious street shoulders. In addition to Levels 1 and 2, Level 3 over-sizes swales and configures driveway and street crossing culverts to use grass-lined swales as elongated detention basins.

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Structural BMPs include: (1) Storage practices such as wet ponds and extended-detention outlet structures; (2) filtration practices such as grassed swales, sand filters and filter strips; and (3) infiltration practices such as infiltration basins and infiltration trenches.

EPA recommends that small MS4 operators ensure the appropriate implementation of the structural BMPs by considering some or all of the following: (1) Pre-construction review of BMP designs; (2) inspections during construction to verify BMPs are built as designed; (3) post-construction inspection and maintenance of BMPs; and (4) sanctions to ensure compliance with design, construction or operation and maintenance (O&M) requirements of the program.

EPA cautions that certain infiltration systems such as dry wells, bored wells or tile drainage fields may be subject to Underground Injection Control (UIC) program requirements (see 40 CFR Part 144.12.). To find out more about these requirements, contact your state UIC Program, or call EPA's Safe Drinking Water Hotline at 1-800-426-4791.

In order to meet the third post-construction requirement (ensuring adequate long-term O&M of BMPs), EPA recommends that small MS4 operators evaluate various O&M management agreement options. The most common options are agreements between the ***68761** MS4 operator and another party such as post-development landowners (e.g., homeowners' associations, office park owners, other government departments or entities), or regional authorities (e.g., flood control districts, councils of government). These agreements typically require the post-construction property owner to be responsible for the O&M and may include conditions which: allow the MS4 operator to be reimbursed for O&M performed by the MS4 operator that is the responsibility of the property owner but is not performed; allow the MS4 operator to enter the property for inspection purposes; and in some cases specify that the property owner submit periodic reports.

In providing the guidance above, EPA intends the requirements in today's rule to be consistent with the permit application requirements for large MS4s for post-construction controls for new development and redevelopment. MS4 operators have significant flexibility both to develop this measure as appropriate to address local concerns, and to apply new control technologies as they become available. Storm water pollution control technologies are constantly being improved. EPA recommends that MS4s be responsive to these changes, developments or improvements in control technologies. EPA will provide more detailed guidance addressing the responsibility for long-term O&M of storm water controls in guidance materials. The guidance will also provide information on appropriate planning considerations, structural controls and non-structural controls. EPA also intends to develop a broad menu of BMPs as guidance to ensure flexibility to accommodate local conditions.

EPA received comments suggesting that requirements for new development be treated separately from redevelopment in the rule. The comment stressed that new development on raw land presents fewer obstacles and more opportunities to incorporate elements for preventing water quality impacts, whereas redevelopment projects are constrained by space limitations and existing infrastructure. Another comment suggested allowing waivers from the redevelopment requirements if the redevelopment does not result in additional adverse water quality impacts, and where BMPs are not technologically or economically feasible. EPA recognizes that redevelopment projects may have more site constraints which narrow the range of appropriate BMPs. Today's rule provides small MS4 operators with the flexibility to develop requirements that may be different for redevelopment projects, and may also include allowances for alternate or off-site BMPs at certain redevelopment projects. Non-structural BMPs may be the most appropriate approach for smaller redevelopment projects.

EPA received comments requesting clarification on what is meant by “pre-development” conditions within the context of redevelopment. Pre-development refers to runoff conditions that exist onsite immediately before the planned development activities occur. Pre-development is not intended to be interpreted as that period before any human-induced land disturbance activity has occurred.

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EPA received comments on the guidance language in the proposed rule and preamble which suggest that implementation of this measure should "attempt to maintain pre-development runoff conditions" and that "post-development conditions should not be different than pre-development conditions in a way that adversely affects water quality." Many comments expressed concern that maintaining pre-development runoff conditions is impossible and cost-prohibitive, and objected to any reference to "flow" or increase in volume of runoff. Other comments support the inclusion of this language in the final rule. Similar references in today's rule relating to pre-development runoff conditions are intended as recommendations to attempt to maintain pre-development runoff conditions. With these recommendations, EPA intends to prevent water quality impacts resulting from increased discharges of pollutants, which may result from increased volume of runoff. In many cases, consideration of the increased flow rate, velocity and energy of storm water discharges following development unavoidably must be taken into consideration in order to reduce the discharge of pollutants, to meet water quality standards and to prevent degradation of receiving streams. EPA recommends that municipalities consider these factors when developing their post-construction storm water management program.

Some comments said that the quoted phrases in the paragraph above are directives that imply federal land use control, which they argue is beyond the authority of the CWA. EPA recognizes that land use planning is within the authority of local governments.

EPA disagrees, however, with the implication that today's rule dictates any such land use decisions. The requirement for small MS4 operators to develop a program to address discharges resulting from new development and redevelopment is essentially a pollution prevention measure. The Rule provides the MS4 operator with flexibility to determine the appropriate BMPs to address local water quality concerns. EPA recognizes that these program goals may not be applied to every site, and expects that MS4s will develop an appropriate combination of BMPs to be applied on a site-by-site, regional or watershed basis.

vi. Pollution Prevention/Good Housekeeping for Municipal Operations. Under today's final rule, operators of MS4s must develop and implement an operation and maintenance program ("program") that includes a training component and has the ultimate goal of preventing or reducing storm water from municipal operations (in addition to those that constitute storm water discharges associated with industrial activity). This measure's emphasis on proper O&M of MS4s and employee training, as opposed to requiring the MS4 to undertake major new activities, is meant to ensure that municipal activities are performed in the most efficient way to minimize contamination of storm water discharges.

The program must include government employee training that addresses prevention measures pertaining to municipal operations such as: parks, golf courses and open space maintenance; fleet maintenance; new construction or land disturbance; building oversight; planning; and storm water system maintenance. The program can use existing storm water pollution prevention training materials provided by the State, Tribe, EPA, or environmental, public interest, or trade organizations.

EPA also encourages operators of MS4s to consider the following in developing a program: (1) Implement maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from the separate storm sewers; (2) implement controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, fleet or maintenance shops with outdoor storage areas, and salt/sand storage locations and snow disposal areas operated by the MS4; (3) adopt procedures for the proper disposal of waste removed from the separate storm sewer systems and areas listed above in (2), including dredge ***68762** spoil, accumulated sediments, floatables, and other debris; and (4) adopt procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices. Ultimately, the effective performance of the program measure depends on the proper maintenance of the BMPs, both structural and non-structural. Without proper maintenance, BMP performance declines significantly over time. Additionally, BMP neglect may produce health and safety threats, such as structural failure

leading to flooding, undesirable animal and insect breeding, and odors. Maintenance of structural BMPs could include: replacing upper levels of gravel; dredging of detention ponds; and repairing of retention basin outlet structure integrity. Maintenance of non-structural BMPs could include updating educational materials periodically.

EPA emphasizes that programs should identify and incorporate existing storm water practices and training, as well as non-storm water practices or programs that have storm water pollution prevention benefits, as a means to avoid duplication of efforts and reduce overall costs. EPA recommends that MS4s incorporate these new obligations into their existing programs to the greatest extent feasible and urges States to evaluate MS4 programs with programmatic efficiency in mind. EPA designed this minimum control measure as a modified version of the permit application requirements for medium and large MS4s described at 40 CFR 122.26(d)(2)(iv), in order to provide more flexibility for these smaller MS4s. Today's requirements provide for a consistent approach to control pollutants from O&M among medium, large, and regulated small MS4s.

By properly implementing a program, operators of MS4s serve as a model for the rest of the regulated community. Furthermore, the establishment of a long-term program could result in cost savings by minimizing possible damage to the system from floatables and other debris and, consequently, reducing the need for repairs.

EPA received comments requesting clarification of what this measure requires. Certain municipalities expressed concern that the measure has the potential to impose significant costs associated with EPA's requirement that operators of MS4s consider implementing controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, and salt/sand storage locations and snow disposal areas operated by the municipality. EPA disagrees that a requirement to consider such controls will impose considerable costs.

One commenter objected to the preamble language from the proposal suggesting that EPA does not expect the MS4 to undertake new activity. While it remains the Agency's expectation that major new activity will not be required, the MEP process should drive MS4s to incorporate the measure's obligations into their existing programs to achieve the pollutant reductions to the maximum extent practicable.

Certain commenters requested a definition for “municipal operations.” EPA has revised the language to more clearly define municipal operations. Questions may remain concerning whether discharges from specific municipal activities constitute discharges associated with industrial activities (requiring NPDES permit authorization according to the requirements for industrial storm water that apply in that State) or from municipal operations (subject only to the controls developed in the MS4 control program). Even though there may be different substantive requirements that apply depending on the source of the discharge, EPA has modified the deadlines for permit coverage so that all the regulated municipally owned and operated sources become subject to permit requirements on the same date. The deadline is the same for permit coverage for this minimum measure as for permit coverage for municipally owned/operated industrial sources.

c. Application Requirements

An NPDES permit that authorizes the discharge from a regulated small MS4 may take the form of either an individual permit issued to one or more facilities as co-permittees or a general permit that applies to a group of MS4s. For reasons of administrative efficiency and to reduce the paperwork burden on permittees, EPA expects that most discharges from regulated small MS4s will be authorized under general permits. These NPDES general permits will provide specific instructions on how to obtain coverage, including application requirements. Typically, such application requirements will be satisfied by the submission of a Notice of Intent (NOI) to be covered by the general permit. In this section, EPA explains the small MS4 operator's application requirements for obtaining coverage under a NPDES permit for storm water.

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i. Best Management Practices and Measurable Goals, Section 122.34(d) of today's rule requires the operator of a regulated small MS4 that wishes to implement a program under §122.34 to identify and submit to the NPDES permitting authority a list of the best management practices ("BMPs") that will be implemented for each minimum control measure in their storm water management program. They also must submit measurable goals for the development and implementation of each BMP. The BMPs and the measurable goals must be included either in an NOI to be covered under a general permit or in an individual permit application.

The operator's submission must identify, as appropriate, the months and years in which the operator will undertake actions required to implement each of the minimum control measures, including interim milestones and the frequency of periodic actions. The Agency revised references to "starting and completing" actions from the proposed rule because many actions will be repetitive or ongoing. The submission also must identify the person or persons responsible for implementing or coordinating the small MS4 storm water program. See § 122.34(d). The submitted BMPs and measurable goals become enforceable according to the terms of the permit. The first permit can allow the permittee up to five years to fully implement the storm water management program.

Several commenters opposed making the measurable goals enforceable permit conditions. Some suggested that a permittee should be able to change its goals so that BMPs that are not functioning as intended can be replaced. EPA agrees that a permittee should be free to switch its BMPs and corresponding goals to others that accomplish the minimum measure or measures. The permittee is required to implement BMPs that address the minimum measures in §122.34(b). If the permittee determines that its original combination of BMPs are not adequate to achieve the objectives of the municipal program, the MS4 should revise its program to implement BMPs that are adequate and submit to the permitting authority a revised list of BMPs and measurable goals. EPA suggests that permits describe the process for revising BMPs and measurable goals, such as whether the permittee should follow the same procedures as were required for the submission of the original NOI and whether the permitting authority's approval is necessary prior to the permittee implementing the revised ***68763** BMPs. The permittee should indicate on its periodic report whether any BMPs and measurable goals have been revised since the last periodic report.

Some commenters expressed concern that making the measurable goals enforceable would encourage the development of easily attained goals and, conversely, discourage the setting of ambitious goals. Others noted that it is often difficult to determine the pollutant reduction that can be achieved by BMPs until several years after implementation. Much of the opposition to the enforceability of measurable goals appears to have been based on a mistaken understanding that measurable goals must consist of pollutant reduction targets to be achieved by the corresponding BMPs.

Today's rule requires the operator to submit either measurable goals that serve as BMP design objectives or goals that quantify the progress of implementation of the actions or performance of the permittee's BMPs. At a minimum, the required measurable goals should describe specific actions taken by the permittee to implement each BMP and the frequency and the dates for such actions. Although the operator may choose to do so, it is not required to submit goals that measure whether a BMP or combination of BMPs is effective in achieving a specific result in terms of storm water discharge quality. For example, a measurable goal might involve a commitment to inspect a given number of drainage areas of the collection system for illicit connections by a certain date. The measurable goal need not commit to achieving a specific amount of pollutant reduction through the elimination of illicit connections. Other measurable goals could include the date by which public education materials would be developed, a certain percentage of the community participating in a clean-up campaign, the development of a mechanism to address construction site runoff, and a reduction in the percentage of imperviousness associated with new development projects.

To reduce the risk that permittees will develop inadequate BMPs, EPA intends to develop a menu of BMPs to assist the operators of regulated small MS4s with the development of municipal programs. States may also develop a menu of BMPs. Today's rule provides that the measurable goals that demonstrate compliance with the minimum control measures in §§122.34 (b)(3) through (b)(6) do not have to be met if the State or EPA has not issued a menu of BMPs at

the time the MS4 submits its NOI. Commenters pointed out that the proposed rule would have made the measurable goals unenforceable if the menu of BMPs was not available, but the proposal was silent as to the enforceability of the implementation of BMPs. Today's rule clarifies that the operators are not free to do nothing prior to the issuance of a menu of BMPs; they still must make a good faith effort to implement the BMPs designed to comply with each measure. See §122.34(d)(2). The operators would not, however, be liable for failure to meet its measurable goals if a menu of BMPs was not available at the time they submit their NOI.

The proposed rule provision in §123.35 stated that the "[f]ailure to issue the menu of BMPs would not affect the legal status of the general permit." This concept is included in the final rule in §122.34(d)(2)'s clarification that the permittee still must comply with other requirements of the general permit.

Unlike the proposed rule, today's rule does not require that each BMP in the menu developed by the State or EPA be regionally appropriate, cost-effective and field-tested. Various commenters criticized those criteria as unworkable, and one described them as "ripe for ambiguity and abuse." Other commenters feared that the operators of regulated small MS4s would never be required to achieve their goals until menus were developed that were cost-effective, field-tested and appropriate for every conceivable subregion.

While some municipal commenters supported the requirement that a menu of BMPs be made available that included BMPs that had been determined to be regionally appropriate, field-tested and cost-effective, others raised concerns that they would be restricted to a limited menu. Some commenters supported such a detailed menu because they thought they would only be able to select BMPs that were on the menu, while others thought that it was the permitting authority's responsibility to develop BMPs narrowly tailored to their situation. In response, EPA notes that the operators will not be restricted to implementing only, or all of, the BMPs included on the menu. Since the menu does not require permittees to implement the BMPs included on the menu, it is also not necessary to apply the public notice and other procedures that some commenters thought should be applied to the development of the menu of BMPs.

The purpose of the BMP menu is to provide guidance to assist the operators of regulated small MS4s with the development and refinement of their local program, not to limit their options. Permittees may implement BMPs other than those on the menu unless a State restricts its permittees to specific BMPs. To the extent possible, EPA will develop a menu of BMPs that describes the appropriateness of BMPs to specific regions, whether the BMPs have been field-tested, and their approximate costs. The menu, however, is not intended to relieve permittees of the need to implement BMPs that are appropriate for their specific circumstances.

If there are no known relevant BMPs for a specific circumstance, a permittee has the option of developing and implementing pilot BMPs that may be better suited to their circumstances. Where BMPs are experimental, the permittee should consider committing to measurable goals that address its schedule for implementing its selected BMPs rather than goals of achieving specific pollutant reductions. If the BMPs implemented by the permittee do not achieve the desired objective, the permittee may be required to commit to different or revised BMPs.

As stated in §123.35(g), EPA is committed to issuing a menu of BMPs prior to the deadline for the issuance of permits. This menu would serve as guidance for all operators of regulated small MS4s nationwide. After developing the initial menu of BMPs, EPA intends to periodically modify, update, and supplement the menu of BMPs based on the assessments of the MS4 storm water program and research. States may rely on EPA's menu of BMPs or issue their own. If States develop their own menus, they would constitute additional guidance (or perhaps requirements in some States) for the operators to follow. Several commenters were confused by the proposed rule language that stated that States must provide or issue a menu of BMPs and, if they fail to do so, EPA "may" do so. Some read this language as not requiring either EPA or the State to develop the menu. EPA had intended that it would develop a menu and that States could either provide the EPA developed menu or one developed by the State.

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EPA has dropped the proposed language that States "must" develop the menu of BMPs. Some commenters thought that it was inappropriate to require States to issue guidance. A menu of BMPs issued by either EPA or a permittee's State will satisfy the condition in §122.34(d) that a regulatory authority provide a menu of BMPs. A State could require its permittees to follow its menu of BMPs provided that they are adequate to implement §122.34(b).

Several commenters raised concerns that operators of small MS4s could be ***68764** required to submit their BMPs and measurable goals before EPA or the State has issued a menu of BMPs. EPA has assumed primary responsibility for developing a menu of BMPs to minimize the possibility of this occurring. Should a general permit be issued before a menu of BMPs is available, the permit writer would have the option of delaying the date by which the identification of the BMPs and measurable goals must be submitted to the permitting authority until some time after a menu of BMPs is available.

Several municipal commenters raised concerns that they would begin to develop a program only to be later told by the permitting authority or challenged in a citizen suit that their BMPs were inadequate. They expressed a need for certainty regarding what their permit required. Several commenters suggested that EPA require permitting authorities to approve or disapprove the submitted BMPs and measurable goals. EPA disagrees that formal approval or disapproval by the permitting authority is needed.

EPA acknowledges that the lack of a formal approval process does place on the permittee some responsibility for designing and determining the adequacy of its BMPs. Once the permittee has submitted its BMPs to the permitting authority as part of its NOI, it must implement them in order to achieve the corresponding measurable goals. EPA does not believe that this results in the uncertainty to the extent expressed by some commenters or unduly expose the permittee to the risk of citizen suit. If the permit is very specific regarding what the permittee must do, then the uncertainty is eliminated. If the permit is less prescriptive, the permittee has greater latitude in determining for itself what constitutes an adequate program. A citizen suit could impose liability on the permittee only if the program that it develops and implements clearly does not satisfy the requirements of the general permit. EPA believes today's approach strikes a balance between the competing goals of providing certainty as to what constitutes an adequate program and providing flexibility to the permittees.

Commenters were divided on whether five years was a reasonable and expeditious schedule for a MS4 to implement its program. Some thought that it was an appropriate amount of time to allow for the development and implementation of adequate programs. One questioned whether the permittee had to be implementing all of its program within that time, and suggested that there may be cases where a permitting authority would need flexibility to allow more time. One commenter suggested that five years is too long and would amount to a relaxation of implementation in their area. EPA believes it will take considerable time to complete the tasks of initially developing a program, commencing to implement it, and achieving results. EPA notes, however, that full implementation of an appropriate program must occur as expeditiously as possible, and not later than five years.

EPA solicited comment on how an NOI form might best be formatted to allow for measurable goal information (e.g., through the use of check boxes or narrative descriptions) while taking into account the Agency's intention to facilitate computer tracking. All commenters supported the development of a checklist NOI, but most noted that there would need to be room for additional information to cover unusual situations. One noted that, while a summary of measurable goals might be reduced to one sheet, attachments that more fully described the program and the planned BMPs would be necessary. EPA agrees that in most cases a "checklist" will not be able to capture the information on what BMPs a permittee intends to implement and its measurable goals for their implementation. EPA will continue to consider whether to develop a model NOI form and make it available for permitting authorities that choose to use it. What will be required on an MS4's NOI, however, is more extensive than what is usually required on an NOI, so a "form" NOI for MS4s may be impractical.

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ii. Individual Permit Application for a §122.34(b) program. In some cases, an operator of a regulated small MS4s may seek coverage under an individual NPDES permit, either because it chooses to do so or because the NPDES permitting authority has not made the general permit option available to that source. For small MS4s that are to implement a §122.34(b) program in today's rule, EPA is promulgating simplified individual permit application requirements at § 122.33(b)(2)(i). Under the simplified individual permit application requirements, the operator submits an application to the NPDES permitting authority that includes the information required under §122.21(f) and an estimate of square mileage served by the small MS4. They are also required to supply the BMP and measurable goal information required under §122.34(d). Consistent with CWA section 308 and analogous State law, the permitting authority could request any additional information to gain a better understanding of the system and the areas draining into the system.

Commenters suggested that the requirements of §122.21(f) are not necessarily applicable to a small MS4. One suggested that it was not appropriate to require the following information: a description of the activities conducted by the applicant which require it to obtain an NPDES permit; the name, mailing address, and location of the facility; and up to four Standard Industrial Classification ("SIC") codes which best reflect the principal products or services provided by the facility. In response, EPA notes that the requirements in §122.21(f) are generic application requirements applicable to NPDES applicants. With the exception of the SIC code requirement, EPA believes that they are applicable to MS4s. In the SIC code portion of the standard application, the applicant may simply put "not applicable."

One commenter asked that EPA clarify whether §122.21(f)(5)'s requirement to indicate "whether the facility is located on Indian lands," referred to tribal lands, Indian country, or Indian reservations. For some local governments this is a complex issue with no easy "yes" or "no" answer. See the discussion in the Section II.F in the proposal to today's rule regarding what tribal lands are subject to the federal trust responsibility for purposes of the NPDES program.

One commenter suggested that the application should not have to list the permits and approvals required under §122.21(f)(6). EPA notes that the applicant must only list the environmental permits that the applicant has received that cover the small MS4. The applicant is not required to list permits for other operations conducted by the small MS4 operator (e.g., for an operation of an airport or landfill). Again, in most cases the applicant could respond "not applicable" to this portion of the application.

One commenter suggested that the topographic map requirement of §122.21(f)(7) was completely different from, and significantly more onerous than, the mapping requirement outlined in the proposed rule at §122.34(b)(3)(i). EPA agrees and has modified the final rule to clarify that a map that satisfies the requirements of §122.34(b)(3)(i) also satisfies the map requirements for MS4 applicants seeking individual permits under §122.33(b)(2)(i).

EPA is adding a new paragraph to §122.44(k) to clarify that requirements to implement BMPs developed pursuant to CWA 402(p) are appropriate permit ***68765** conditions. While such conditions could be included under the existing provision in §122.44(k)(3) for "practices reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA," EPA believes it is clearer to specifically list in § 122.44(k) BMPs that implement storm water programs in light of the frequency with which they are used as effluent limitations.

iii. Alternative Permit Options/Tenth Amendment. As an alternative to implementing a program that addresses each of the six minimum measures according to the requirements of §122.34(b), today's rule provides the operators of regulated small MS4s with the option of applying for an individual permit under existing §122.26(d). See §122.33(b)(2)(ii). If a system operator does not want to be held accountable for implementation of each of the minimum measures, an individual permit option under §122.33(b)(2)(ii) remains available. (As explained in the next section of this preamble, §122.35(b) also provides an opportunity for relief from permit obligations for some of the minimum measures, but that relief exists within the framework of the minimum measures.)

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EPA originally drafted the individual permit application requirements in § 122.26(d) to apply to medium and large MS4s. Today's rule abbreviates the individual permit application requirements for small MS4s. Although EPA believes that the storm water management program requirements of §122.34, including the minimum measures, provide the most appropriate means to control pollutants from most small MS4s, the Agency does recognize that the operators of some small MS4s may prefer more individualized permit requirements. Among other possible reasons, an operator may seek to avoid having to "regulate" third parties discharging into the separate storm sewer system. Alternatively, an operator may determine that structural controls, such as constructed wetlands, are more appropriate or effective to address the discharges that would otherwise be addressed under the construction and/or development/redevelopment measures.

Some MS4s commenters alleged that an absolute requirement to implement the minimum measures violates the Tenth Amendment to the U.S. Constitution. While EPA disagrees that requiring MS4s to implement the minimum measures would violate the Constitution, today's rule does provide small MS4s with the option of developing more individualized measures to reduce the pollutants and pollution associated with urban storm water that will be regulated under today's rule.

Some commenters specifically objected that §122.34's minimum measures for small MS4s violate the Tenth Amendment insofar as they require the operators of MS4s to regulate third parties. The minimum measures include requirements for small MS4 operators to prohibit certain non-storm water discharges, control storm water discharges from construction greater than one acre, and take other actions to control third party sources of storm water discharges into their MS4s. Commenters also argued that it was inappropriate for EPA to require local governments to enact ordinances that will consume local revenues and put local governments in the position of bearing the political responsibility for implementing the program. One commenter argued that EPA was prohibited from conditioning the issuance of an NPDES permit upon the small MS4 operators waiving their constitutional right to be free from such requirements to regulate third parties. The Agency replies to each comment in turn.

Because the rule does rely on local governments—who operate municipal separate storm sewer systems—to regulate discharges from third parties into storm sewers, EPA acknowledges that the rule implicates the Tenth Amendment and constitutional principles of federalism. EPA disagrees, however, that today's rule is inconsistent with federalism principles. [As political subdivisions of States, municipalities enjoy the same protections as States under the Tenth Amendment.]

The Supreme Court has interpreted the Tenth Amendment to preclude federal actions that compel States or their political subdivisions to enact or administer a federal regulatory program. See New York v. United States, 505 U.S. 144 (1992); Printz v. United States, 117 S.Ct. 2365 (1997). The Printz case, however, did acknowledge that the restriction does not apply when federal requirements of general applicability—requirements that regulate all parties engaging in a particular activity—do not excessively interfere with the functioning of State governments when those requirements are applied to States (or their political subdivisions). See Printz, 117 S.Ct. at 2383.

Today's rule imposes a federal requirement of general applicability, namely, the requirement to obtain and comply with an NPDES permit, on municipalities that operate a municipal separate storm sewer system. By virtue of this rule, the permit will require the municipality/storm sewer operator to develop a storm water control program. The rule specifies the components of the control program, which are primarily "management'-type controls, for example, municipal regulation of third party storm water discharges associated with construction, as well as development and redevelopment, when those discharges would enter the municipal system.

Unlike the circumstances reviewed in the New York and Printz cases, today's rule merely applies a generally applicable requirement (the CWA permit requirement) to municipal point sources. The CWA establishes a generally applicable requirement to obtain an NPDES permit to authorize point source discharge to waters of the United States. Because municipalities own and operate separate storm sewers, including storm sewers into which third parties may discharge

pollutants, NPDES permits may require municipalities to control the discharge of pollutants into the storm sewers in the first instance. Because NPDES permits can impose end-of-pipe numeric effluent limits, narrative effluent limits in the form of "management" program requirements are also within the scope of Clean Water Act authority. As noted above, however, EPA believes that such narrative limitations are the most appropriate form of effluent limitation for these types of permits. For municipal separate storm sewer permits, CWA section 402(p)(3)(B)(iii) specifically authorizes "controls to reduce pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."

The Agency did not design the minimum measures in §122.34 to "commandeer" state regulatory mechanisms, but rather to reduce pollutant discharges from small MS4s. The permit requirement in CWA section 402 is a requirement of general applicability. The operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts "title" for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties. Section 122.34 requires the operator of a regulated small MS4 to control a third ***68766** party only to the extent that the MS4 collection system receives pollutants from that third party and discharges it to the waters of the United States. The operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties. The Agency concedes that administration of a municipal program will consume limited local revenues for implementation; but those consequences stem from the municipal operator's identity as a permitted sewer system operator. The Tenth Amendment does not create a blanket municipal immunity from generally applicable requirements. Development of a program based on the minimum measures and implementation of that program should not "excessively interfere" with the functioning of municipal government, especially given the "practicability" threshold under CWA section 402(p)(3)(B)(iii).

As noted above, today's rule also allows regulated small MS4s to opt out of the minimum measures approach. The individual permit option provides for greater flexibility in program implementation and also responds to the comment about requiring a municipal permit applicant's waiver of any arguable constitutional rights. The individual permit option responds to questions about the rule's alleged unconstitutionality by more specifically focusing on the pollutants discharged from municipal point sources. Today's rule gives operators of MS4s the option to seek an individual permit that varies from the minimum measures/management approach that is otherwise specified in today's rule. Even if the minimum measures approach was constitutionally suspect, a requirement that standing alone would violate constitutional principles of federalism does not raise concerns if the entity subject to the requirement may opt for an alternative action that does not raise a federalism issue.

For municipal system operators who seek to avoid third party regulation according to all or some of the minimum measures, §122.26(d) requires the operator to submit a narrative description of its storm water sewer system and any existing storm water control program, as well as the monitoring data to enable the permit writer to develop appropriate permit conditions. The permit writer can then develop permit conditions and limitations that vary from the six minimum measures prescribed in today's rule. The information will enable the permit writer to develop an NPDES permit that will result in pollutant reduction to the maximum extent practicable. See NRDC v. EPA, 966 F.2d at 1308, n17. If determined appropriate under CWA section 402(p)(3)(B)(iii), for example BMPs to meet water quality standards, the permit could also incorporate any more stringent or prescriptive effluent limits based on the individual permit application information.

For small MS4 operators seeking an individual permit, both Part 1 and Part 2 of the application requirements in §122.26(d)(1) and (2) are required to be submitted within 3 years and 90 days of the date of publication of this Federal Register notice. Some of the information required in Part 1 will necessarily have to be developed by the permit applicant prior to the development of Part 2 of the application. The permit applicant should coordinate with its permitting authority regarding the timing of review of the information.

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The operators of regulated small MS4s that apply under §122.26(d) may apply to implement certain of the §122.34(b) minimum control measures, and thereby focus the necessary evaluation for additional limitations on alternative controls to the §122.34(b) measures that the small MS4 will not implement. The permit writer may determine "equivalency" for some or all of the minimum measures by developing a rough estimate of the pollutant reduction that would be achieved if the MS4 implemented the §122.34 minimum measure and to incorporate that pollutant reduction estimate in the small MS4's individual permit as an effluent limitation. The Agency recognizes that, based on current information, any such estimates will probably have a wide range. Anticipation of this wide range is one of the reasons EPA believes MS4 operators need flexibility in determining the mix of BMPs (under the minimum measures) to achieve water quality objectives. Therefore, for example, if a system operator seeks to employ an alternative that involves structural controls, wide ranges will probably be associated with gross pollutant reduction estimates. Permit writers will undoubtedly develop other ways to ensure that permit limits ensure reduction of pollutants to the maximum extent practicable.

Small MS4 operators that pursue this individual permit option do not need to submit details about their future program requirements (e.g., the MS4's future plans to obtain legal authority required by §§122.26(d)(1)(ii) and (d)(2)). A small MS4 operator might elect to supply such information if it intends for the permit writer to take those plans into account when developing the small MS4's permit conditions.

Several operators of small MS4s commented that they currently lacked the authority they would need to implement one or more of the minimum measures in §122.34(b). Today's rule recognizes that the operators of some small MS4s might not have the authority under State law to implement one or more of the measures using, for example, an ordinance or other regulatory mechanism. To address these situations, each minimum measure in §122.34(b) that would require the small MS4 operator to develop an ordinance or other regulatory mechanism states that the operator is only required to implement that requirement to "the extent allowable under State, Tribal or local law." See § 122.34(b)(3)(ii) (illicit discharge elimination), § 122.34(b)(4)(ii) (construction runoff control) and §122.34(b)(5)(ii) (post-construction storm water management). This regulatory language does not mean that a operator of a small MS4 with ordinance making authority can simply fail to pass an ordinance necessary for a §122.34(b) program. The reference to "the extent allowable under * * * local law" refers to the local laws of other political subdivisions to which the MS4 operator is subject. Rather, a small MS4 operator that seeks to implement a program under section §122.34(b) may omit a requirement to develop an ordinance or other regulatory mechanism only to the extent its municipal charter, State constitution or other legal authority prevents the operator from exercising the necessary authority. Where the operator cannot obtain the authority to implement any activity that is only required to "the extent allowable under State, Tribal or local law," the operator may satisfy today's rule by administering the remaining §122.34(b) requirements.

Finally, although today's rule provides operators of small MS4s with an option of applying for a permit under §122.26(d), States authorized to administer the NPDES program are not required to provide this option. NPDES-authorized States could require all regulated small MS4s to be permitted under the minimum measures management approach in §122.34 as a matter of State law. Such an approach would be deemed to be equally or more stringent than what is required by today's rule. See 40 CFR 123.2(i). The federalism concerns discussed above do not apply to requirements imposed by a State on its political subdivisions.

iv. Satisfaction of Minimum Measure Obligations by Another Entity. An operator of a regulated small MS4 may ***68767** satisfy the requirement to implement one or more of the six minimum measures in §122.34(b) by having a third party implement the measure or measures. Today's rule provides a variety of means for small MS4 operators to share responsibility for different aspects of their storm water management program. The means by which the operators of various MS4s share responsibility may affect who is ultimately responsible for performance of the minimum measure and who files the periodic reports on the implementation of the minimum measure. Section 122.35 addresses these issues. The rule describes two different variants on third party implementation with different consequences if the third party fails to implement the measure.

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If the permit covering the discharge from a regulated small MS4 identifies the operator as the entity responsible for a particular minimum control measure, then the operator-permittee remains responsible for the implementation of that measure even if another entity has agreed to implement the control measure. Section 122.35(a). Another party may satisfy the operator-permittee's responsibility by implementing the minimum control measure in a manner at least as stringent or prescriptive as the corresponding NPDES permit requirement. If the third party fails to do so, the operator-permittee remains responsible for its performance. The operator of the MS4 should consider entering into an agreement with the third party that acknowledges the responsibility to implement the minimum measure. The operator-permittee's NOI and its annual §122.34(f)(3) reports submitted to the NPDES permitting authority must identify the third party that is satisfying one or more of the permit obligations. This requirement ensures that the permitting authority is aware which entity is supposed to implement which minimum measures.

If, on the other hand, the regulated small MS4's permit recognizes that an NPDES permittee other than the operator-permittee is responsible for a particular minimum control measure, then the operator-permittee is relieved from the responsibility for implementing that measure. The operator-permittee is also relieved from the responsibility for implementing any measure that the operator's permit indicates will be performed by the NPDES permitting authority. Section 122.35(b). The MS4 operator-permittee would be responsible for implementing the remaining minimum measures.

Today's final rule differs from the proposed version of §122.35(b), which stated that, even if the third party's responsibility is recognized in the permit, the MS4 operator-permittee remained responsible for performance if the third party failed to perform the measure consistent with §122.34(b). Under today's rule, the operator-permittee is relieved from responsibility for performance of a measure if the third party is an NPDES permittee whose permit makes it responsible for performance of the measure (including, for example, a State agency other than the State agency that issues NPDES permits) or if the third party is the NPDES permitting authority itself. Because the permitting authority is acknowledging the third party's responsibility in the permit, commenters thought that the MS4 operator-permittee should not be responsible for ensuring that the other entity is implementing the control measure properly. EPA agrees that the operator-permittee should not be conditionally responsible when the requirements are enforceable against some other NPDES permittee. If the third party fails to perform the minimum measure, the requirements will be enforceable against the third party. In addition, the NPDES permitting authority could reopen the operator-permittee's permit under § 122.62 and modify the permit to make the operator responsible for implementing the measure. A new paragraph has been added to §122.62 to clarify that the permit may be reopened in such circumstances.

Today's rule also provides that the operator-permittee is not conditionally responsible where it is the State NPDES permitting authority itself that fails to implement the measure. The permitting authority does not need to issue a permit to itself (i.e., to the same State agency that issues the permit) for the sole purpose of relieving the small MS4 from responsibility in the event the State agency does not satisfy its obligation to implement a measure. EPA does not believe that the small MS4 should be responsible in the situation where the NPDES permit issued to the small MS4 operator recognizes that the State agency that issues the permit is responsible for implementing a measure. If the State does fail to implement the measure, the State agency could be held accountable for its commitment in the permit to implement the measure. Where the State does not fulfill its responsibility to implement a measure, a citizen also could petition for withdrawal of the State's NPDES program or it could petition to have the MS4's permit reopened to require the MS4 operator to implement the measure.

EPA notes that not every State program that addresses erosion and sediment control from construction sites will be adequate to satisfy the requirement that each regulated small MS4 have a program to the extent required by § 122.34(b)(4). For example, although all NPDES States are required to issue NPDES permits for construction activity that disturbs greater than one acre, the State's NPDES permit program will not necessarily be extensive enough to satisfy a regulated small MS4's obligation under §122.34(b)(4). NPDES States will not necessarily be implementing all of the required elements of that minimum measure, such as procedures for site plan review in each jurisdiction required to develop a

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program and procedures for receipt and consideration of information submitted by the public on individual construction sites. In order for a State erosion and sediment control program to satisfy a small MS4 operator's obligation to implement §122.34(b)(4), the State program would have to include all of the elements of that minimum measure.

Where the operator-permittee is itself performing one or more of the minimum measures, the operator-permittee remains responsible for all of the reporting requirements under §122.34(f)(3). The operator-permittee's reports should identify each entity that is performing the control measures within the geographic jurisdiction of the regulated small MS4. If the other entity also operates a regulated MS4 and files reports on the progress of implementation of the measures within the geographic jurisdiction of the MS4, then the operator-permittee need not include that same information in its own reports.

If the other entity operates a regulated MS4 and is performing all of the minimum measures for the permittee, the permittee is not required to file the reports required by §122.34(f)(3). This relief from reporting is specified in §122.35(a).

Section 122.35 addresses the concerns of some commenters who sought relief for governmental facilities that are classified as small MS4s under today's rule. These facilities frequently discharge storm water through another regulated MS4 and could be regulated by that MS4's program. For example, a State owned office complex that operates its storm sewer system in an urbanized area will be regulated as an MS4 under today's rule even though its system may be subject to the storm water controls of the municipality in ***68768** which it is located. Today's rule specifically revised the definition of MS4 to recognize that different levels of government often operate MS4s and that each such separate entity (including the federal government) should be responsible for its discharges. If both MS4s agree, the downstream MS4 can develop a storm water management program that regulates the discharge from both MS4s. The upstream small MS4 operator still must submit an NOI that identifies the entity on which the upstream small MS4 operator is relying to satisfy its permit obligations. No reports are required from the upstream small MS4 operator, but the upstream operator must remain in compliance with the downstream MS4 operator's storm water management program. This option allows small MS4s to work together to develop one storm water management program that satisfies the permit obligations of both. If they cannot agree, the upstream small MS4 operator must develop its own program.

As mentioned previously, comments from federal facilities and State organizations that operate MS4s requested that their permit requirements differ from those of MS4s that are political subdivisions of States (cities, towns, counties, etc.). EPA acknowledges that there are differences; e.g., many federal and State facilities do not serve a resident population and thus might require a different approach to public education. EPA believes, however, that MS4s owned by State and federal governments can develop storm water management plans that address the minimum measures. Federal and State owned small MS4s may choose to work with adjacent municipally owned MS4s to develop a unified plan that addresses all of the required measures within the jurisdiction of all of the contiguous MS4s. The options in §122.35 minimize the burden on small MS4s that are covered by another MS4's program.

One commenter recommended that if one MS4 discharges into a second MS4, the operator of the upstream MS4 should have to provide a copy of its NOI or permit application to the operator of the receiving MS4. EPA did not adopt this recommendation because the NOI and permit application will be publicly available; but EPA does recommend that NPDES permitting authorities consider it as a possible permit requirement. The commenter also suggested that monitoring data should be collected by the upstream MS4 and provided to the downstream MS4. EPA is not adopting such a uniform monitoring requirement because EPA believes it is more appropriate to let the MS4 operators work out the need for such data. If necessary, the downstream MS4s might want to make such data a condition to allowing the upstream MS4 to connect to its system.

v. Joint Permit Programs. Many commenters supported allowing the operators of small MS4s to apply as co-permittees so they each would not have to develop their own storm water management program. Today's rule specifically allows

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regulated small MS4s to join with either other small MS4s regulated under §122.34(d) or with medium and large MS4s regulated under §122.26(d).

As is discussed in the previous section, regulated small MS4s may indicate in their NOIs that another entity is performing one or more of its required minimum control measures. Today's rule under §122.33(b)(1) also specifically allows the operators of regulated small MS4s to jointly submit an NOI. The joint NOI must clearly indicate which entity is required to implement which control measure in each geographic jurisdiction within the service area of the entire small MS4. The operator of each regulated small MS4 remains responsible for the implementation of each minimum measure for its MS4 (unless, as is discussed in the previous section above, the permit recognizes that another entity is responsible for completing the measure.) The joint NOI, therefore, is legally equivalent to each entity submitting its own NOI. EPA is, however, revising the rule language to specifically authorize the joint submission of NOIs in response to comments that suggested that such explicit authorization might encourage programs to be coordinated on a watershed basis.

Section 122.33(b)(2)(iii) authorizes regulated small MS4s to jointly apply for an individual permit to implement today's rule, where allowed by an NPDES permitting authority. The permit application should contain sufficient information to allow the permitting authority to allocate responsibility among the parties under one of the two permitting options in §§122.33(b)(2)(i) and (ii).

Section 122.33(b)(3) of today's rule also allows an operator of a regulated small MS4 to join as a co-permittee in an existing NPDES permit issued to an adjoining medium or large MS4 or source designated under the existing storm water program. This co-permittee option applies only with the agreement of all co-permittees. Under this co-permittee arrangement, the operator of the regulated small MS4 must comply with the terms and conditions of the applicable permit rather than the permit condition requirements of §122.34 of today's rule. The regulated small MS4 that wishes to be a co-permittee must comply with the applicable requirements of §122.26(d), but would not be required to fulfill all the permit application requirements applicable to medium and large MS4s. Specifically, the regulated small MS4 is not required to comply with the application requirements of §122.26(d)(1)(iii) }(Part 1 source identification), §122.26 (d)(1)(iv) (Part 1 discharge characterization), and § 122.26(d)(2)(iii) (Part 2 discharge characterization data). Furthermore, the regulated small MS4 operator could satisfy the requirements in § 122.26(d)(1)(v) (Part 1 management programs) and §122.26(d)(2)(iv) (Part 2 proposed management program) by referring to the adjoining MS4 operator's existing plan. An operator pursuing this option must describe in the permit modification request how the adjoining MS4's storm water program addresses or needs to be supplemented in order to adequately address discharges from the MS4. The request must also explain the role of the small MS4 operator in coordinating local storm water activities and describe the resources available to accomplish the storm water management plan.

EPA sought comments regarding the appropriateness of the application requirements in these subsections of §122.26(d). One commenter stated that newly regulated smaller MS4s should not be required to meet the existing regulations' Part II application requirements under §122.26(d) regarding the control of storm water discharges from industrial activity. EPA disagrees. The smaller MS4 operators designated for regulation in today's rule may satisfy this requirement by referencing the legal authority of the already regulated MS4 program to the extent the newly regulated MS4 will rely on such legal authority to satisfy its permit requirements. If the smaller MS4 operator plans to rely on its own legal authorities, it must identify it in the application. If the smaller MS4 operator does not elect to use its own legal authority, they may file an individual permit application for an alternate program under §122.33(b)(2)(ii).

The explanatory language in §122.33(b)(3) recommends that the smaller MS4s designated under today's rule identify how an existing plan "would need to be supplemented in order to adequately address your discharges." One commenter suggested that this must be regulatory language and not guidance. EPA disagrees that this needs to be mandatory language. ***68769** Since many of the smaller MS4s designated today are "donut holes" within the geographic jurisdiction of an already regulated MS4, the larger MS4's program generally will be adequate to address the newly regulated MS4's discharges. The small MS4 applicant should consider the adequacy of the existing MS4's program to address the smaller

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MS4's water quality needs, but EPA is not imposing specific requirements. Where circumstances suggest that the existing program is inadequate with respect to the newly designated MS4 and the applicant does not address the issue, the NPDES permitting authority must require that the existing program be supplemented.

Commenters recommended that the application deadline for smaller MS4s designated today be extended so that existing regulated MS4s would not have to modify their permit in the middle of their permit term, provided that permit renewal would occur within a reasonable time (12 to 18 months) of the deadline. In response, EPA notes that today's rule allows operators of newly designated small MS4s up to three years and 90 days from the promulgation of today's rule to submit an application to be covered under the permit issued to an already regulated MS4. The permitting authority has a reasonable time after receipt of the application to modify the existing permit to include the newly designated source. If an existing MS4's permit is up for renewal in the near future, the operator of a newly designated small MS4 may take that into account when timing its application and the NPDES permitting authority may take that into account when processing the application.

Another commenter suggested that the rule should include a provision to allow permit application requirements for smaller MS4s designated today to be determined by the permitting authority to account for the particular needs/wants of an already regulated MS4 operator. EPA does not believe that the regulations should specifically require this approach. When negotiating whether to include a newly designated MS4 in its program, the already regulated MS4 operator may require the newly designated MS4's operator to provide any information that is necessary.

The co-permitting approach allows small MS4s to take advantage of existing programs to ease the burden of creating their own programs. The operators of regulated small MS4s, however, may find it simpler to apply for a program under today's rule, and to identify the medium or large MS4 operator that is implementing portions of its §122.34(b) minimum measures.

d. Evaluation and Assessment

Under today's rule, operators of regulated small MS4s are required to evaluate the appropriateness of their identified BMPs and progress toward achieving their identified measurable goals. The purpose of this evaluation is to determine whether or not the MS4 is meeting the requirements of the minimum control measures. The NPDES permitting authority is responsible for determining whether and what types of monitoring needs to be conducted and may require monitoring in accordance with State/Tribe monitoring plans appropriate to the watershed. EPA does not encourage requirements for “end-of-pipe” monitoring for regulated small MS4s. Rather, EPA encourages permitting authorities to carefully examine existing ambient water quality and assess data needs. Permitting authorities should consider a combination of physical, chemical, and biological monitoring or the use of other environmental indicators such as exceedance frequencies of water quality standards, impacted dry weather flows, and increased flooding frequency. (Claytor, R. and W. Brown. 1996. Environmental Indicators to Assess Storm Water Control Programs and Practices. Center for Watershed Protection, Silver Spring, MD.) Section II.L., Water Quality Issues, discusses monitoring in greater detail.

As recommended by the Intergovernmental Task Force on Monitoring Water Quality (ITFM), the NPDES permitting authority is encouraged to consider the following watershed objectives in determining monitoring requirements: (1) To characterize water quality and ecosystem health in a watershed over time, (2) to determine causes of existing and future water quality and ecosystem health problems in a watershed and develop a watershed management program, (3) to assess progress of watershed management program or effectiveness of pollution prevention and control practices, and (4) to support documentation of compliance with permit conditions and/or water quality standards. With these objectives in mind, the Agency encourages participation in group monitoring programs that can take advantage of existing monitoring programs undertaken by a variety of governmental and nongovernental entities. Many States may already have a monitoring program in effect on a watershed basis. The ITFM report is included in the docket for today's rule (Intergovernmental Task Force on Monitoring Water Quality. 1995. The Strategy for Improving Water-Quality

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Monitoring in the United States: Final Report of the Intergovernmental Task Force on Monitoring Water Quality. Copies can be obtained from: U.S. Geological Survey, Reston, VA.).

EPA expects that many types of entities will have a role in supporting group monitoring activities—including federal agencies, State agencies, the public, and various classes or categories of point source dischargers. Some regulated small MS4s might be required to contribute to such monitoring efforts. EPA expects, however, that their participation in monitoring activities will be relatively limited. For purposes of today's rule, EPA recommends that, in general, NPDES permits for small MS4s should not require the conduct of any additional monitoring beyond monitoring that the small MS4 may be already performing. In the second and subsequent permit terms, EPA expects that some limited ambient monitoring might be appropriately required for perhaps half of the regulated small MS4s. EPA expects that such monitoring will only be done in identified locations for relatively few pollutants of concern. EPA does not anticipate "end-of-pipe" monitoring requirements for regulated small MS4s.

EPA received a wide range of comments on this section of the rule. Some commenters believe that EPA should require monitoring; others want a strong statement that the newly regulated small MS4s should not be required to monitor. Many commenters raised questions about exactly what EPA expects MS4s to do to evaluate and assess their BMPs. EPA has intentionally written today's rule to provide flexibility to both MS4s and permitting authorities regarding appropriate evaluation and assessment. Permitting authorities can specify monitoring or other means of evaluation when writing permits. If additional requirements are not specified, MS4s can decide what they believe is the most appropriate way to evaluate their storm water management program. As mentioned above, EPA expects that the necessity for monitoring and its extent may change from permit cycle to permit cycle. This is another reason for making the evaluation and assessment rule requirements very flexible.

i. Recordkeeping. The NPDES permitting authority is required to include at least the minimum appropriate recordkeeping conditions in each permit. Additionally, the NPDES permitting authority can specify that permittees develop, maintain, and/or ***68770** submit other records to determine compliance with permit conditions. The MS4 operator must keep these records for at least 3 years but is not required to submit records to the NPDES permitting authority unless specifically directed to do so. The MS4 operator must make the records, including the storm water management program, available to the public at reasonable times during regular business hours (see 40 CFR 122.7 for confidentiality provision). The MS4 operator is also able to assess a reasonable charge for copying and to establish advance notice requirements for members of the public.

EPA received a comment that questioned EPA's authority to require MS4s to make their records available to the public. EPA disagrees with the commenter and believes that the CWA does give EPA the authority to require that MS4 records be available. It is also more practical for the public to request records directly from the MS4 than to request them from EPA who would then make the request to the MS4. Based on comments, EPA revised the proposed rule so as not to limit the time for advance notice requirements to 2 business days.

ii. Reporting. Under today's rule, the operator of a regulated small MS4 is required to submit annual reports to the NPDES permitting authority for the first permit term. For subsequent permit terms, the MS4 operator must submit reports in years 2 and 4 unless the NPDES permitting authority requires more frequent reports. EPA received several comments supporting this timing for report submittal. Other commenters suggested that annual reports during the first permit cycle are too burdensome and not necessary. EPA believes that annual reports are needed during the first 5-year permit term to help permitting authorities track and assess the development of MS4 programs, which should be established by the end of the initial term. Information contained in these reports can also be used to respond to public inquiries.

The report must include (1) the status of compliance with permit conditions, an assessment of the appropriateness of identified BMPs and progress toward achieving measurable goals for each of the minimum control measures, (2) results

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of information collected and analyzed, including monitoring data, if any, during the reporting period, (3) a summary of what storm water activities the permittee plans to undertake during the next reporting cycle, and (4) a change in any identified measurable goal(s) that apply to the program elements.

The NPDES permitting authority is encouraged to provide a brief two-page reporting format to facilitate compiling and analyzing the data from submitted reports. EPA does not believe that submittal of a brief annual report of this nature is overly burdensome, and has not changed the required reporting time frame from the proposal. The permitting authority will use the reports in evaluating compliance with permit conditions and, where necessary, will modify the permit conditions to address changed conditions.

iii. Permit-As-A-Shield. Section 122.36 describes the scope of authorization (i.e. "permit-as-a-shield") under an NPDES permit as provided by section 402(k) of the CWA. Section 402(k) provides that compliance with an NPDES permit is deemed compliance, for purposes of enforcement under CWA sections 309 and 505, with CWA sections 301, 302, 306, 307, and 403, except for any standard imposed under section 307 for toxic pollutants injurious to human health.

EPA's Policy Statement on Scope of Discharge Authorization and Shield Associated with NPDES Permits, originally issued on July 1, 1994, and revised on April 11, 1995, provides additional information on this matter.

e. Other Applicable NPDES Requirements

Any NPDES permit issued to an operator of a regulated small MS4 must also include other applicable NPDES permit requirements and standard conditions, specifically the applicable requirements and conditions at 40 CFR 122.41 through 122.49. Reporting requirements for regulated small MS4s are governed by §122.34 and not the existing requirements for medium and large MS4s at § 122.42(c). In addition, the NPDES permitting authority is encouraged to consult the Interim Permitting Approach, issued on August 1, 1996. The discussion on the Interim Permitting Approach in Section II.L.1, Water Quality Based Effluent Limits, provides more information. The provisions of §§122.41 through 122.49 establish permit conditions and limitations that are broadly applicable to the entire range of NPDES permits. These provisions should be interpreted in a manner that is consistent with provisions that address specific classes or categories of discharges. For example, §122.44(d) is a general requirement that each NPDES permit shall include conditions to meet water quality standards. This requirement will be met by the specific approach outlined in today's rule for the implementation of BMPs. BMPs are the most appropriate form of effluent limitations to satisfy technology requirements and water quality-based requirements in MS4 permits (see the introduction to Section II.H.3, Municipal Permit Requirements, Section II.H.3.h, Reevaluation of Rule, and the discussion of the Interim Permitting Policy in Section II.L.1. below).

f. Enforceability

NPDES permits are federally enforceable. Violators may be subject to the enforcement actions and penalties described in CWA sections 309, 504, and 505 or under similar water pollution enforcement provisions of State, tribal or local law. Compliance with a permit issued pursuant to section 402 of the Clean Water Act is deemed compliance, for purposes of sections 309 and 505, with sections 301, 302, 306, 307, and 403 (except any standard imposed under section 307 for toxic pollutants injurious to human health).

g. Deadlines

Today's final rule includes "expeditious deadlines" as directed by CWA section 402(p)(6). In proposed §122.26(e), the permit application for the "ISTEA" facilities was maintained as August 7, 2001 and the permit application deadline for storm water discharges associated with other construction activity was established as 3 years and 90 days from the final rule date. In proposed § 122.33(c)(1), operators of regulated small MS4s were required to seek permit coverage within 3 years and 90 days from the date of publication of the final rule. In proposed §122.33(c)(2), operators of regulated small

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MS4s designated by the NPDES permitting authority on a local basis under §122.32(a)(2) must seek coverage under an NPDES permit within 60 days of notice, unless the NPDES permitting authority specifies a later date.

In order to increase the clarity of today's final rule, EPA has changed the location of some of the above requirements. All application deadlines for both Phase I and Phase II are now listed or referenced in §122.26(e). Section 122.26(e)(1) contains the deadlines for storm water associated with industrial activity. Paragraph (i) has been changed to correct a typographical error. Paragraph (ii) has been revised to reflect the changed application date for "ISTEA" facilities. (See discussion in section I.3, ISTEA Sources). The application deadline for storm water discharges associated with other construction activity is now in a new §122.26(e)(8). The application deadline for regulated small MS4s ***68771** remains in §122.33(c) because this section is written in "readable regulation" format, but it is also described in a new § 122.26(e)(9).

Under today's rule, permitting authorities are allowed up to 3 years to issue a general permit and MS4s designated under §122.32(a)(1) are allowed up to 3 years and 90 days to submit a permit application. Operators of regulated small MS4s that choose to be a co-permittee with an adjoining MS4 with an existing NPDES storm water permit must apply for a modification of that permit within the same time frame. Several commenters stated that 90 days was not adequate time to submit an NOI. This might be true if facilities did not start developing their storm water program until publication of their general permit. In fact, municipalities should start developing their storm water program upon publication of today's final rule, if they have not already done so. Municipalities that are uncertain if they fall within the urbanized area should ask their permitting authority. EPA believes that municipalities should not automatically take three years and 90 days to develop a program and submit their NOI. Three years is the maximum amount of time to issue a general permit. MS4s that are automatically designated under today's rule may have less than 3 years and 90 days if the permitting authority issues a permit that requires submission of NOIs before that time. EPA encourages States to modify their NPDES program to include storm water and issue their permits as soon as possible. It is important for permitting authorities to keep their municipalities informed of their progress in developing or modifying their NPDES storm water requirements.

EPA recognizes that MS4s brought into the program due to the 2000 Census calculations do not have as much time to develop a program as those already designated from the 1990 Census. However, the official Bureau of the Census urbanized area calculation for the 2000 Census is expected to be published in the Federal Register in the spring of 2002, which should give the potentially affected MS4s adequate time to prepare for compliance under the applicable permit. However, if the publication of this information is delayed, MS4s in newly designated urbanized areas will have 180 days from the time the new designations are published to submit an NOI, consistent with the time frame for other regulated MS4s that are designated after promulgation of the rule.

The proposed application deadline for MS4s designated under §122.32(a)(2) was within 60 days of notice. Many commenters stated that 60 days does not provide adequate time for the preparation of an NOI or permit application. EPA agrees that newly designated MS4s may not be aware that they might be designated since the permitting authority could take several years to develop designation criteria. EPA has decided that the application time frame for these facilities should be consistent with the 180 days allowed for facilities designated under §§122.26(a)(9)(i)(C) and (D). Section 122.33(c)(2) of today's final rule contains the modified time frame of 180 days to apply for coverage.

h. Reevaluation of Rule

The municipal caucus of the Storm Water Phase II FACA Subcommittee asked EPA to demonstrate its commitment to revisit the municipal requirements of today's rule and make changes where necessary after evaluating the storm water program and researching the effectiveness of municipal BMPs. In §122.37 of today's final rule, EPA commits to revisiting the regulations for the municipal storm water discharge control program after completion of the first two permit terms. EPA intends to use this time to work closely with stakeholders on research efforts. Gathering and analyzing data related to the storm water program, including data regarding the effectiveness of BMPs, is critical to EPA's storm water program evaluation. EPA does not intend to change today's NPDES municipal storm water program until the end of this period, except under the following circumstances: a court decision requires changes; a technical change is

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necessary for implementation; or the CWA is modified, thereby requiring changes. After careful analysis, EPA might also consider changes from consensus-based stakeholder requests regarding requirements applicable to newly regulated MS4s. EPA will apply the August 1, 1996, Interim Permitting Approach to today's program during this interim period and encourages all permitting authorities to use this approach in municipal storm water permits for newly regulated MS4s and in determining MS4 permit requirements under a TMDL approach. After careful consideration of the data, EPA will make modifications as necessary.

EPA received comments that supported waiting two permit cycles before re-evaluating the rule and other comments that requested re-evaluation much sooner. EPA anticipates two full permit cycles are necessary to obtain enough data to significantly evaluate the rule. The re-evaluation time frame of 13 years from today remains as proposed.

I. Other Designated Storm Water Discharges

1. Discharges Associated with Small Construction Activity

Section 122.26(b)(15) of today's rule designates certain construction activities for regulation as "storm water discharges associated with small construction activity." Specifically, storm water discharges from construction activity equal to or greater than 1 acre and less than 5 acres are automatically designated except in those circumstances where the operator (i.e., person responsible for discharges that might occur) certifies to the permitting authority that one of two specific waiver circumstances (described in section b. below) applies. Sites below one acre may be designated under § 122.26(b)(15)(ii) where necessary to protect water quality.

Today's rule regulates these construction-related storm water sources under CWA section 402(p)(6) to protect water quality rather than under CWA section 402(p)(2). Designation under 402(p)(6) gives States and EPA the flexibility to waive the permit requirement for construction activity that is not likely to impair water quality, and to designate additional sources below one acre that are likely to cause water quality impairment. Thus, the one acre threshold of today's rule is not an absolute threshold like the five acre threshold that applies under the existing storm water rule.

Today's rule regulating certain storm water discharges from construction activity disturbing less than 5 acres is consistent with the 9th Circuit remand in NRDC v. EPA, 966 F.2d 1292 (9th Cir. 1992). In that case, the court remanded portions of the existing storm water regulations related to discharges from construction sites. The existing Phase I regulations define "storm water discharges associated with industrial activity" to include storm water discharges from construction sites disturbing 5 acres or more of total land area (see 40 CFR 122.26(b)(14)(x)). In its decision, the court concluded that the 5-acre threshold was improper because the Agency had failed to identify information "to support its perception that construction activities on less than 5 acres are non-industrial in nature" (966 F.2d at 1306). The court remanded the exemption to EPA for further proceedings (966 F.2d at 1310). EPA's objectives in today's action include an effort to (1) address the 9th Circuit ***68772** remand to reconsider regulation of storm water discharges from construction activities that disturb less than 5 acres of land, (2) address water quality concerns associated with such activities, and (3) balance conflicting recommendations and concerns of stakeholders in the regulation of additional construction activity.

EPA responded to the Ninth Circuit's decision by designating discharges from construction activities that disturb between 1 and 5 acres as "discharges associated with small construction activity" under CWA section 402(p)(6), rather than as "discharges associated with industrial activity" under CWA section 402(p)(2)(B). Although a size criterion alone may be an indicator of whether runoff from construction sites between 1 and 5 acres is "associated with industrial activity," the Agency is instead relying on a size threshold in tandem with provisions that allow for designations and waivers based on potential for "predicted water quality impairments" to regulate construction sites between 1 and 5 acres under CWA section 402(p)(6). This approach was chosen by the Agency for the sake of simplicity and certainty and, most importantly, to protect water quality consistent with the mandate of CWA section 402(p)(6). Today's rule also includes extended application deadlines for this new category of dischargers under the authority of CWA section 402(p)(6) (see §122.26(e)(8) of today's rule).

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In today's rule, EPA is regulating storm water discharges from additional construction sites to better protect the Nation's waters, while remaining sensitive to a concern that the Agency should not regulate discharges from construction sites that might not or do not have adverse water quality impacts. EPA believes that today's rule will successfully accomplish this objective by establishing a 1-acre threshold nationwide that includes the flexibility to allow the permitting authority to both waive requirements for discharges from sites that are not expected to cause adverse water quality impacts and to designate discharges from sites below 1-acre based on adverse water quality impacts.

In addition to the diminishing water quality benefits of regulating all sites below one acre, the Agency relied on practical considerations in establishing a one acre threshold and not setting a lower threshold. Regardless of the threshold established by EPA, a NPDES permit can only be required if a construction site has a point source discharge. A point source discharge means that pollutants are added to waters of the United States through a discernible, confined, discrete conveyance. “Sheet flow” runoff from a small construction site would not result in a point source discharge unless and until it channelized. As the amount of disturbed land surface decreases, precipitation is less likely to channelize and create a “point source” discharge (assuming the absence of steep slopes or other factors that lead to increased channelization). Categorical designation of very small sites may create confusion about applicability of the NPDES permitting program to those sites. EPA's one acre threshold reflects, in part, the need to recognize that smaller sites are less likely to result in point source discharges. Of course, the NPDES permitting authority could designate smaller sites (below one acre, assuming point source discharges occur from the smaller designated sites) for regulation if a watershed or other local assessment indicated the need to do so. The Phase II rule includes this designation authority at 40 CFR 122.26(a)(9)(i)(D) and (b)(15)(ii).

The one acre threshold also provides an administrative tool for more easily identifying those sites that are identified for coverage by the rule (but may receive a waiver) and those that are not automatically covered (but may be designated for inclusion). Although all construction sites less than five acres could have a significant water quality impact cumulatively, EPA is automatically designating for permit coverage only those storm water discharges from construction sites that disturb land equal to or greater than one acre. Categorical regulation of discharges from construction below this one acre threshold would overwhelm the resources of permitting authorities and might not yield corresponding water quality benefits. Construction activities that disturb less than one acre make up, in total, a very small percentage of the total land disturbance from construction nationwide. The one acre threshold is reasonable for accomplishing the water quality goals of CWA section 402(p)(6) because it results in 97.5% of the total acreage disturbed by construction being designated for coverage by the NPDES storm water program, while excluding from automatic coverage the numerous smaller sites that represent 24.7% of the total number of construction sites.

Some commenters believed that EPA has not adequately identified water quality problems associated with storm water discharges from construction activity disturbing less than five acres. Other commenters believed that storm water discharges from small construction activity is a significant water quality problem nationwide. Section I.B.3, Construction Site Runoff, provides a detailed discussion of adverse water quality impacts resulting from construction site storm water discharges. EPA is regulating storm water discharges from construction activity disturbing between 1 and 5 acres because the cumulative impact of many sources, and not just a single identified source, is typically the cause for water quality impairments, particularly for sediment-related water quality standards.

Several commenters requested that EPA regulate discharges from small construction activity as “discharges associated with industrial activity” under CWA 402(p)(4) and not, as proposed, as “storm water discharges associated with other activity” under CWA 402(p)(6). EPA is regulating discharges from small construction sites as “small construction activity” under the authority of CWA section 402(p)(6), rather than section 402(p)(4), to ensure that regulation of these sources is water quality-sensitive. CWA section 402(p)(6) affords the opportunity for designations and waivers of sources based on potential for “predicted water quality impairments.” Regulation of storm water “associated with industrial activity” does not necessarily focus regulation to protect water quality.

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a. Scope

The definition of "storm water discharges associated with small construction activity" includes discharges from construction activities, such as clearing, grading, and excavating activities, that result in the disturbance of equal to or greater than 1 acre and less than 5 acres (see §122.26(b)(15)(i)). Such activities could include: road building; construction of residential houses, office buildings, or industrial buildings; or demolition activity. The definition of "storm water discharges associated with small construction activity" also includes any other construction activity, regardless of size, designated based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States (§122.26(b)(15)(ii)). This designation is made by the Director, or in States with approved NPDES programs, either the Director or the EPA Regional Administrator.

For the purposes of today's rule, the definition of "storm water discharges associated with small construction activity" includes discharges from activities disturbing less than 1 acre if that construction activity is part of a ***68773** "larger common plan of development or sale" with a planned disturbance of equal to or greater than 1 acre of land. A "larger common plan of development or sale" means a contiguous area where multiple separate and distinct construction activities are planned to occur at different times on different schedules under one plan, e.g., a housing development of five ¼ acre lots (§122.26(b)(15)(i)).

In addition to the regulatory text for smaller construction, the Agency is also revising the existing text of §122.26(b)(14)(x) to clarify EPA's intention regarding construction projects involving a larger common plan of development or sale ultimately disturbing 5 or more acres. Operators of such sites are required to seek coverage under an NPDES permit regardless of the number of lots in the larger plan because designation for permit coverage is based on the total amount of land area to be disturbed under the common plan. This designation attempts to address the potential cumulative effects of numerous construction activities concentrated in a given area.

Several commenters asked that EPA allow the permitting authority to set the appropriate size threshold based on water quality studies. While EPA agrees that location-specific water quality studies provide an ideal information base from which to make regulatory decisions, today's rule establishes a default standard for regulation in the absence of location-specific studies. The rule does allow for deviation from the default standard through additional designations and waivers, however, when supported by location-specific water quality information. The rule codifies the ability of permitting authorities to provide waivers for sites greater than or equal to one acre (the default standard) and designate additional discharges from small sites below one acre when location-specific information suggests that the default 1 acre standard is either unnecessary (waivers) or too limited (designations) to protect water quality.

Some commenters wanted EPA to base the regulation of storm water discharges from construction sites not only on size, but also on the duration and intensity of activity occurring on the site. EPA believes that a national 1-acre threshold, in combination with waivers and additional designations, is the most effective and simplest way to address adverse water quality impacts from storm water from small construction sites. Moreover, as discussed below, the waiver for rainfall erosivity does account for projects of limited duration. EPA believes, however, that the intensity of activity occurring on-site would be a very difficult condition to quantify.

Many commenters requested that EPA maintain the 5 acre threshold from the existing regulations, which include opportunities for site-specific designation, as the regulatory scope for regulating storm water from construction sites, i.e., that the Agency not automatically regulate storm water discharges from sites less than 5 acres. Several commenters wanted construction requirements to be applied to sites smaller than 1 acre, while some commenters suggested alternative thresholds of 2 or 3 acres. The rest of the commenters supported the 1 acre threshold. None of the commenters presented any data or rationales to support a specific size threshold.

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EPA examined alternative size thresholds, including 0.5 acre, 1 acre, 2 acres and 5 acres. EPA had difficulty evaluating the alternative size thresholds because, while directly proportional to the size of the disturbed site, the water quality threat posed by discharges from construction sites of differing sizes varies nationwide, depending on the local climatological, geological, geographical, and hydrological influences. In order to ensure improvements in water quality nationwide, however, today's rule does not allow various permitting authorities to establish different size thresholds except based on the waiver and designation provisions of the rule. EPA believes that the water quality impact from small construction sites is as high as or higher than the impact from larger sites on a per acre basis. By selecting the 1 acre size threshold and coupling it with waivers and additional designations, EPA is seeking to standardize improvement of water quality on a national basis while providing permitting authorities with the opportunity to designate those unregulated activities causing water quality impairments regardless of site size, as well as to waive requirements when information demonstrates that regulation is unnecessary.

EPA recognizes that the size criterion alone may not be the most ideal predictor of the need for regulation, but effective protection of water quality depends as much on simplicity in implementation as it does on the scientific information underlying the regulatory criteria. The default size criterion of 1 acre will ensure protection against adverse water quality impacts from storm water from small construction sites while not overburdening the resources of permitting authorities and the construction industry to implement the program to protect water quality in the first place.

One commenter stated a need to clarify whether routine road maintenance is considered construction activity for the purpose of today's rule. The NPDES general permit for discharges from construction sites larger than 5 acres defined “commencement of construction” as the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities (63 FR 7913). For construction sites disturbing less than 5 acres, EPA does not consider construction activity to include routine maintenance performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility.

Two commenters believed that the Multi-Sector General Permit for storm water discharges from industrial activities (MSGP) (60 FR 50804) already applies to storm water discharges from construction activities at oil and gas exploration and production sites and asked for a clarification on this issue. Commenters also requested a single general permit to authorize both industrial storm water discharges and construction site discharges which occur at the same industrial site.

Currently, when construction activity disturbing more than 5 acres occurs on an industrial site covered by the MSGP, authorization under a separate NPDES construction permit is needed because the MSGP does not include the “construction” industrial sector. While the MSGP does address sediment and erosion control, it is not as specific as the NPDES general permit for storm water discharges from construction activities disturbing more than 5 acres. Though permitting authorities could conceivably develop a single general permit to authorize storm water discharges associated with construction activity at these industrial facilities, the commenter's request is not addressed by today's rulemaking. When today's rule is implemented through general permits (to be issued later), the permitting authority will have discretion whether or not to incorporate the permit requirements for both the industrial storm water discharges and construction site storm water discharges into a single general permit. This type of request should be addressed to the permitting authority.

One commenter suggested that discharges from small construction sites should be regulated through a “self-implementing rule” approach. While today's rule is not a self-implementing rule, it does add §122.28(b)(2)(v), which ***68774** gives the permitting authority the discretion to authorize a construction general permit for sites less than 5 acres without submitting a notice of intent. Such non-registration general permits function similarly to self-implementing rules, but are, in fact, permits. Today's rule will be implemented through NPDES permits rather than self-implementing regulations to capitalize on the compliance, tracking, enforcement, and public participation associated with NPDES permits (see discussion in section II.C).

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Other commenters believed that only the permitting authority should regulate construction site storm water discharges (under a NPDES permit) and that a small MS4 operator's regulation of storm water discharges associated with construction (under the small MS4 NPDES storm water program) is redundant. EPA disagrees that control measure implementation by the NPDES authority and the small MS4 operator is redundant. To the extent the two efforts overlap, today's rule provides for consolidation and coordination of substantive requirements via incorporation by reference permitting. Small MS4s operators may choose to impose more prescriptive requirements than an NPDES permitting authority based on localized water quality needs. In those cases, EPA intends that the substantive requirements from the small MS4 program should apply as the NPDES permit requirements for the construction site discharger. In cases where a small MS4 program does not prioritize and focus on storm water from construction sites (beyond the small MS4 minimum control measure in today's rule, which does not require the small MS4 operator to control construction site discharges in a manner as prescriptive as is expected for discharges regulated under NPDES permits), the Agency intends that the NPDES general permit will provide the substantive standards applicable to the construction site discharge. EPA does anticipate, however, that implementation of MS4 programs to address construction site runoff within their jurisdiction will enhance overall NPDES compliance by construction site dischargers. EPA also notes that under §122.35(b), the permitting authority may recognize its own program to control storm water discharges from construction sites in lieu of requiring such a program in an MS4's NPDES permit, provided that the permitting authority's program satisfies the requirements of §122.34(b)(4), including, for example, procedures for site plan reviews and consideration of information submitted by the public on individual construction sites in each jurisdiction required to be covered by the program.

b. Waivers

Under §122.26(b)(15)(i) of today's rule, NPDES permitting authorities may waive today's requirement for construction site operators to obtain a permit in two circumstances. The first waiver is intended to apply where little or no rainfall is expected during the period of construction. The second waiver may be granted when a TMDL or equivalent analysis indicates that controls on construction site discharges are not needed to protect water quality.

The first waiver is based on “low predicted rainfall erosivity” which can be found using tables of rainfall-runoff erosivity (R) values published for each region in the U.S. R factors are published in the U.S. Department of Agriculture (USDA) Agricultural Handbook 703 (Renard, K.G., Foster, G.R., Weesies, G.A., McCool, D.K., and D.C. Yoder. 1997. Predicting Soil Erosion by Water: A Guide to Conservation Planning with the Revised Universal Soil Loss Equation (RUSLE). U.S. Department of Agriculture Handbook 703). The R factor varies based on the time during the year when construction activity occurs, where in the country it occurs, and how long the construction activity lasts. The permitting authority may determine, using Handbook 703, which times of year, if any, the waiver opportunity is available for construction activity. EPA will provide assistance either through computer programs or the World Wide Web on how to determine whether this waiver applies for a particular geographic area and time period. Application of this waiver for regulatory purposes will be determined by the authorized NPDES authority. This waiver is discussed further in the following section titled Rainfall-Erosivity Waiver.

The second waiver is based on a consideration of ambient water quality. This waiver is available after a State or EPA develops and implements TMDLs for the pollutant(s) of concern from storm water discharges associated with construction activity. This waiver is also available for sites discharging to non-impaired waters that do not require TMDLs, when an equivalent analysis has determined allocations for small construction sites for the pollutant(s) of concern or determined that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The Agency envisions an equivalent analysis that would demonstrate that water quality is not threatened by storm water discharges from small construction activity. This waiver is discussed further below in the sections titled TMDL Waiver and Water Quality Issues.

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The proposed rule included a waiver based on "low predicted soil loss." This waiver provision would have been applicable on a case-by-case basis where the annual soil loss rate for the period of construction for a site, using the Revised Universal Soil Loss Equation (RUSLE), would be less than 2 tons/acre/year. The annual soil loss rate of less than 2 tons/acre/year would be calculated through the use of the RUSLE equation, assuming the constants of no ground cover and no runoff controls in place.

Several commenters found the low soil loss waiver too complex and impractical, and stated that expertise is not available at the local level to prepare and evaluate eligibility for the waiver. Another commenter questioned whether two tons/acre/year was an appropriate threshold for predicting adverse water quality impacts. Two other commenters said that RUSLE was never intended to predict off-site impacts and is not an indicator of potential harm to water quality. EPA agrees with the commenters on the difficulty associated with determining and implementing this waiver. Most construction site operators are not familiar with the RUSLE program, and the potential burden on the permitting authority, construction industry, USDA's Natural Resources Conservation Service and conservation districts probably would have been significant. The Agency has not included this waiver in the final rule.

Two commenters asked that EPA allow States the flexibility to develop their own waiver criteria but did not suggest how the Agency (or affected stakeholders) could evaluate the acceptability of alternative State waiver criteria. Therefore, the final rule does not provide for any such alternative waivers. If a State does seek to develop alternate waiver criteria, then EPA procedures afford the opportunity for subsequent actions, for example, under the Project XL Program in EPA's Office of Reinvention, which seeks cleaner, smarter, and cheaper solutions to environmental problems. Many commenters suggested that EPA extend these waivers to existing industrial storm water regulations for construction activity greater than 5 acres. These construction site discharges are ***68775** regulated as industrial storm water discharges under CWA 402(p)(2) and are not eligible for such water quality-based waivers.

Two commenters were concerned that waivers would create a potential for significant degradation of small streams. EPA disagrees. If small streams are threatened, the permitting authority would choose not to provide any waivers. In addition, permitting authorities may protect small streams by designating discharges from small construction activity based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the U.S.

Two commenters asked that the waiver options be eliminated. They felt it would create a gross inequity within the construction community if some projects will not be subject to the requirements of today's rule. While the comments may be valid, EPA disagrees that waivers should be disallowed on this basis. Construction site discharges that qualify for a waiver from permitting requirements are not expected to present a threat to water quality, which is the basis for designation and regulation under today's rule.

A number of commenters suggested additional waivers in cases where new development will result in no additional adverse impacts to water quality as compared to the existing development it replaces. EPA believes these waivers are either unworkable or unnecessary. It would be very difficult for most construction operators to determine, as well as for other stakeholders to verify, on a site-by-site basis, that there is no potential for adverse impact to water quality compared to the replaced development.

Other commenters proposed waivers in cases where a local erosion and sediment control program covers the project or a separate waiver for small linear utility projects. Instead of waivers, today's rule addresses the first suggestion through the qualifying program provision described in the section titled Cross-Referencing State/Local Erosion and Sediment Control Programs below. Today's rule provides waivers for small linear projects in so far as they satisfy conditions for low rainfall erosivity. (See § 122.26(b)(15)(i)(A).)

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Other commenters suggested waivers based on distance to water body, existence of vegetated buffer around water body, slope of disturbed land, or if discharging to very large bodies of water. As a result of public outreach, EPA believes that these proposed waivers would be generally unworkable for construction site dischargers and permitting authorities because of the difficulty in applying them to all small sites.

One commenter mentioned that waivers for the R factor (rainfall-erosivity) and soil loss are effluent standards that have not been developed in accordance with sections 301 and 304 of the CWA. EPA disagrees that these sections are relevant to the designation of sources in today's rule. The waiver provisions in this section of the rule are jurisdictional because they affect the scope of the universe of entities subject to the NPDES program. Therefore, the waiver provisions are not themselves substantive control standards implemented through NPDES permits, and thus, not subject to the statutory criteria in sections 301 and 304.

Another commenter stated that waivers would allow exemptions to the technology based requirements and would thus be inconsistent with the two-fold approach of the CWA (a technology based minimum and a water quality based overlay). EPA acknowledges that the CWA does not generally provide for waivers for the Act's technology-based requirements. The waiver provisions do not create exemptions from technology-based standards that apply to NPDES dischargers; they provide exemption from the underlying requirement for an NPDES permit in the first place. Protection of water quality is the reason these smaller sites are designated for regulation under NPDES. The Act's two fold approach imposes more stringent water quality based effluent limitations when technology-based limitations applicable to regulated dischargers are insufficient to meet water quality standards. Under today's rule, water quality protection is the basis for determining which of the unregulated sources should be regulated at all. Thus, today's rule is entirely consistent with the Act's two fold approach.

i. Rainfall-Erosivity Waiver. The rainfall-erosivity waiver under § 122.26(b)(15)(i)(A) is intended to exempt the requirements for a permit when and where negligible rainfall/runoff-erosivity is expected. In the development of the Universal Soil Loss Equation, analysis of data indicated that when factors other than rainfall are held constant, soil loss is directly proportional to a rainfall factor composed of total storm kinetic energy times the maximum 30 minute intensity. The average annual sum of the storm energy and intensity values for an area comprise the R factor—the rainfall erosivity index. A detailed explanation of the R factor can be found in Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE) (USDA, 1997).

This waiver is time-sensitive and is dependent on when during the year a construction activity takes place, how long it lasts, and the expected rainfall and intensity during that time. R factors vary based on location. EPA anticipates that this waiver opportunity responds to concerns about the requirement for a permit when it is not expected to rain, especially in the arid areas of the U.S. Under today's rule, the permitting authority could waive the requirements for a permit for time periods when the rainfall-erosivity factor (“R” in RUSLE) is less than five during the period of construction. For the purposes of calculating this waiver, the period of construction activity starts at the time of initial disturbance and ends with the time of final stabilization. The operator must submit a written certification to the Director in order to apply for such a waiver. EPA believes that those areas receiving negligible rainfall during certain times of the year are unlikely to have storm events causing discharges that could adversely impact receiving streams. Consequently, BMPs would not be necessary on those smaller sites. This waiver is most applicable to projects of short duration and to the arid regions of the country where the occurrence of rainfall follows a cyclic pattern—between no rain and extremely heavy rain. EPA review of rainfall records for these areas indicates that, during periods of the year when the number of events and quantity of rain are low, storm water discharges from the smaller construction sites regulated under today's rule should be minimal.

Some commenters supported the use of the R factor as a waiver, while others felt that a waiver based on rainfall statistics ignores the fact that it may rain on any given day and it is the cumulative effect of wet weather discharges which cause water quality impairments. A commenter also asked what happens in “El Nin6*o*” years when significantly more rainfall than normal occurs. Another commenter also expressed concern that this waiver was not based on a measured water

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quality impact, but instead on an indicator of potential impact. In response to the previous comments, EPA notes that, under CWA 402(p)(6), sources are designated on their potential for adverse impact. Designation under the section is prospective, not retrospective or remedial only. For that reason, the waivers under today's rule also operate prospectively. EPA wanted to waive requirements for sites with little ***68776** potential to impair water quality, and the R factor is the most straightforward way to do this. The permitting authority, if electing to use waivers, could always suspend the use of waivers in certain areas or during certain times. In addition, the permitting authority may choose to use a lower R factor threshold than the one set by EPA. Application of this waiver is at the discretion of the permitting authority, subject only to the limitation that R factors cannot exceed 5.

One commenter expressed the need for EPA to provide a justification for the threshold value used for the R factor. None of the commenters included any data to show that EPA's proposed R factor of 2 was either too high or too low. EPA is using the R factor as an indicator of the potential to impact water quality. In an effort to determine which R threshold should be used, EPA conducted additional analysis of the rainfall/runoff erosivity factor for 134 sites across the country. For an R factor threshold of 5, approximately 12% of sites would be waived if the project period lasted 6 months, 27% for 3 months, 47% for 1 month, and 60% of sites would be waived if the project lasted for only 15 days. None of the 134 sites would be waived if the project lasted an entire year. For an R factor threshold of 2, approximately 9% of sites would be waived if the project period lasted 6 months, 15% for 3 months, 31% for 1 month, and 43% for 15 days. For an R factor threshold of 10, approximately 22~~f sites would be waived if the project period lasted 6 months, 37% for 3 months, 60% for 1 month, and 78% for 15 days. EPA believes that an R factor of 5 is an adequate threshold to waive requirements for sites because they would not reasonably be expected to impair water quality.~~

EPA will develop, as part of the tool box described in section II.A.5, guidance materials and computer or web-accessible programs to assist permitting authorities and construction site discharges in determining if any resulting storm water discharges from specific projects are eligible for this waiver.

ii. Water Quality Waiver. The water quality waiver under § 122.26(b)(15)(i)(B) is available where storm water controls are not needed based on a comprehensive, location-specific evaluation of water quality needs. The waiver is available based on either an EPA-approved "total maximum daily load" (TMDL) under section 303(d) of the CWA that addresses the pollutant(s) of concern or, for sites discharging to non-impaired waters that do not require TMDLs, an equivalent analysis that has either determined allocations for small construction sites for the pollutant(s) of concern or determined that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. The pollutants of concern that must be addressed include sediment or a parameter that addresses sediment (such as total suspended solids (TSS), turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the NPDES permitting authority that the construction activity will take place, and storm water discharges will occur, within the applicable drainage area evaluated in the TMDLs or equivalent analyses.

Today's rule modifies the approach in the proposed rule. EPA proposed to allow a waiver of permit requirements for small construction if storm water controls were determined to be unnecessary based on "wasteload allocations that are part of 'total maximum daily loads' (TMDLs) that address the pollutants of concern," or "a comprehensive watershed plan, implemented for the water body, that includes the equivalents of TMDLs, and addresses the pollutants of concern."

Commenters asked for clarification of the terms "comprehensive watershed plans" and "equivalent of TMDLs." EPA intended that both terms would include a comprehensive analysis that determines that controls on small construction sites are not needed based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. Today's rule makes this clarification.

One commenter pointed out that there are no water quality standards for suspended solids, the major pollutant expected in discharges from construction activity. The commenter asserted that no waiver would ever be available. Another commenter noted that there are no sediment criteria developed for streams, also making this waiver useless. EPA notes that a number of States and Tribes have water quality standards that address TSS, which are narrative in form, and that may serve as a basis for water quality-based effluent limits. As efforts to identify impairments and improve water quality progress, some States may yet develop water quality standards for suspended solids. Although several TMDLs for sediment and related parameters have been established, EPA does recognize that currently it is extremely difficult to develop TMDLs for sediment. EPA is partially addressing this concern by clarifying in today's rule that the waivers may be based on a TMDL or equivalent analyses for sediment or one of the various pollutant parameters that are a proxy for sediment. These include TSS, turbidity and siltation.

Other commenters noted that this waiver was unattainable if a TMDL or equivalent analysis must be available for every pollutant that could possibly be present in any amount in discharges from small construction sites regardless of whether the pollutant is causing water quality impairment. Commenters asked that EPA identify what constitutes the "pollutants of concern" for which a TMDL or its equivalent must be developed. EPA has revised the proposed rule in response to these concerns.

In order for discharges from construction sites under five acres to qualify for the water quality waiver of today's rule, the construction site operator must demonstrate that storm water controls are not necessary for sediment or a parameter that addresses sediment (such as TSS, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. Even if the water body is not currently impaired for sediment, today's rule requires an analysis of the potential impacts of sediment because the storm water discharges from the construction activity will be a new source of loading to the water body that could constitute a new impairment. Because the water body will not necessarily have been included on a "303(d) list" and a TMDL will not necessarily be required, the rule continues to allow an analysis that is the equivalent of a TMDL. The designation of storm water discharges from small construction activity for regulation in today's rule is intended to control pollutants other than sediment. This waiver provision requires a TMDL or equivalent analysis for a pollutant other than gross particulates (i.e., sediment and other particulate-focused pollutant parameters) only if the receiving water is currently impaired for that pollutant.

One commenter expressed the concern that construction operators will not know if they are in a watershed covered by a TMDL. To the extent this is an operator's concern, he or she could contact their NPDES permitting ***68777** authority before applying for permit coverage to determine if receiving water is subject to a TMDL. Alternatively, the permitting authority could identify the TMDL (or equivalent analysis) areas in the general permit or another operator-accessible information source.

Another commenter expressed the concern that a TMDL waiver is likely to be ineffective because the TMDL list is submitted only once every 2 years. By the time a water is listed, the activity may have been completed and stabilized. The commenter argued that, if a watershed is impaired due to sediment from construction, then storm water controls will still be needed, because small construction can only be waived when it is not identified as a source of impairment. In response, EPA notes that an analysis that is the equivalent of a TMDL (specifically, equivalent to the component of a TMDL that comprehensively analyses existing ambient conditions against the applicable water quality standards) may also provide a basis for waiver from the default 1 acre designation. Also, even if a water has been identified as impaired for sediment, it is possible that a site or category of sites may receive an allocation that is sufficiently high enough to allow discharges without storm water controls.

c. Permit Process and Administration

The operator of the construction site, as with any operator of a point source discharge, is responsible for obtaining coverage under a NPDES permit as required by §122.21(b). The "operator" of the construction site, as explained in the

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current NPDES construction general permit, is typically the party or parties that either individually or collectively meet the following two criteria: (1) Operational control over the site specifications, including the ability to make modifications in the specifications; and (2) day-to-day operational control of those activities at the site necessary to ensure compliance with permit conditions (63 FR 7859). If more than one party meets these criteria, then each party involved would typically be a co-permittee with any other operators. The operator could be the owner, the developer, the general contractor, or individual contractor. When responsibility for operational control is shared, all operators must apply.

In today's rule, EPA is not requiring an NOI for NPDES general permits for storm water discharges from construction activities regulated by §122.26(b)(15) if the NPDES permitting authority finds that the use of NOIs would be inappropriate (see §122.28(b)(2)(v)). Under this approach, the NPDES permitting authority will have the discretion to decide whether or not to require NOIs for discharges from construction activity less than 5 acres. Compared to the existing storm water regulation, the permitting authority thus has increased flexibility in program implementation. EPA does recommend the use of NOIs, however because NOIs track permit coverage and provide a useful information source to prioritize inspections or enforcement. Requiring an NOI allows for greater accountability by, and tracking of, dischargers. This simple permit application and reporting mechanism also allows for better outreach to the regulated community, uses an existing and familiar mechanism, and is consistent with the existing requirements for storm water discharges from larger construction activities. Today's rule does not amend the requirement for NOIs in general permits for storm water discharges from construction activity disturbing 5 acres for more. See §122.28(b)(2)(v).

EPA expects that the vast majority of discharges of storm water associated with small construction activity identified in §122.26(b)(15) will be regulated through general permits. In the event that an NPDES permitting authority decides to issue an individual construction permit, however, individual application requirements for these construction site discharges are found at § 122.26(c)(1)(ii). For any discharges of storm water associated with small construction activity identified in §122.26(b)(15) that are not authorized by a general permit, a permit application made pursuant to §122.26(c) must be submitted to the Director by 3 years and 90 days after publication of the final rule.

Some commenters expressed concern that linear construction projects (e.g., roads, highways, pipelines) that cross several jurisdictions will have to comply with multiple sets of requirements from various jurisdictions, including multiple local governments and States. EPA is limited in its options to address these concerns because the Agency cannot issue NPDES permits in States authorized to implement the NPDES program nor preempt other more stringent local and State requirements. EPA believes, however, that the option for incorporating by reference the State, Tribal or local requirements (see discussion in Section II.I.2.d., Cross-Referencing State/Local Erosion and Sediment Control Programs) should limit the administrative burden on the operator responsible for discharges from linear construction projects. If the operator were to implement the most comprehensive of the various requirements for the whole project, it could avoid confusion due to differing requirements for different sections of the project. In addition, linear utility projects, which usually have a shorter project period, are more likely to be eligible for the rainfall erosivity waiver.

One commenter stated there was no reason to delay the application period for regulated storm water discharges from small construction activities. The commenter requested that the newly regulated construction site discharges should be required to seek permit coverage within 90 days, as opposed to 3 years, of the effective date of the rule. The Agency does not accept this request. EPA anticipates that NPDES permitting authorities will need one to two years to develop adequate legal authority to implement a program to address this new category of discharges, as well as to develop and issue general permits. Moreover, to ensure effective implementation to protect water quality, regulatory authorities will need additional time to inform small construction site operators of requirements and provide guidance and training on these requirements.

Finally, EPA received a comment requesting that the three year file retention requirement be deleted for discharges from small construction sites. While EPA recognizes that the three year record retention schedule may be unnecessary for

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certain construction projects, the Agency has determined it is necessary to retain files after the completion of the project to ensure permit compliance, including applicable construction site stabilization enabling permit termination for such sites.

d. Cross-Referencing State, Tribal or Local Erosion and Sediment Control Programs

In developing the NPDES permit requirements for construction sites less than 5 acres, members of the Storm Water Phase II FACA Subcommittee asked EPA to try to minimize redundancy in the construction permit requirements. In response, today's rule at §122.44(s) provides for incorporation of qualifying State, Tribal or local erosion and sediment control program requirements by reference into the NPDES permit authorizing storm water discharges from construction sites (described under §§122.26(b)(15) and (b)(14)(x)). The incorporation by reference approach applies not only to the newly regulated storm water discharges (from construction activity disturbing between 1 and 5 acres, including designated sites, but ***68778** excluding waived sites) but also to discharges from construction activity disturbing 5 or more acres already covered by the existing storm water regulations. For this latter category of discharges from construction activity disturbing 5 or more acres, the incorporation by reference approach requires that the pollutant control requirements from the incorporated program also satisfy the statutory standard for limitations representing application of the best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT).

For permits issued for discharges from small construction activity defined under §122.26(b)(15), a qualifying State, Tribal, or local erosion and sediment control program is one that includes the program elements described under § 122.44(s)(1). These elements include requirements for construction site operators to implement appropriate erosion and sediment control BMPs, requirements to control waste, a requirement to develop a storm water pollution prevention plan, and requirements to submit a site plan for review. A storm water pollution prevention plan includes site descriptions, descriptions of appropriate control measures, copies of approved State, Tribal or local requirements, maintenance procedures, inspection procedures, and identification of non-storm water discharges. The construction site's permit would require it to follow the requirements of the qualifying local program rather than require it to follow two different sets of requirements. If a partially-qualifying program does not have all of the elements described under §122.44(s)(1), then the NPDES permitting authority may still incorporate language in the small construction site discharge's permit that requires the construction site operator to follow the program, but the construction site discharge permit also must incorporate the missing required elements in order to satisfy CWA requirements.

The term “local” refers to the geographic area of applicability, not the form of government that develops and administers the program. Thus, a qualifying federal erosion and control program, such as certain programs developed and administered by the federal Bureau of Land Management, could be a qualifying local program.

As a result of this provision, local requirements will, in effect, provide the substantive construction site erosion and sediment control requirements for the NPDES permit authorization. Therefore, by following one set of erosion and sediment control requirements, construction site operators satisfy both local and NPDES permit requirements without duplicative effort. At the same time, noncompliance with the referenced local requirements will be considered noncompliance with the NPDES permit which is federally enforceable. The NPDES permitting authority will, of course, retain the discretion to decide whether to include the alternative requirements in the general permit. EPA believes that this approach will best balance the need for consideration of specific local requirements and local implementation with the need for federal and citizen oversight, and will extend supplemental NPDES requirements to control storm water discharges from construction sites.

EPA developed the “incorporation by reference” approach based on implementation efforts designed by the State of Michigan. Michigan relies on localities to develop substantive controls for storm water discharges associated with construction activities on a localized basis. Localities, however, are not required to do so. In areas where the local authority does not choose to participate, the State administers the sedimentation and erosion control requirements. The State agency, as the NPDES permitting authority, receives an NOI (termed “notice of coverage” by Michigan) under the general permit and tracks and exercises oversight, as appropriate, over the activity causing the storm water discharge.

Michigan's goal under these procedures is to utilize the existing erosion and sediment control program infrastructure authorized under State law for storm water discharge regulation. (See U.S. Environmental Protection Agency, Office of Water. January 7, 1994. Memo: From Michael B. Cook, Director OWEC, to Water Management Division Directors, Regarding the "Approach Taken by Michigan to Regulate Storm Water Discharges from Construction Activities.")

Most commenters supported the general concept of incorporating by reference qualifying programs. Two commenters expressed concern that different local construction requirements will create an impossible regulatory scheme for builders who work in different localities. EPA believes that allowing States to incorporate qualifying programs by reference will minimize the differences for builders who work in different areas of the State. These differences already exist, however, not only for erosion and sediment controls, but also other aspects of construction. In any event, the criteria for qualification for localized programs should provide a certain degree of standardization for various localities' requirements. EPA expects that the new rule for construction and post-construction BMPs being developed under CWA section 304(m) will also encourage standardization of local requirements. (See discussion of this new rulemaking in section II.D.1, Federal Role of this preamble).

Two commenters requested that an "incorporation by reference" should include permission, in writing, from the qualifying local program administrator because of a perceived extra burden on the referenced program. Any program requirements incorporated by reference in NPDES permits should already apply to construction site dischargers in the applicable area and therefore should not add any additional burden to the referenced program. EPA has left to the discretion of the permitting authority the decision on whether to seek permission from the qualifying program before cross-referencing it in an NPDES permit.

One commenter stated that a qualifying local program should require a SWPPP. The proposed rule defined the qualifying local program as a program the meets the minimum program requirements established in the proposed construction minimum control measure for small MS4s. To ensure consistency in the controls for storm water discharges between the larger, already regulated construction sites and the discharges from smaller sites that will be regulated as a result of today's rule, EPA has made a change to define a qualifying local program as one that includes the elements described in §122.44(s)(1). Section 122.44(s)(1) requires the development and implementation of a storm water pollution prevention plan as a criterion for qualification of local programs for incorporation by reference. As noted above, if a qualifying program does not include all the elements in §122.44(s)(1) then the permitting authority will need to specify the missing elements in order to rely on the incorporation by reference approach.

One commenter asked what happens in regard to the use of qualifying programs when a construction site operator is also the qualifying local program operator. The provision for incorporation by reference applies in this situation also. The local program operator will be required to comply with requirements it has established for others. ***68779**

e. Alternative Approaches

EPA received a number of comments on alternative permitting approaches. Several commenters supported regulating discharges only from those construction sites within urbanized areas. Other commenters opposed this approach. EPA chose to address storm water discharges from construction sites located both within and outside urbanized areas because of the potential for adverse water quality impact from storm water discharges from smaller sites in all areas. Regulating only those sites within urbanized areas would have excluded a large number of potential contributors to water quality impairment and would not address large areas of new development occurring on the outer fringes of urbanized areas. In fact, designating only small construction discharges within urbanized areas might create a perverse incentive for building only outside urbanized areas. Such an incentive would be inconsistent with the Agency's intention behind designating to protect water quality. The Agency intends that designation to protect water quality in today's rule should be both remedial and preventive.

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A number of commenters encouraged EPA to cover municipal construction activities under the small MS4 general permit, instead of issuing a separate NPDES construction permit to these municipal construction projects. Similarly, a number of commenters supported EPA giving industrial facilities the option of having storm water from construction activities on the site covered by the industrial storm water permit. Several other commenters found that combining multiple permit types under one general permit introduced a degree of complexity which was confusing to permittees. Permitting authorities have the option of combining MS4 and construction permits or industrial and construction permits, however, specific requirements for each would still need to be included in the permit issued. EPA agrees that this would probably result in a more complex and confusing permit compared to the existing component permits.

Several commenters supported an alternative for regulated small MS4s where a local qualified program alone, without an NPDES permit, is sufficient to enforce compliance with construction site discharge requirements. On the other hand, one commenter stated that linking the local construction erosion and sediment control program to the existing NPDES program for storm water from larger construction has driven improvements in many local programs. Another commenter stated that the potential fines under the NPDES program will encourage compliance and will be much stronger than any fines a local program may have. EPA agrees that the NPDES program is the best approach to address water quality impacts from construction sites and provides benefits such as accountability and federal enforcement.

A number of commenters supported issuing one permit for each construction company, instead of a permit for each individual construction activity (also requested for storm water discharges from the larger, already regulated construction sites). Other commenters found that a 'licensing' program for construction site operators would have many problems, including identifying who to permit and tracking information on active sites. EPA is regulating only the storm water discharges associated with construction activity from small sites, not the construction activity itself. Separate NPDES permits (either individual or general permit coverage) for construction site discharges avoid potential problems in tracking sites and operator accountability. Section 122.28(b)(2)(v) gives permitting authorities the option to issue a general permit without requiring an NOI. If an NOI is not required for each activity, permitting authorities could pursue other options such as a company-wide NOI, license instead of an NOI, or another mechanism.

2. Other Sources

In the Storm Water Discharges Potentially Addressed by Phase II of the National Pollutant Discharge Elimination System Storm Water Program, Report to Congress, March 1995, ("Report") submitted by EPA pursuant to CWA section 402(p)(5), EPA examined the remaining unregulated point sources of storm water for the potential to adversely affect water quality. Due to very limited national data on which to estimate pollutant loadings on the basis of discharge categories, the discussion of the extent of unregulated storm water discharges is limited to an analysis of the number and geographic distribution of the unregulated storm water discharges. Therefore, EPA is not designating any additional unregulated point sources of storm water on a nationwide, categorical basis. Instead, the remainder of the sources will be regulated based on case-by-case post-promulgation designations by the NPDES permitting authority.

EPA did, however, evaluate a variety of categories of discharges for potential designation in the Report. EPA's efforts to identify sources and categories of unregulated storm water discharges for potential designation for regulation in today's rule started with an examination of approximately 7.7 million commercial, retail, industrial, and institutional facilities identified as "unregulated." In general, the distribution of these facilities follows the distribution of population, with a large percentage of facilities concentrated within urbanized areas (see page 4-35 of the Report). This examination resulted in identification of two general classes of facilities with the potential for discharging pollutants to waters of the United States through storm water point sources.

The first group (Group A) included sources that are very similar, or identical, to regulated "storm water discharges associated with industrial activity" but that were not included in the existing storm water regulations because EPA used SIC codes in defining the universe of regulated industrial activities. By relying on SIC codes, a classification system created to identify industries rather than environmental impacts from these industries discharges, some types of storm

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water discharges that might otherwise be considered "industrial" were not included in the existing NPDES storm water program. The second general class of facilities (Group B) was identified on the basis of potential for activities and pollutants that could contribute to storm water contamination.

EPA estimates that Group A has approximately 100,000 facilities. Discharges from facilities in this group, which may be of high priority due to their similarity to regulated storm water discharges from industrial facilities, include, for example, auxiliary facilities or secondary activities (e.g., maintenance of construction equipment and vehicles, local trucking for an unregulated facility such as a grocery store) and facilities intentionally omitted from existing storm water regulations (e.g., publicly owned treatment works with a design flow of less than 1 million gallons per day, landfills that have not received industrial waste).

Group B consists of nearly one million facilities. EPA organized Group B sources into 18 sectors for the purposes of the Report. The automobile service sector (e.g., gas/service stations, general automobile repair, new and used car dealerships, car and truck rental) makes up more than one-third of the total number of facilities identified in all 18 sectors.

EPA conducted a geographical analysis of the industrial and commercial facilities in Groups A and ***68780** B. The geographical analysis shows that the majority are located in urbanized areas (see Section 4.2.2, Geographic Extent of Facilities, in the Report). In general, about 61 percent of Group A facilities and 56 percent of Group B facilities are located in urbanized areas. The analysis also showed that nearly twice as many industrial facilities are found in all urbanized areas as are found in large and medium municipalities alone. Notable exceptions to this generalization included lawn/garden establishments, small unregulated animal feedlots, wholesale livestock, farm and garden machinery repair, bulk petroleum wholesale, farm supplies, lumber and building materials, agricultural chemical dealers, and petroleum pipelines, which can frequently be located in smaller municipalities or rural areas.

In identifying potential categories of sources for designation in today's notice, EPA considered designation of discharges from Group A and Group B facilities. EPA applied three criteria to each potential category in both groups to determine the need for designation: (1) The likelihood for exposure of pollutant sources included in that category, (2) whether such sources were adequately addressed by other environmental programs, and (3) whether sufficient data were available at this time on which to make a determination of potential adverse water quality impacts for the category of sources. As discussed previously, EPA searched for applicable nationwide data on the water quality impacts of such categories of facilities.

By application of the first criterion, the likelihood for exposure, EPA considered the nature of potential pollutant sources in exposed portions of such sites. As precipitation contacts industrial materials or activities, the resultant runoff is likely to mobilize and become contaminated by pollutants. As the size of these exposed areas increases, EPA expects a proportional increase in the pollutant loadings leaving the site. If EPA concluded that a category of sources has a high potential for exposure of raw materials, intermediate products, final products, waste materials, byproducts, industrial machinery, or industrial activity to rainfall, the Agency rated that category of sources as having "high" potential for adverse water quality impact. EPA's application of the first criterion showed that a number of Group A and B sources have a high likelihood of exposure of pollutants.

Through application of the second criterion, EPA assessed the likelihood that pollutant sources are regulated in a comprehensive fashion under other environmental protection programs, such as programs under the Resource Conservation and Recovery Act (RCRA) or the Occupational Health and Safety Act (OSHA). If EPA concluded that the category of sources was sufficiently addressed under another program, the Agency rated that source category as having "low" potential for adverse water quality impact. Application of the second criterion showed that some categories were likely to be adequately addressed by other programs.

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After application of the third criterion, availability of nationwide data on the various storm water discharge categories, EPA concluded that available data would not support any such nationwide designations. While such data could exist on a regional or local basis, EPA believes that permitting authorities should have flexibility to regulate only those categories of sources contributing to localized water quality impairments.

EPA received comments requesting designation of additional industrial, commercial and retail sources (e.g. industrial activity "look-alikes", roads, commercial facilities and institutions, and vehicle maintenance facilities) in the final rule, because the commenters believe that the data exist to support national designation of some of these sources. Other comments were received opposing designation of any additional sources. Today's rule does not designate any additional industrial or commercial category of sources either because EPA currently lacks information indicating a consistent potential for adverse water quality impact or because of EPA's belief that the likelihood of adverse impacts on water quality is low, with some possible exceptions on a more local basis. Since the time the Agency submitted the Report, EPA has continued to seek additional data and has requested available data from the FACA members. If sufficient regional or nationwide data become available in the future, the permitting authority could at that time designate a category of sources or individual sources on a case-by-case basis. Therefore, today's rule encourages control of storm water discharges from Groups A and B through self-initiated, voluntary BMPs, unless the discharge (or category of discharges) is designated for permitting by the permitting authority. See discussion in section I.D., EPA's Reports to Congress.

3. ISTEA Sources

Provisions within the Intermodal Surface Transportation and Efficiency Act (ISTEA) of 1991 temporarily exempted storm water discharges associated with industrial activity that are owned or operated by municipalities serving populations less than 100,000 people (except for airports, power plants, and uncontrolled sanitary landfills) from the need to apply for or obtain a storm water discharge permit (section 1068(c) of ISTEA). Congress extended the NPDES permitting moratorium for these facilities to allow small municipalities additional time to comply with NPDES requirements for certain sources of industrial storm water. The August 7, 1995 storm water final rule (60 FR 40230) further extended this moratorium until August 7, 2001. However, today's rule changes this deadline so that previously exempted industrial facilities owned or operated by municipalities serving populations less than 100,000 people, must now submit an application for a permit within 3 years and 90 days from date of publication of today's rule.

EPA received comments recommending that permit requirements for municipally owned or operated industrial storm water discharges, including those previously exempt under ISTEA, be included in a single NPDES permit for all MS4 storm water discharges. The existing NPDES regulations already provide permitting authorities the ability to issue a single "combination" permit for MS4 discharges. However, if the permitting authorities chose to issue this type of permit, they must make sure that in doing so, they are not creating a double standard for industrial facilities covered under the combination permit versus those covered under separate general or individual permits. In order to avoid this double standard, combination permits would have to contain requirements that are the same or very similar to the requirements found in separate MS4 and industrial permits, i.e., the minimum measures and other necessary requirements of an MS4 permit, and the SWPPP, monitoring and reporting requirements, and other necessary requirements of an industrial permit. If such a combined MS4 general permit were issued, the regulations require that each discharger submit NOIs for their respective discharges, except for discharges from small construction activities. Flexibility exists in developing a combination NOI which could reduce the need to submit duplicative information, e.g. owner/operator name and address. The combination NOI would still need to require specific information for each separate municipally owned or operated industrial location, including ***68781** construction projects disturbing 5 or more acres. The regulations at §122.28(b)(2)(ii) list the necessary contents of an NOI, which require: the facility name, facility address, type of facility or discharge and receiving stream for each industrial discharge location. When viewed in its entirety, a combination permit, which by necessity would need to contain all elements of otherwise separate industrial and MS4 permit requirements, and require NOI information for each separate industrial activity, may have few advantages when compared to obtaining separate MS4 and industrial general permit coverage.

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In order to allow the permitting authority to issue a single storm water permit for the MS4 and all municipally owned or operated industrial facilities, including those previously exempt under ISTEA, today's rule requires applications for ISTEA sources within 3 yrs and 90 days from date of publication of today's rule. The permitting authority has the ultimate decision to determine whether or not a single all-encompassing MS4 permit is appropriate.

4. Residual Designation Authority

The NPDES permitting authority's existing designation authority, as well as the petition provisions are being retained. Today's rule contains two provisions related to designation authority at §§122.26(a)(9)(i)(C) and (D). Subsection (C) adds designation authority where storm water controls are needed for the discharge based upon wasteload allocations that are part of TMDLs that address the pollutant(s) of concern. EPA intends that the NPDES permitting authority have discretion in the matter of designations based on TMDLs under subsection (C). Subsection (D) carries forward residual designation authority under former §122.26(g), and has been modified to provide clarification on categorical designation. Under today's rule, EPA and authorized States continue to exercise the authority to designate remaining unregulated discharges composed entirely of storm water for regulation on a case-by-case basis (including §123.35). Individual sources are subject to regulation if EPA or the State, as the case may be, determines that the storm water discharge from the source contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. This standard is based on the text of section CWA 402(p). In today's rule, EPA believes, as Congress did in drafting section CWA 402(p)(2)(E), that individual instances of storm water discharge might warrant special regulatory attention, but do not fall neatly into a discrete, predetermined category. Today's rule preserves the regulatory authority to subsequently address a source (or category of sources) of storm water discharges of concern on a localized or regional basis. For example, as States and EPA implement TMDLs, permitting authorities may need to designate some point source discharges of storm water on a categorical basis either locally or regionally in order to assure progress toward compliance with water quality standards in the watershed.

EPA received comments asking that §122.26(a)(9)(i)(D) as proposed be modified to include specific language clarifying the permitting authority's ability to designate additional sources on a categorical basis as explained in the preamble to the proposed rule. One comment requested that the designation language include “categories of sources on a Statewide basis.” EPA agrees that the intent of the language may not have been clear regarding categorical designation. Today's rule modifies subsection (D) to clarify that the designation authority can be applied within different geographic areas to any single discharge (i.e., a specific facility), or category of discharges that are contributing to a violation of a water quality standard or are significant contributors of pollutants to waters of the United States. The added term “within a geographic area” allows “State-wide” or “watershed-wide” designation within the meaning of the terms.

One commenter questioned the Agency's legal authority to provide for such residual designation authority. The stakeholder argued that the lapse of the October 1, 1994, permitting moratorium under CWA section 402(p)(1) eliminated the significance of the CWA section 402(p)(2) exceptions to the moratorium, including the exception for discharges of storm water determined to be contributing to a violation of a water quality standard or a significant contributor of pollutants under CWA section 402(p)(2)(E). The stakeholder further argued that EPA's authority to designate sources for regulation under CWA section 402(p)(6) is limited to storm water discharges other than those described under CWA section 402(p)(2). Because CWA section 402(p)(2)(E) describes individually designated discharges, the stakeholder concluded that regulations under CWA section 402(p)(6) cannot provide for post-promulgation designation of individual sources. EPA disagrees.

First, as explained previously, EPA anticipates that NPDES permitting authorities may yet determine that individual unregulated point sources of storm water discharges require regulation on a case-by-case basis. This conclusion is consistent with the Congress' recognition of the potential need for such designation under the first phase of storm water regulation as described in CWA section 402(p)(2)(E). Under CWA section 402(p)(2)(E), Congress recognized the need for both EPA and the State to retain authority to regulate unregulated point sources of storm water under the NPDES permit program. Second, to the extent that CWA section 402(p)(6) requires designation of a “category” of sources,

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the permitting authority may designate such (as yet unidentified) sources as a category that should be regulated to protect water quality. Though such sources may exist and discharge today, if neither EPA nor the State/Tribal NPDES permitting authority has designated the source for regulation under CWA section 402(p)(2)(E) to date, then CWA section 402(p)(6) provides the authority to designate such sources.

The Agency can designate a category of "not yet identified" sources to be regulated, based on local concerns, even if data do not exist to support nationwide regulation of such sources. EPA does not interpret the language in CWA section 402(p) to preclude States from exercising designation authority under these provisions because such designation (and subsequent regulation of designated sources) is within the "scope" of the NPDES program.

EPA also believes that sources regulated pursuant to a State designation are part of (and regulated under) a federally approved State NPDES program, and thus subject to enforcement under CWA sections 309 and 505. Under existing NPDES State program regulations, State programs that are "greater in scope of coverage" are not part of the federally-approved program. By contrast, any such State regulation of sources in this "reserved category" will be within the scope of the federal program because today's rule recognizes the need for such post promulgation designations of unregulated point sources of storm water. Such regulation will be "more stringent" than the federal program rather than "greater in scope of coverage" (40 CFR 123.1(h)).

EPA does not interpret the congressional direction in CWA section 402(p)(6) to preclude regulation of point sources of storm water that should be regulated to protect water quality. Under CWA section 510, Congress expressly recognized and preserved the authority of States to adopt and enforce ***68782** more stringent regulation of point sources, as well as any requirement respecting the control or abatement of pollution. Section 510 applies, "except as expressly provided" in the CWA. CWA section 502(14) does expressly provide affirmative limitations on the regulation of certain pollutant sources through the point source control program, the NPDES permitting program. Section 502(14) excludes agricultural storm water and return flows from irrigated agriculture from the definition of point source, and section 402(l) limits applicability of the section 402 permit program for return flows from irrigated agriculture, as well as for storm water runoff from certain oil, gas, and mining operations. Unlike sections 502(14) and 402(l), EPA does not interpret CWA section 402(p)(6) as an express provision limiting the authority to designate point sources of storm water for regulation on a case-by-case basis after the promulgation of final regulations. Any source of storm water discharge is encouraged to assess its potential for storm water contamination and take preventive measures against contamination. Such proactive actions could result in the avoidance of future regulation.

One comment was received requesting clarification of the term "non-municipal" in §122.26(a)(9)(ii). The commenter is concerned that the term "non-municipal," in this context, implies that municipally owned or operated facilities cannot be designated. The term "non-municipal" in this context refers to the universe of unregulated industrial and commercial facilities that could potentially be designated according to §122.26(a)(9)(i) authority. There is no exemption for municipally owned or operated facilities under these designation provisions.

Finally, EPA received comments and evaluated the proposal under which operators of regulated small, medium, and large MS4s would be responsible for controlling discharges from industrial and other facilities into their systems in lieu of requiring NPDES permit coverage for such facilities. EPA did not adopt this framework due to concerns with administrative and technical burden on the MS4 operators, as well as concerns about such an intergovernmental mandate.

J. Conditional Exclusion for "No Exposure" of Industrial Activities and Materials to Storm Water

1. Background

In 1992, the Ninth Circuit court remanded to EPA for further rulemaking, a portion of the definition of "storm water discharge associated with industrial activity" that excluded the category of industrial activity identified as "light industry"

when industrial materials and/or activities were not exposed to storm water. See NRDC v. EPA, 966 F.2d 1292, 1305 (9th Cir. 1992). Today's final rule responds to that remand. In the 1990 storm water regulations, EPA excluded the light industry category from the requirement for an NPDES permit if the industrial materials and/or activities were not "exposed" to storm water (see §122.26(b)(14)). The Agency had reasoned that most of the activity at these types of facilities takes place indoors and that emissions from stacks, use of unhoused manufacturing equipment, outside material storage or disposal, and generation of large amounts of dust or particles would be atypical (55 FR 48008, November 16, 1990).

The Ninth Circuit determined that the exemption was arbitrary and capricious for two reasons. First, the court found that EPA had not established a record to support its assumption that light industry that was not exposed to storm water was not "associated with industrial activity," particularly when other types of industrial activity not exposed to storm water remained "associated with industrial activity." The court specifically found that "[t]o exempt these industries from the normal permitting process based on an unsubstantiated assumption about this group of facilities is arbitrary and capricious." Second, the court concluded that the exemption impermissibly "altered the statutory scheme" for permitting because the exemption relied on the unverified judgment of the light industrial facility operator to determine non-applicability of the permit application requirements. In other words, the court was critical that the operator would determine for itself that there was "no exposure" and then simply not apply for a permit without any further action. Without a basis for ensuring the effective operation of the permitting scheme—either that facilities would self-report actual exposure or that EPA would be required to inspect and monitor such facilities—the court vacated and remanded the rule to EPA for further rulemaking.

One of the major concerns expressed by the FACA Committee, was that EPA streamline and reinvent certain troublesome or problematic aspects of the existing permitting program for storm water discharges. One area identified was the mandatory applicability of the permitting program to all industrial facilities, even those "light industrial" activities that are of very low risk or of no risk to storm water contamination. Such dischargers may not have any industrial sources of storm water contamination on the plant site, yet they are still required to apply for an NPDES storm water permit and meet all permitting requirements. Examples of such facilities are a soap manufacturing plant (SIC Code 28) or hazardous waste treatment and disposal facility, where all industrial activities, even loading docks, are inside a building or under a roof.

Although they did not provide a written report, the FACA Committee members advised EPA that the existing storm water program should be revised to allow such facilities to seek an exclusion from the NPDES storm water permitting requirements. The Committee agreed that such an exclusion should also provide a strong incentive for other industrial facilities that conduct industrial activities outdoors to move the activities under cover or into buildings to prevent contamination of rainfall and storm water runoff. The committee believed that such a "no exposure" permit exclusion could be a valuable incentive for storm water pollution prevention.

In today's final rule, the Agency responds to both of the bases for the court's remand. The exclusion from permitting based on "no exposure" applies to all industrial categories listed in the existing storm water regulations except construction. The court's opinion rejected EPA's distinction between light industry and other industry, but it did not preclude an interpretation that treats all "non-exposed" industrial facilities in the same fashion. Presuming that an industrial facility adequately prevents exposure of industrial materials and activities to storm water, today's rule treats discharges from "non-exposed" industrial facilities in a manner similar to the way Congress intended for discharges from administrative buildings and parking lots. Specifically, permits will not be required for storm water discharges from these facilities on a categorical basis.

To assure that discharges from industrial facilities really are similar to discharges from administrative buildings and parking lots, and to respond to the second basis for the court's remand, the permitting exclusion is "conditional". The person responsible for a point source discharge from a "no exposure" industrial source must meet the conditions of

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the exclusion, and complete, sign and submit the certification to the permitting authority for tracking and ***68783** accountability purposes. EPA believes today's rule, therefore, is fully consistent with the direction provided by the court.

EPA relied upon the "no exposure" concept discussed by the FACA Committee in developing the "no exposure" provisions of today's rule. EPA is deleting the sentence regarding "no exposure" for the facilities in §122.26(b)(14)(xi) and adding a new §122.26(g) titled "Conditional Exclusion for No Exposure of Industrial Activities to Storm Water." The "no exposure" provision will make storm water discharges from all classes of industrial facilities eligible for exclusion, except storm water discharges from regulated construction activities. Regulated construction activities cannot claim "no exposure" because the main pollutants of concern (e.g., sediment) generally cannot entirely be sheltered from storm water.

Today's rule represents a significant expansion in the scope of the "no exposure" provision originally promulgated in the 1990 rule, which was only for storm water discharges from light industry. The intent of today's "no exposure" provision is to provide a simplified method for complying with the CWA to all industrial facilities that are entirely indoors. This includes facilities that are located within a large office building, or at which the only items permanently exposed to precipitation are roofs, parking lots, vegetated areas, and other non-industrial areas or activities.

EPA received several comments related to storm water runoff from parking lots, roof tops, lawns, and other non-industrial areas of an industrial facility. Storm water discharges from these areas, which may contain pollutants or which may result in additional storm water flows, are not directly regulated under the existing storm water permitting program because they are not "storm water discharges associated with industrial activity". Many comments on this issue supported maintaining the exclusion from the existing regulations for storm water permitting for discharges from administrative buildings, parking lots, and other non-industrial areas. Other comments opposed allowing the continued exclusion for discharges from non-industrial areas of the site because discharges from these areas are potentially a significant cause of receiving water impairment. These comments urged that such discharges should not be excluded from NPDES permit coverage. Today's rule does not require permit coverage for discharges from a facility's exposed areas that are separate from industrial activities such as runoff from office buildings and accompanying parking lots, lawns and other non-industrial areas. This approach is consistent with the existing storm water rules which were based on Congress's intent to exclude non-industrial areas such as "parking lots and administrative and employee buildings." 133 Cong. Rec. 985 (1987). EPA also lacks data indicating that discharges from these areas at an industrial facility cause significant receiving water impairments. Therefore, the non-industrial areas at a facility do not need to be assessed as part of the "no exposure" certification.

EPA received comments related to industrial facilities that achieve "no exposure" by constructing large amounts of impervious surfaces, such as roofs, where previously there were pervious or porous surfaces into which storm water could infiltrate. Some commenters made the point that large amounts of impervious area may cause a significant increase in storm water volume flowing off the industrial facility, and thus may cause adverse receiving water impacts simply due to the increased quantity of storm water flow. Some commenters said that storm water discharges from impervious areas at an industrial facility are generally more frequent, and often larger, than discharges from the pre-existing natural surfaces. They believe that these discharges will contain pollutants typical of commercial areas and roads and are an equal threat to direct human uses of the water and can cause equal damage to aquatic life and its habitat. Other commenters believe that if Congress or EPA addresses the issue of flow, it should be addressed on a broader scale than merely through the "no exposure" exclusion, and that EPA has no authority under any existing legal framework to regulate flow directly. Some commenters stated that developing federal parameters for the control of water quantity, i.e. flow, would result in federal intrusion into land use planning, an authority that they claim is solely within the purview of State governments and their political subdivisions.

EPA is not attempting to regulate flow via the "no exposure" provisions. EPA does agree, however, that increases in impervious surfaces can result in increased runoff volumes from the site which in turn may increase pollutant loading. In

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addition, the Agency notes that in some States water quality standards include water quality criteria for flow or turbidity. Therefore, in order to provide a minimal amount of information on possible impacts from increased pollutant loading and runoff volume, EPA's "no exposure" certification form (see Appendix 4) asks the discharger to indicate if they have paved or roofed over a formerly exposed, pervious area in order to qualify for the "no exposure" exclusion. If the answer is yes, the discharger must indicate, by choosing from three possible responses, approximately how much impervious area was created to achieve "no exposure". The choices are: (1) less than 1 acre, (2) 1 to 5 acres, and (3) more than 5 acres. This requirement provides additional information that will aid in determining if discharges from the facility are causing adverse receiving water impacts. EPA intends to prevent water quality impacts resulting from increased discharges of pollutants, which may result from increased volume of runoff. In many cases, consideration of the increased flow rate, velocity and energy of storm water discharges, following construction of large amounts of impervious surfaces, must be taken into consideration in order to reduce the discharge of pollutants, to meet water quality standards and to prevent degradation of receiving streams. EPA recommends that dischargers consider these factors when making modifications to their site in order to qualify for the "no exposure" exclusion.

2. Today's Rule

In order to claim relief under the "no exposure" provision, the discharger of an otherwise regulated facility must submit a no exposure certification that incorporates the questions of §122.26(g)(4)(iii) to the NPDES permitting authority once every 5 years. This provision applies across all categories of industrial activity covered by the existing program, except discharges from construction activities.

In addition to submitting a "no exposure" certification every 5 years, the facility must allow the NPDES permitting authority or operator of an MS4 (where there is a storm water discharge to the MS4) to inspect the facility and to make such inspection reports publicly available upon request. Also, upon request, the facility must submit a copy of the "no exposure" certification to the operator of the MS4 into which the facility discharges (if applicable). All "no exposure" certifications must be signed in accordance with the signatory requirements of §122.22. The "no exposure" certification is non-transferable. In the event that the facility operator changes, the new discharger must submit a new "no exposure" certification. ***68784**

Members of the FACA Committee urged that EPA not allow dischargers certifying "no exposure" to take actions to qualify for this provision that result in a net environmental detriment. In developing a regulatory implementation mechanism, however, EPA found that the phrase "no net environmental detriment," was too imprecise to use within this context. Therefore, today's rule addresses this issue by requiring information that should help the permitting authority to determine whether actions taken to qualify for the exclusion interfere with the attainment or maintenance of water quality standards, including designated uses. Permitting authorities will be able, where necessary, to make a determination by evaluating the activities that changed at the industrial site to achieve "no exposure", and assess whether these changes cause an adverse impact on, or have the reasonable potential to cause an instream excursion of, water quality standards, including designated uses. EPA anticipates that many efforts to achieve "no exposure" will employ simple good housekeeping and contaminant cleanup activities. Other efforts may involve moving materials and industrial activities indoors into existing buildings or structures.

In very limited cases, industrial operators may make major changes at a site to achieve "no exposure". These efforts may include constructing a new building or cover to eliminate exposure or constructing structures to prevent run-on and storm water contact with industrial materials or activities. Where major changes to achieve "no exposure" increase the impervious area of the site, the facility operator must provide this information on the "no exposure" certification form as discussed above. Using this and other available data and information, permitting authorities should be able to assess whether any major change has resulted in increased pollutant concentrations or loadings, toxicity of the storm water runoff, or a change in natural hydrological patterns that would interfere with the attainment and maintenance of water quality standards, including designated uses or appropriate narrative, chemical, biological, or habitat criteria where such State or Tribal water quality standards exist. In these instances, the facility operator and their NPDES permitting

authority should take appropriate actions to ensure that attainment or maintenance of water quality standards can be achieved. The NPDES permitting authority should decide if the facility must obtain coverage under an individual or general permit to ensure that appropriate actions are taken to address adverse water quality impacts.

While the intent of today's "no exposure" provision is to reduce the regulatory burdens on industrial facilities and government agencies, the FACA Committee suggested that the NPDES permitting authority consider a compliance assessment program to ensure that facilities that have availed themselves of this "no exposure" option meet the applicable requirements. Inspections could be conducted at the discretion of the NPDES authority and be coordinated with other facility inspections. EPA expects, however, that the permitting authority will conduct inspections when it becomes aware of potential water quality impacts possibly caused by the facility's storm water discharges or when requested to do so by adversely affected members of the public. The intent of this provision is that the 5 year "no exposure" certification be fully available to, and enforceable by, appropriate federal and State authorities under the CWA. Private citizens can enforce against facilities for discharges of storm water that are inconsistent with a "no exposure" certification if storm water discharges from such facilities are not otherwise permitted and in compliance with applicable requirements.

EPA received comments from owners, operators and representatives of Phase I facilities classified as "light industry" as defined by the regulations at § 122.26(b)(14)(xi). The comments recommended maintaining the approach of the existing regulations which does not require the discharger to submit any supporting documentation to the permitting authority in order to claim the "no exposure" exclusion from permitting. As discussed previously, the "no exposure" concept was developed in response to the Ninth Circuit court's remand of part of the existing rules back to EPA. The court found that EPA cannot rely on the "unverified judgment" of the facility. The comments opposing documentation did not address the "unverified judgment" concern.

Today's rule is a "conditional" exclusion from permitting which requires all categories, including the "light industrial" facilities that have no exposure of materials to storm water, to submit a certification to the permitting authority. Upon receipt of a complete certification, the permitting authority can review the information, or call, or inspect the facility if there are doubts about the facility's "no exposure" claim. Also, if the facility discharges into an MS4, the operator of the MS4 can request a copy of the certification, and can inspect the facility. The public can request a copy of the certification and/or inspection reports. In adopting these conditional "no exposure" provisions, the Agency addressed the Ninth Circuit court's ruling regarding the discharger's unverified judgment.

EPA received one comment requesting clarification on whether the anti-backsliding provisions in the regulations at §122.44(l) apply to industrial facilities that are currently covered under an NPDES storm water permit, and whether such facilities could qualify for the "no exposure" exclusion under today's rule. The anti-backsliding provisions will not prevent most industrial facilities that can certify "no exposure" under today's rule from qualifying for an exclusion from permitting. The anti-backsliding provisions contain 5 exceptions that allow permits to be renewed, reissued or modified with less stringent conditions. One exception at §122.44(l)(2)(A) allows less stringent conditions if "material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation." Section 122.44(l)(B)(1) also allows less stringent requirements if "information is available which was not available at the time of permit issuance and which would have justified the application of less stringent effluent limitations at the time of permit issuance." Facility's operators who certify "no exposure" and submit the required information once every 5 years will have provided the permitting authority "information that was not available at the time of permit issuance." Also, some facilities may, in order to achieve "no exposure", make "material and substantial alterations or additions to the permitted facility." Therefore, most facilities covered under existing NPDES general permits for storm water (e.g., EPA's Multi-Sector General Permit) will be eligible for the conditional "no exposure" exclusion from permitting without concern about the anti-backsliding provisions. Such dischargers will have met one or both of the anti-backsliding exceptions detailed above. Facilities that are covered under individual permits containing numeric limitations for storm water should consult with their permitting authority to determine whether the

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anti-backsliding provisions will prevent them from qualifying for the exclusion from permitting (for that discharge point) based on a certification of "no exposure".

***68785** EPA received several comments regarding the timing of when the "no exposure" certification should be submitted. The proposed rule said that the "no exposure" certification notice must be submitted "at the beginning of each permit term or prior to commencing discharges during a permit term." Some commenters interpreted this statement to mean that existing facilities can only submit the certification at the time a permit is being issued or renewed. EPA intended the phrase "at the beginning of each permit term" to mean "once every 5 years" and today's rule reflects this clarification. EPA envisions that the NPDES storm water program will be implemented primarily through general permits which are issued for a 5 year term. Likewise the "no exposure" certification term is 5 years. The NPDES permitting authority will maintain a simple registration list that should impose only a minor administrative burden on the permitting authority. The registration list will allow for tracking of industrial facilities claiming the exclusion. This change allows a facility to submit a "no exposure" certification at any time during the term of the permit, provided that a new certification is submitted every 5 years from the time it is first submitted (assuming that the facility maintains a "no exposure" status). Once a discharger has established that the facility meets the definition of "no exposure", and submits the necessary "no exposure" certification, the discharger must maintain their "no exposure" status. Failure to maintain "no exposure" at their facility could result in the unauthorized discharge of pollutants to waters of the United States and enforcement for violation of the CWA. Where a discharger believes that exposure could occur in the future due to some anticipated change at the facility, the discharger should submit an application and obtain coverage under an NPDES permit prior to such discharge to avoid penalties.

Where EPA is the permitting authority, dischargers may submit a "no exposure" certification at any time after the effective date of today's rule. Where EPA is not the permitting authority, dischargers may not be able to submit the certification until the non-federal permitting authority completes any necessary statutory or regulatory changes to adopt this "no exposure" provision. EPA recommends that the discharger contact the permitting authority for guidance on when the "no exposure" certification should be submitted.

EPA received comments on the proposed rule requirement that the discharger "must comply immediately with all the requirements of the storm water program including applying for and obtaining coverage under an NPDES permit," if changes occur at the facility which cause exposure of industrial activities or materials to storm water. The comments expressed the difficultly of immediate compliance. EPA expects that most facility changes can be anticipated, therefore dischargers should apply for and obtain NPDES permit coverage in advance of changes that result in exposure to industrial activities or materials. Permitting authorities may grant additional time, on a case-by-case basis, for preparation and implementation of a storm water pollution prevention plan.

Finally, today's rule at §122.26(g)(4) includes the information which must be included on the "no exposure" certification. Authorized States, Tribes or U.S. Territories may develop their own form which includes this required information, at a minimum. EPA adopted the requirements (with modification) from the draft "No Exposure Certification Form" published as an appendix to the proposed rule. Modifications were made to the draft form to address comments received and to streamline the required information. EPA included these certification requirements in today's rule in order to preserve its integrity. Dischargers in areas where EPA is the permitting authority should use the "No Exposure Certification" form included in Appendix 4.

3. Definition of "No Exposure"

For purposes of this section, "no exposure" means that all industrial materials or activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. However,

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storm resistant shelter is not required for: (1) Drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak; (2) adequately maintained vehicles used in material handling; and (3) final products, other than products that would be mobilized in storm water discharge (e.g., rock salt). Each of these three exceptions to the no exposure definition are discussed in more detail below.

EPA intends the term "storm resistant shelter" to include completely roofed and walled buildings or structures, as well as structures with only a top cover but no side coverings, provided material under the structure is not otherwise subject to any run-on and subsequent runoff of storm water. While the Agency intends that this provision promote permanent "no exposure", EPA understands that certain vehicles could pass between buildings and, during passage, be exposed to rain and snow. Adequately maintained vehicles such as trucks, automobiles, forklifts, or other such general purpose vehicles at the industrial site that are not industrial machinery, and that are not leaking contaminants or are not otherwise a source of industrial pollutants, could be exposed to precipitation or runoff. Such activities alone does not prevent a discharger from being able to certify no exposure under this provision. Similarly, trucks or other vehicles awaiting maintenance at vehicle maintenance facilities, as defined at §122.26(b)(14)(viii), that are not leaking contaminants or are not otherwise a source of industrial pollutants, are not considered exposed.

In addition, EPA recognizes that there are circumstances where permanent "no exposure" of industrial activities or materials is not possible. Under such conditions, materials and activities may be sheltered with temporary covers, such as tarps, between periods of permanent enclosure. The final rule does not specify every such situation. EPA intends that permitting authorities will address this issue on a case-by-case basis. Permitting authorities can determine the circumstances under which temporary structures will or will not meet the requirements of this section. Until permitting authorities specifically determine otherwise, EPA recommends application of the "no exposure" exclusion for temporary sheltering of industrial materials or activities only during facility renovation or construction, provided that the temporary shelter achieves the intent of this section. Moreover, "exposure" that results from a leak in protective covering would only be considered "exposure" if not corrected prior to the next storm water discharge event. EPA received one comment requesting that this allowance for temporary shelter be limited to facility renovation or construction directly related to the industrial activity requiring temporary shelter, and be scheduled to minimize the use of temporary shelter. Another comment suggested placing time limits ***68786** on the use of temporary shelter. The commenter did not recommend a specific time period, rather the comment said that renovation in some instances may take years, and that EPA should not allow temporary shelter over prolonged periods. EPA agrees that the use of temporary shelter must be related to the renovation or construction at the site, and be scheduled or designed to minimize the use of temporary shelter. Further, EPA agrees that the use of temporary shelter should be limited in duration, but does not intend to define "temporary" or "prolonged period".

Many final products are intended for outdoor use and pose little risk of storm water contamination, such as new cars. Therefore, final products, except those that can be mobilized in storm water discharge, can be "exposed" and still allow the discharge to certify "no exposure". EPA intends the term "final products" to mean those products that are not used in producing another product. Any product that can be used to make another product is considered an "intermediate product." For example, a facility that makes horse trailers can store the finished trailers outdoors as a final product. The storage of those final products does not prevent eligibility to claim "no exposure". However, any facility that makes parts for the horse trailers (e.g., metal tubing, sheet metal, paint) is not eligible for the "no exposure" exclusion from permitting if those "intermediate products" are stored outdoors (i.e., "exposed").

EPA received comments related to materials in drums, barrels, tanks and similar containers. Some comments objected to the language in the preamble to the proposed rule that would have recommended that the "exposure" determination for drums and barrels be based on the "potential to leak." Those comments said that all drums and barrels have the potential to leak, thereby making certification impossible. They recommended allowing outdoor storage of drums and barrels except for those that "are leaking" at the time of certification. Other comments suggested allowing drums and barrels to be stored outside only if the drums and barrels: are empty; have secondary containment; or there is a spill

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contingency plan in place. Opposing comments suggested that allowing outdoor exposure of drums and barrels, based on existing integrity and condition, is inconsistent with the "however packaged" proposed rule language, and also would not satisfy the Ninth Circuit remand. The comments point out that the former rule was invalidated by the court in part because it relied on the "unverified judgment" of the light industrial facility operator to determine the non-applicability of the permit requirements, and that allowing the facility operator to determine the condition of their drums and barrels would result in the same flaw.

In response, EPA believes that drums and barrels that are stored outdoors pose little risk of storm water contamination unless they are open, deteriorated or leaking. The Agency has modified today's rule accordingly. EPA intends the term "open" to mean any container that is not tightly sealed and "sealed" to mean banded or otherwise secured and without operational taps or valves. Drums, barrels, tanks, and similar containers may only be stored outdoors under this conditional exclusion. The addition of material to or withdrawing of material from these containers while outside is deemed "exposure". Moving the containers while outside does not create "exposure" provided that the containers are not open, deteriorated or leaking. In order to complete the "no exposure" certification, a facility operator must inspect all drums, barrels, tanks or other containers stored outside to ensure that they are not open, deteriorated, or leaking. EPA recommends that the discharger designate someone at the facility to conduct frequent inspections to verify that the drums, barrels, tanks or other containers remain in a condition such that they are not open, deteriorated or leaking. Drums, barrels, tanks or other containers stored outside that have valves which are used to put material in or take material out of the container, and that have dripped or may drip, are considered to be "leaking" and must be under a storm resistant shelter in order to qualify for the no exposure exclusion. Likewise, leaking pipes containing contaminants exposed to storm water are deemed "exposed." If at any time drums, barrels, tanks or similar containers are opened, deteriorated or leaking, the discharger should take immediate actions to close or replace the container. Any resulting unpermitted discharge would violate the CWA. The Director, the operator of the MS4, or the municipality may inspect the facility to verify that all of the applicable areas meet the "no exposure" conditions as specified in the rule language. In requiring submission of the conditional "no exposure" certification and allowing the permitting authority and the operator of the MS4 to inspect the facility, today's rule does not rely on the unverified judgment of the facility to determine that the no exposure provision is being met.

EPA received several comments related to trash dumpsters that are located outside. The preamble to the proposed rule listed dumpsters in the same grouping as drums and barrels, which based exposure on the "potential to leak". Today's rule distinguishes between dumpsters and drums/barrels. In the Phase I Question and Answer document (volume 1, question 52) the Agency noted that a covered dumpster containing waste material that is kept outside is not considered "exposed" as long as "the container is completely covered and nothing can drain out holes in the bottom, or is lost in loading onto a garbage truck." EPA affirms this approach today. Industrial refuse and industrial trash that is left uncovered is deemed "exposed."

For purposes of this provision, particulate matter emissions from roof stacks/vents that are regulated and in compliance under other environmental protection programs, such as air quality control programs, and that do not cause storm water contamination, are considered "not exposed." EPA received comments on the phrase in the draft "no exposure" certification form that asked whether "particulate emissions from roof stacks/vents not otherwise regulated, and in quantities detectable in the storm water outflow," are exposed to precipitation. One comment expressed concern that the phrase "in quantities detectable in the storm water outflow" implies that the facility must conduct monitoring prior to completing the checklist, and must continue to monitor after receiving the no exposure exclusion, in order to be able to verify compliance with the no exposure provision. Another comment said that current measurement technology allows detection of pollutants at levels that may not cause environmental harm. EPA does not intend to require monitoring of runoff from facilities with roof stacks/vents prior to or after completing and submitting the no exposure certification. EPA has thus replaced the phrase "in quantities detectable" with "evident" to convey the message that emissions from some roof stacks/vents have the potential to contaminate storm water discharges in quantities that are considered significant or that cause or contribute to a water quality standards violation. In those instances where the permitting

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authority determines that particulate emissions from facility roof stacks/vents are a significant contributor of pollutants or contributing to water quality violations, the permitting authority may require the discharger to apply for and obtain coverage under a ***68787** permit. Visible deposits of residuals (e.g., particulate matter) near roof or side vents are considered "exposed". Likewise, visible "track out" (i.e., pollutants carried on the tires of vehicles) or windblown raw materials are deemed "exposed."

EPA received a comment requesting an allowance under the "no exposure" provision for industrial facilities with several outfalls at a site where some, but not all of the outfalls drain non-exposed areas. The commenter provided an example of an industrial facility that has 5 outfalls draining different areas of the site, where two of those outfalls drain areas where industrial activities or materials are not exposed to storm water. The comment requested that the facility in this example be allowed to submit a "no exposure" certification in order to be relieved of permitting obligations for discharges from those two outfalls.

EPA agrees, but the comment would be implemented on an outfall-by-outfall basis in the permitting process, not through the "no exposure" exclusion. The "no exposure" provision was developed to allow exclusion from permitting of discharges from entire industrial facilities (except construction), based on a claim of "no exposure" for all areas of the facility where industrial materials or activities occur. Where exposure to industrial materials or activities exist at some but not all areas of the facility, the "no exposure" exclusion from permitting is not allowed because permit coverage is still required for storm water discharges from the exposed areas. Relief from permit requirements for outfalls draining non-exposed areas should be addressed through the permit process, in coordination with the permitting authority. Most NPDES general permits for storm water discharge provide enough flexibility to allow minimal or no requirements for non-exposed areas at industrial facilities. If the permitting authority determines that additional flexibility is needed for this scenario, the permits could be modified as necessary.

K. Public Involvement/Public Role

The Phase II FACA Subcommittee discussed the appropriate role of the public in successful implementation of a municipal storm water program. EPA believes that an educated and actively involved public is essential to a successful municipal storm water program. An educated public increases program compliance from residents and businesses as they realize their individual and collective responsibility for protecting water resources (e.g., the residents and businesses could be subject to a local ordinance that prohibits dumping used oil down storm sewers). Finally, the program is also more likely to receive public support and participation when the public is actively involved from the program's inception and allowed to participate in the decision making process.

In a time of limited staff and financial resources, public volunteers offer diverse backgrounds and expertise that may be used to plan, develop, and implement a program that is tailored to local needs (e.g., participate in public meetings and other opportunities for input, perform lawful volunteer monitoring, assist in program coordination with other preexisting and related programs, aid in the development and distribution of educational materials, and provide public training activities). The public's participation is also useful in the areas of information dissemination/education and reporting of violators, where large numbers of community members can be more effective than a few regulators.

The public can also petition the NPDES permitting authority to require an NPDES permit for a discharge composed entirely of storm water that contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. In evaluating such a petition, the NPDES permitting authority is encouraged to consider the set of designation criteria developed for the evaluation of small MS4s located outside of an urbanized area in places with a population of at least 10,000 and a population density of 1,000 or more. Furthermore, any person can protect water bodies by taking civil action under section 505 of the CWA against any person who is alleged to be in violation of an effluent standard or permit condition. If civil action is taken, EPA encourages citizen plaintiffs to resolve any disagreements or concerns directly with the parties involved, either informally or through any available alternative dispute resolution process.

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EPA recognizes that public involvement and participation pose challenges. It requires a substantial initial investment of staff and financial resources, which could be very limited. Even with this investment, the public might not be interested in participating. In addition, public participation could slow down the decision making process. However, the benefits are numerous.

EPA encourages members of the public to contact the NPDES permitting authority or local MS4s operator for information on the municipal storm water program and ways to participate. Such information may also be available from local environmental, nonprofit and industry groups.

Some commenters stressed the need to suggest to the public that they have a responsibility to fund the municipal storm water program. While EPA believes it is important that the program be adequately funded, today's rule does not address appropriate mechanisms or levels for such funding.

EPA received comments expressing concern that considerable public involvement requirements could result in increased litigation. EPA is not convinced there is a correlation between meaningful public education programs and any increased probability of litigation.

Finally, EPA received comments stating that the Agency should not en courage volunteer monitoring unless proper procedures are followed. EPA agrees. EPA encourages only lawful monitoring, i.e., obtaining the necessary approval if there is any question about lawful access to sites. Moreover, as a matter of good practice and to enhance the validity and usefulness of the results, any party, public or private, conducting water quality monitoring is encouraged to use appropriate quality control procedures and approved sampling and analytic methods.

L. Water Quality Issues

1. Water Quality Based Effluent Limits

In addition to technology based requirements, all point source discharges of industrial storm water are subject to more stringent NPDES permitting requirements when necessary to meet water quality standards. CWA sections 402(p)(3)(A) and 301(b)(1)(C). For municipal separate storm sewers, EPA or the State may determine that other permit provisions (e.g. one of the minimum measures) are appropriate to protect water quality and, for discharges to impaired waters, to achieve reasonable further progress toward attainment of water quality standards pending implementation of a TMDL. CWA section 402(p)(3)(B)(iii). See Defenders of Wildlife, et al. Browner, No. 98-71080 (9th cir., August 11, 1999). Discharges of storm water also must comply with applicable antidegradation policies and implementation methods to maintain and protect water quality. 40 CFR 131.12. Section 122.34(a) emphasizes this point by specifically noting that a storm water management program designed to reduce the discharge of pollutants from the storm sewer system "to the maximum extent practicable" is also designed to protect water quality. ***68788** Permits issued to non-municipal sources of storm water must include water quality-based effluent limits where necessary to meet water quality standards.

Commenters challenged EPA's interpretation of the CWA as requiring water quality-based effluent limits for MS4s when necessary to protect water quality. Commenters asserted that CWA 402(p)(3)(B), which addresses permit requirements for municipal discharges, limits the scope of municipal program requirements to an effective prohibition on non-storm water discharges to a separate storm sewer and to controls which reduce pollutants to the "maximum extent practicable, including management practices, control techniques and system design and engineering methods." They asserted that the final rule should clarify that neither numeric nor narrative water quality-based limits are appropriate or authorized for MS4s.

EPA disagrees that section 402(p)(3) divests permitting authorities of the tools necessary to issue permits to meet water quality standards. Section 402(p)(3)(B)(iii) specifically preserves the authority for EPA or the State to include other

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provisions determined appropriate to reduce pollutants in order to protect water quality. Defenders of Wildlife, slip op. at 11688. Small MS4s regulated under today's rule are designated under CWA 402(p)(6) "to protect water quality."

Commenters argued that water quality standards, particularly numeric criteria, were not designed to address storm water discharges. The episodic nature and magnitude of storm water events, they argue, make it impossible to apply the "end of pipe" compliance assessment approach, for example, in the development of water quality based effluent limits.

EPA's disagrees with the commenters arguments about the inability of water quality criteria to address high flow conditions. Today's final rule does, however, address the concern that numeric effluent limits will necessitate end of pipe treatment and the need to provide a workable alternative.

Today's rule was developed under the approach outlined in the Interim Permitting Policy for Water Quality-Based Effluent Limitations in Storm Water Permits, issued on August 1, 1996. 61 FR 43761 (November 26, 1996) (the "Interim Permitting Policy"). EPA intends to issue NPDES permits consistent with the Interim Permitting Policy, which provides as follows:

In response to recent questions regarding the type of water quality-based effluent limitations that are most appropriate for NPDES storm water permits, EPA is adopting an interim permitting approach for regulating wet weather storm water discharges. Due to the nature of storm water discharges, and the typical lack of information on which to base numeric water quality-based effluent limitations (expressed as concentration and mass), EPA will use an interim permitting approach for NPDES storm water permits.

"The interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate. This interim permitting approach is not intended to affect those storm water permits that already include appropriately derived numeric water quality-based effluent limitations. Since the interim permitting approach only addresses water quality-based effluent limitations, it also does not affect technology-based effluent limitations, such as those based on effluent limitations guidelines or developed using best professional judgment, that are incorporated into storm water permits.

"Each storm water permit should include a coordinated and cost-effective monitoring program to gather necessary information to determine the extent to which the permit provides for attainment of applicable water quality standards and to determine the appropriate conditions or limitations of subsequent permits. Such a monitoring program may include ambient monitoring, receiving water assessment, discharge monitoring (as needed), or a combination of monitoring procedures designed to gather necessary information.

"This interim permitting approach applies only to EPA; however, EPA also encourages authorized States and Tribes to adopt similar policies for storm water permits. This interim permitting approach provides time, where necessary, to more fully assess the range of issues and possible options for the control of storm water discharges for the protection of water quality. This interim permitting approach may be modified as a result of the ongoing Urban Wet Weather Flows Federal Advisory Committee policy dialogue on this subject."

One commenter challenged the Interim Permitting Policy on a procedural basis, arguing that it was published without opportunity for public notice and comment. In response, EPA notes that the Policy was included verbatim and made available for public comment in the proposal to today's final rule. Prior to that proposal, the Agency defended the application of the Policy on a case-by-case basis in individual permit proceedings. Moreover, the essential elements of the Policy—that narrative effluent limitations are the most appropriate form of effluent limitations for storm water

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dischargers from municipal sources—was inherent in §122.34(a) of the proposed rule, and was the subject of extensive public comment. In any event, the Policy does not constitute a binding obligation. It is policy, not regulation.

Consistent with the recognition of data needs underlying the Policy, EPA will evaluate the small MS4 storm water regulations after the second round of permit issuance. Section 122.34(e)(2) of today's rule expressly provides that for the interim ten-year period, "EPA strongly recommends that until the evaluation of the storm water program in §122.37, no additional requirements beyond the minimum control measures be imposed on regulated small MS4s without the agreement of the operator of the affected small MS4, except where an approved TMDL or equivalent analysis provides adequate information to develop more specific measures to protect water quality." This approach addresses the concern for protecting water resources from the threat posed by storm water discharges with the important qualification that there must be adequate information on the watershed or a specific site as a basis for requiring tailored storm water controls beyond the minimum control measures. As indicated, the Interim Permitting Policy has several important limitations—it does not apply to technology-based controls or to sources that already have numeric end of pipe effluent limitations. EPA encourages authorized States and Tribes to adopt policies similar to the Interim Permitting Policy when developing storm water discharge programs. For a discussion of appropriate monitoring activities, see Section H.3.d., Evaluation and Assessment.

Where a water quality analysis indicates there is a need and basis for deriving water quality-based effluent limits in NPDES permits for storm water discharges regulated under today's rule, EPA believes that most of these cases would be satisfied by narrative effluent ***68789** limitations that require the implementation of BMPs. NPDES permit limits will in most cases continue to be based on the specific approach outlined in today's rule for the implementation of BMPs as the most appropriate form of effluent limitation to satisfy technology and water quality-based requirements. See §122.34(a). For storm water management plans with existing BMPs, this may require further tailoring of BMPs to address the pollutant(s) of concern, the nature of the discharge and the receiving water. If the permitting authority determines that, through implementation of appropriate BMPs required by the NPDES storm water permit, the discharge has the necessary controls to provide for attainment of water quality standards, additional controls are not needed in the permit. Conversely, if a discharger (MS4, industrial or construction) fails to adopt and implement adequate BMPs, the permittee and/or the permitting authority should consider a different mix of BMPs or more specific conditions to ensure water quality protection.

Some commenters observed that there was no evidence from the experience of storm water dischargers regulated under the existing NPDES storm water program, or from studies or reports that allegedly support EPA's position, that implementation of BMPs to satisfy the six minimum control measures would meet applicable water quality standards for a regulated small MS4. In response, EPA acknowledges that the six minimum measures are intended to implement the statutory requirement to control discharges to the maximum extent practicable, and they may not result in the attainment of water quality standards in all cases. The control measures do, however, focus on and address well-documented threats to water quality associated with storm water discharges. Based on the collective expertise of the FACA Sub-committee, EPA believes that implementation of the six minimum measures will, for most regulated small MS4s, be adequate to protect water quality, and for other regulated small MS4s will substantially reduce the adverse impacts of their discharges on water quality.

Some commenters asserted that analyses of existing water quality criteria suggest that numeric criteria for aquatic life may be overprotective if applied to storm water discharges. These comments maintained that an approach that prohibits exceedance of applicable water quality criteria is unworkable. Various commenters recommended wet weather specific criteria, variances to the criteria during wet weather events, and seasonal designated uses. Other commenters noted that water quality-based effluent limits in NPDES permits have traditionally been developed based on dry weather flow conditions (e.g., assuming critical low-flow conditions in the receiving water to ensure protection of aquatic life and human health). Wet weather discharges, however, typically occur under high-flow conditions in the receiving water. Assumptions regarding mass balance equations and size of mixing zones may also not be pertinent during wet weather.

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EPA acknowledges the need to devise a regulatory program that is both flexible enough to accommodate the episodic nature, variability and volume of wet weather discharges and prescriptive enough to ensure protection of the water resource. EPA believes that wet weather discharges can be adequately addressed in the existing regulations through refining designated uses and assigning criteria that are tailored to the level of water quality protection described by the refined designated use.

EPA believes that lack of precision in assigning designated uses and corresponding criteria by States and Tribes, in many cases may result in application of water quality criteria that may not appropriately match the intended condition of the water body. States and Tribes have frequently designated uses without regard to site-specific wet weather conditions. Because certain uses (swimming, for example) might not exist during high-intensity storm events or in the winter, States may factor such climatic conditions and seasonal uses into their use designations with appropriate analyses. This would acknowledge that a lower level of control, at lower compliance cost, would be appropriate to protect that use. Before modifying any designated use, however, States would need to evaluate the effect of less stringent water quality criteria on protecting other uses, including any threatened or endangered species, drinking water supplies and downstream uses. EPA will further evaluate these issues in the context of the Water Quality Standards Regulation, Advance Notice of Proposed Rule Making (ANPRM), 63 FR, 36742, July 7, 1998.

One of the major themes presented by EPA in the ANPRM is that refinement in use designations and tailoring of water quality criteria to match refined use designations is an important future direction of the water quality standards program. In assigning criteria to protect general use classifications, a State or Tribe must ensure that the criteria are sufficiently protective to safeguard the full range of waters of the State, i.e., criteria would be based on the most sensitive use. This approach has been disputed, especially for aquatic life uses, where evidence suggests that the general use criteria will require controls more stringent than needed to protect the existing or potential aquatic life community for a specific water body. EPA recognizes that there is a growing need to more precisely tailor use descriptions and criteria to match site-specific conditions, ensuring that uses and criteria provide an appropriate level of protection, which, to the extent possible, are not overprotective. EPA is engaged in an ongoing evaluation of its regulations in this area through the ANPRM effort. At the same time, EPA continues to encourage States and Tribes to review the applicability of the designated uses and associated criteria using existing provisions in the water quality standards regulation.

2. Total Maximum Daily Loads and Analysis To Determine the Need for Water Quality-Based Limitations

The development and implementation of total maximum daily loads (TMDLs) provide a link between water quality standards and effluent limitations. CWA section 303(d) requires States to develop TMDLs to provide more stringent water quality-based controls when technology-based controls are inadequate to achieve applicable water quality standards. A TMDL is the sum of the individual wasteload allocations for point sources and load allocations for nonpoint sources, with consideration for natural background conditions. A TMDL quantifies the maximum allowable loading of a pollutant to a water body and allocates this maximum load to contributing point and nonpoint sources so that water quality criteria will not be exceeded and designated uses will be protected. A TMDL also includes a margin of safety to account for uncertainty about the relationship between pollutant loads and water quality.

Today's final rule refers to TMDLs in several provisions. For the purpose of today's rule, EPA relies on the component of the TMDL that evaluates existing conditions and allocates loads. For discharges to waters that are not impaired and for which a TMDL has not been developed, today's rule also refers to an "equivalent analysis." The discussion that follows uses the term "TMDL" for both.

Under revised §122.26(a)(9)(i)(C), the permitting authority may designate ***68790** storm water discharges that require NPDES permits based on TMDLs that address the pollutants of concern. For storm water discharges associated with small construction activity, §122.26(b)(15)(i)(B) provides a waiver provision where it may be determined that storm water controls are not needed based on TMDLs that address sediment and any other pollutants of concern. The NPDES

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permitting authority may waive requirements under the program for certain small MS4s within urbanized areas serving less than 1,000 persons provided that, if the small MS4 discharges any pollutant that has been identified as a cause of impairment of a water body into which it discharges, the discharge is in compliance with a wasteload allocation in a TMDL for the pollutant of concern. The permitting authority may also waive requirements for MS4s in urbanized areas serving between 1,000 and 10,000 persons, if the permitting authority determines that storm water controls are not needed, as provided in §123.35(d)(2). See §122.32(c).

Under CWA section 303(d), States identify which of their water bodies need TMDLs and rank them in order of priority. Generally, once a TMDL has been completed for one or more pollutants in a water body, a wasteload allocation for each point source discharging the pollutant(s) is implemented as an enforceable condition in the NPDES permit. Regulated small MS4s are essentially like other point source discharges for purposes of the TMDL process.

A TMDL and the resulting wasteload allocations for pollutant(s) of concern in a water body may not be available because the water body is not on the State's 303(d) list, the TMDL has not yet been completed, or the TMDL did not include specific pollutants of concern. In these cases, the permitting authority must determine whether point sources discharge pollutant(s) in amounts that cause, have the reasonable potential to cause, or contribute to excursions above State water quality standards, including narrative water quality criteria. This so-called “reasonable potential” analysis is intended to determine whether and for what pollutants water quality based effluent limits are required. The analysis is, in effect, a substitute for a similar determination that would be made as part of a TMDL, where necessary. When “reasonable potential” exists, regulations at §122.44(d) require a water quality-based effluent limit for the pollutant(s) of concern in NPDES permits. The water quality-based effluent limits may be narrative requirements to implement BMPs or, where necessary, may be numeric pollutant effluent limitations.

Commenters, generally from the regulated community, objected that, due to references to the need to develop a program “to protect water quality” and to additional NPDES permit requirements beyond the minimum control measures based on TMDLs or their equivalent, regulated small MS4s will be subject to uncertain permit limitations beyond the six minimum control measures. Commenters also asserted that through the imposition of a wasteload allocation under a TMDL in impaired water bodies, there is a likelihood that unattainable, yet enforceable narrative and numeric standards will be imposed on regulated small MS4s.

As is discussed in the preceding section, NPDES permits must include any more stringent limitations when necessary to meet water quality standards. However, even if a regulated small MS4 is subject to water quality based effluent limits, such limits may be in the form of narrative effluent limitations that require the implementation of BMPs. As discussed earlier, EPA has adopted the Interim Permitting Policy and incorporated it in the development of today's rule to recognize the appropriateness of BMP-based limits developed on a case-by-case basis.

EPA formed a Federal Advisory Committee to provide advice to EPA on identifying water quality-limited water bodies, establishing TMDLs for them as appropriate, and developing appropriate watershed protection programs for these impaired waters in accordance with CWA section 303(d). Operating under the auspices of the National Advisory Council for Environmental Policy and Technology (NACEPT), the committee produced its Report of the Federal Advisory Committee on the Total Maximum Daily Load (TMDL) Program (July 1998). EPA recently published a proposed rule to implement the Report's recommendations (64 FR 46012, August 23, 1999).

3. Anti-Backsliding

In general, the term “anti-backsliding” refers to statutory provisions at CWA sections 303(d)(4) and 402(o) and regulatory provisions at 40 CFR 122.44(l). These provisions prohibit the renewal, reissuance, or modification of an existing NPDES permit that contain effluent limits, permit terms, limitations and conditions, or standards that are less stringent than those established in the previous permit. There are also exceptions to this prohibition known as “antibacksliding exceptions.”

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The issue of backsliding from prior permit limits, standards, or conditions is not expected to initially apply to most storm water dischargers designated under today's proposal because they generally have not been previously authorized by an NPDES permit. However, the backsliding prohibition would apply if a storm water discharge was previously covered under another NPDES permit. Also, the backsliding prohibition could apply when an NPDES storm water permit is reissued, renewed, or modified. In most cases, however, EPA does not believe that these provisions would restrict revisions to storm water NPDES permits.

One commenter questioned whether, if BMPs implemented by a regulated small MS4 operator fail to produce results in removal of pollutants and the permittee attempts to substitute a more effective BMP, the small MS4 operator could be accused of violating the anti-backsliding provisions and also be exposed to citizen lawsuits. In response, EPA notes that in such circumstances the MS4's permit has not changed and, therefore, the prohibition against backsliding is not applicable. Further, any change in the mix of BMPs that was intended to be more effective at controlling pollutants would not be considered backsliding, even if it did not include all of the previously implemented BMPs.

4. Water Quality-Based Waivers and Designations

Several sections of today's final rule refer to water quality standards in identifying those storm water discharges that are and are not required to be permitted under today's rule. As noted in §122.30 of today's rule, CWA section 402(p)(6) requires the designation of municipal storm water sources that need to be regulated to protect water quality and the establishment of a comprehensive storm water program to regulate these sources. Requirements applicable to certain municipal sources may be waived based on the absence of demonstrable water quality impacts. Section 122.32(c). The section 402(p)(6) mandate to protect water quality also provides the basis for regulating discharges associated with small construction. See also §122.26(b)(15)(i). Further, today's rule carries forward the existing authority for the permitting authority to designate sources of storm water discharges based upon water quality considerations. Section 122.26(a)(9)(i)(C) and (D).

As is discussed above in sections II.H.2.e (for small MS4s) and II.I.1.b.ii ***68791** (for small construction), the requirements of today's rule may be waived based on wasteload allocations that are part of "total maximum daily loads" (TMDLs) that address the pollutants of concern or, in the case of small construction and municipalities serving between 1,000 and 10,000 persons, the equivalents of TMDLs. One commenter stated that waivers would allow exemptions to the technology based requirements and would thus be inconsistent with the two-fold approach of the CWA (a technology based minimum and a water quality based overlay). EPA acknowledges that waivers are not allowed for other technology-based requirements under the CWA. A more flexible approach is allowed, however, for sources designated for regulation under 402(p)(6) to protect water quality. For such sources EPA may allow a waiver where it is demonstrated that an individual source does not present the threat to water quality that was the basis for EPA's designation.

III. Cost-Benefit Analysis

EPA has determined that the range of the rule's benefits exceeds the range of regulatory costs. The estimated rule costs range from $847.6 million to $981.3 million annually with corresponding estimated monetized annual benefits which range from $671.5 million to $1.628 billion, expected to exceed costs.

The rule's cost and benefit estimates are based on an annual comparison of costs and benefits for a representative year (1998) in which the rule is implemented. This differs from the approach used for the proposed rule which projected cost and benefits over three permit terms. EPA has chosen to use the current approach because it determined that the ratio of annual benefits and costs would not change significantly over time. Moreover, because there is not an initial outlay of capital costs with benefits accruing in the future (i.e., benefits and costs are almost immediately at a steady state), it is not necessary to discount costs in order to account for a time differential.

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EPA developed detailed estimates of the costs and benefits of complying with each of the incremental requirements imposed by the rule. The Agency used two approaches, a national water quality model and national water quality assessment, to estimate the potential benefits of the rule. Both approaches show that the benefits are likely to exceed costs.

These estimates, including descriptions of the methodology and assumptions used, are described in detail in the Economic Analysis of the Final Phase II Rule, which is included in the record of this rule making. Exhibit 3 summarizes costs and benefits associated with the basic elements of today's rule.

Exhibit 3.—Comparison of Annual Compliance Cost and Benefit Estimates [1]

Monetized benefits	National water quality model (millions of 1998 dollars)	National water quality assessment (millions of 1998 dollars)
Municipal Minimum Measures	.....	$131.0-$410.2
Controls for Construction Sites	.....	$540.5-$686.0
Total Annual Benefits	$1,628.5	$671.5-$1,096.2

Costs	Millions of 1998 dollars [2]
Municipal Minimum Measures	$297.3
Controls/Waivers for Construction Sites	$545.0-$678.7
Federal/State Administrative Costs	$5.3
Total Annual Costs	$847.6-$981.31

A. Costs

1. Municipal Costs

Initially, to determine municipal costs for the proposed rule, EPA used anticipated expenditure data included in permit applications from a sample of 21 Phase I MS4s. Certain commenters criticized the Agency for using anticipated expenditures because they could be significantly different from the actual expenditures. These commenters suggested that the Agency use the actual cost incurred by the Phase I MS4s. Other comments stated that because the Phase I MS4s, in general, are large municipalities, they may not be representative of the Phase II MS4s for estimating regulatory costs. Finally, one commenter noted that the sample of 21 municipalities used to project cost was relatively small.

To address the concerns of the commenters, EPA utilized a National Association of Flood and Stormwater Management Agencies (NAFSMA) survey of the Phase II community to obtain incremental cost estimates for Phase II municipalities. Using the list of potential Phase II designees published in the Federal Register (63 FR 1616), NAFSMA contacted more than 1,600 jurisdictions. The goal of the survey was to solicit information from those communities about the proposed Phase II NPDES storm water program. Several of the survey questions corresponded directly to the minimum measures required by the Phase II rule. One hundred twenty-one surveys were returned to NAFSMA and were used to develop municipal costs.

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Using the NAFSMA information, EPA estimated average annual per household program costs for automatically designated municipalities. EPA also estimated an average annual per household administrative cost for municipalities to address application, record keeping, and reporting requirements of the Rule. The total average per household cost of the rule is expected to $9.16 per household.

To determine potential national level costs for municipalities, EPA multiplied the number of households (32.5 million) by the per household cost ($9.16). EPA estimates the annual cost of the Phase II municipal program at $298 million.

As an alternative method, and point of comparison, to the NAFSMA-based approach, EPA reviewed actual expenditures reported from 35 Phase I MS4s. The Agency targeted these 35 Phase I MS4s because they had participated in the NPDES program for ***68792** nearly one permit term, were smaller in size and had detailed data reflecting their actual program implementation costs. Of the 35 MS4s, appropriate cost data was only available for 26 of those MS4s. EPA analyzed the expenditure data and identified the relevant expenditures, excluding costs presented in the annual reports unrelated to the requirements of the Rule. The cost range and annual per household program costs of $9.08 are similar to those found using the NAFSMA survey data.

2. Construction Costs

In order to estimate the rule's construction-related cost on a national level (the soil and erosion controls (SEC) requirements of the rule and the potential impacts of the post-construction municipal measure on construction), EPA estimated a per site cost for sites of one, three, and five acres and multiplied these costs by the total number of estimated Phase II construction starts across these size categories.

To estimate the percentage of starts subject to the soil and erosion control requirements between 1 and 5 acres, with respect to each category of building permits (residential, commercial, etc.), EPA initially used data from Prince George's County (PGC), Maryland, and applied these percentages to national totals. In the proposal, EPA recognized that the PGC data may not be representative of the entire country and requested data that could be used to develop better estimates of the number of construction sites between 1 and 5 acres. EPA did not receive any substantiated national data from commenters.

In view of the unavailability of national data from commenters, EPA made extensive efforts to collect construction site data around the country. The Agency contacted more than 75 municipalities. EPA determined that 14 of the contacted municipalities had useable construction site data. Using data from these 14 municipalities, EPA developed an estimate of the percentage of construction starts on one to five acres. EPA then multiplied this percentage by the number of building permits issued nationwide to determine the total number of construction starts occurring on one to five acres. Finally, to isolate the number of construction starts incrementally regulated by Phase II, EPA subtracted the number of activities regulated under equivalent programs (e.g., areas covered by the Coastal Zone Act Reauthorization Amendments of 1990, and areas covered by equivalent State level soil and erosion control requirements). Ultimately, EPA estimated that 110,223 construction starts would be incrementally covered by the rule annually.

EPA then used standard cost estimates from Building Construction Cost Data and Site Work Landscape Cost Data (R.S. Means, 1997a and 1997b) to estimate construction BMP costs for 27 model sites in a variety of typical site conditions across the United States. The model sites included three different site sizes (one, three and five acres), three slope variations (3%, 7%, and 12%), and three soil erosivity conditions (low, medium, and high). EPA chose BMP combinations appropriate to the model site conditions. Based on the assumption that any combination of site factors is equally likely to occur in a given site, EPA developed average cost of sediment and erosion control for all model sites. EPA estimated that, on average, BMPs for a 1 acre site will cost $1,206, for a 3 acre site $4,598 and for a 5 acre site $8,709.

EPA then estimated administrative costs per construction site for the following elements required under the rule: Submittal of a notice of intent for permit coverage; notification to municipalities; development of a storm water

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pollution prevention plan; record retention; and submittal of a notice of termination. EPA estimated the average total administrative cost per site to be $937.

EPA also considered the cost implications of NPDES permit authorities waiving the applicability of requirements to storm water discharges from small construction sites based on two different criteria involving water quality impact and low rainfall. EPA received comments stating that a waiver would require a significant investment in training or acquisition of a consultant. Based on comments received, EPA eliminated one of the waiver conditions involving low soil loss threshold because it necessitated use of the Revised Universal Soil Loss Equation which could require extensive technical expertise.

Based on the opinions of construction industry experts, EPA estimates that 15 percent of the construction sites that would otherwise be covered by today's rule will be eligible to receive waivers. Therefore, the Agency has excluded 15 percent of the construction sites when deriving costs of sediment and erosion control. The average cost for sites to qualify for the waiver is expected to be $34 per site. The construction cost analysis for the proposed rule did not include any costs for the preparation and submission of waiver applications because EPA believed those costs would be negligible. However, in response to public comments, EPA has estimated these potential costs.

EPA has also estimated the potential costs for construction site operators to implement the post-construction minimum measure. These are costs that may be incurred by construction site operators if the MS4 chooses to meet the post-construction minimum measure by requiring on-site structural, site-by-site control of post-construction runoff. Municipalities may select from an array of structural and non-structural options in implementing this measure, so the potential costs to construction operators is uncertain. Nonetheless, EPA developed average annual BMP costs for sites of one, three, five and seven acres. EPA's analysis accounted for varying levels of imperviousness that characterize residential, commercial, and institutional land uses. Nationwide, these costs are expected to range from $44 million to $178 million annually.

Finally, to establish national incremental annual costs for Phase II construction starts, EPA multiplied the total costs of compliance for the chosen site size categories by the total number of Phase II construction starts and added post-construction costs. EPA estimates the annual compliance cost to range from $545 million to $678.7 million.

B. Quantitative Benefits

In the Economic Analysis for the proposed rule, a “top-down” approach was used to estimate economic benefits. Under this approach, the combined economic benefits for wet weather programs were estimated first, and then were divided among various water programs on the basis of expert opinion. As a result, the benefits estimates for an individual program were rather uncertain. Moreover, this approach was inconsistent with the approach used to estimate the cost of the proposed storm water rule, which was developed using municipal-based and cost-based data to develop “bottom-up” costs. Therefore, EPA decided to use a “bottom-up” approach for estimating benefits of the Phase II rule. To adequately reflect the quantifiable benefits of the rule, EPA used two different methods: (1) National Water Quality Model and (2) National Water Quality Assessment.

To monetize benefits in both approaches, the Agency applied Carson and Mitchell's (1993) estimates of household willingness-to-pay (WTP) for water quality improvement to estimates of waters impaired by storm water discharges. Carson and Mitchell's 1993 study reports the results of their 1983 national survey of WTP for incremental ***68793** improvements in fresh water quality. Carson and Mitchell estimate the WTP for three minimum levels of fresh water quality: boatable, fishable, and sizable. EPA adjusted the WTP amounts to account for inflation, growth in real per capita income, and increased attitudes towards pollution control. The adjusted WTP amounts for improvements in fresh water quality are $210 for boatable, $158 for fishable, and $177 for sizable. A brief summary of the national water quality model and national water quality assessment approaches follow.

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1. National Water Quality Model

One approach EPA used to estimate the benefits of the Phase II municipal and construction site controls was the National Water Pollution Control Assessment Model (NWPCAM). NWPCAM estimates benefits of the storm water program at the national level, including the impact on small streams. This model estimates water quality and the resultant use support for the 632,000 miles of rivers and streams in the USEPA Reach File Version 1 (RF1), which covers the continental United States. The model analyzes water quality changes by stream reach. The parameters modeled in the NWPCAM are biological oxygen demand (BOD), total suspended solids (TSS), dissolved oxygen (DO), and fecal coliforms (FC).

The model projects changes in water quality due to the Phase II municipal and construction site controls. To calculate the economic benefits of change in water quality, the number of households in the proximity of the stream reach are determined, by overlaying the model results on the 1990 Census of Populated Places and Minor Civil Divisions, and updating the population to 1998. Economic benefits are calculated using the Carson and Mitchell WTP values. The benefits are separately estimated for local and non-local waters on the basis of WTP values and proximity to water quality changes.

The value of the change in use support for local waters is greater than the value of the non-local waters because of the opportunity to use local waters by the local population. This model assumes that if improvement occurs in waters that are not close to population centers the economic value is lower. Therefore, benefits are estimated for local and non-local waters separately. This assumption is based on Carson and Mitchell's survey which asked respondents to apportion each of their stated WTP values between achieving the water quality goals in their own State and achieving those goals in the nation as a whole. On average, respondents allocated 67% of their values to achieving in-State water quality goals and the remainder to the nation as a whole. Carson and Mitchell argue that for valuing local water quality changes 67% is a reasonable upper bound for the local multiplier and 33% for the non-local water quality changes. For the purposes of this analysis, the locality is defined as urban sites and associated populations linked into the NWPCAM framework. Using this methodology, the total monetized benefits of Phase II control of urban and construction site runoff is estimated to be $1.628 billion per year. The local and non-local benefits due to Phase II controls are presented in Exhibit 4.

Exhibit 4.—Local and Non-local Benefits Estimates Due to Phase II Controls National Water Quality Model Estimate

Use support	Local benefits ($million/yr)	Non-local benefits [1] ($million/yr)	Total benefits ($million/yr)
Swimming, Fishing, and Boating	306.20	60.60	366.80
Fishing and Boating	395.10	51.90	447.00
Boating	700.10	114.60	814.70
Total	1401.40	227.10	1628.50

While the numbers of miles that are estimated to change their use support are small, the benefits estimates are quite significant. This is because urban runoff and, to a large extent, construction activity occurs where the people actually reside and the water quality changes mostly occur close to these population centers. NWPCAM indicates that changes in pollution loads have the most effect immediately downstream of pollution changes. As a result, the aggregate WTP is large because large numbers of households in these population centers are associated with the local waters that reflect improvement in designated use support.

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2. National Water Quality Assessment

EPA also estimated benefits of the Phase II Storm Water program using the 1998 National Water Quality Inventory (305(b)) Report to Congress, rather than the NWPCAM as a basis for estimating impairment addressed by the rule. The Water Quality Assessment method separately estimates benefits associated with improvements to fresh water, marine water and construction site controls, and then aggregates these separate categories into an estimate of total annual benefits.

a. Municipal Measures

i. Fresh Waters Benefits

In order to develop estimates for the potential value of the municipal measures (except storm water runoff controls for construction sites), EPA applied Carson & Mitchell WTP values to estimated existing and projected future fresh water impairment. Carson & Mitchell did not evaluate marine waters, so only fresh water values were available from their research. Even though the Carson and Mitchell estimates apply to all fresh water, it is not clear how these values would be apportioned among rivers, lakes, and the Great Lakes. The 305(b) data indicate that lakes are the most impaired by urban runoff/storm sewers, followed closely by the Great Lakes, and then rivers. Therefore, EPA applied the WTP values to the categories separately and assumed that the higher resulting value for lakes represents the high end of the range (i.e., assuming that lake impairment is more indicative of national fresh water impairment) and that the lower resulting value for impaired rivers represents the low end of a value range for all fresh waters (i.e., assuming that river impairment is more indicative of national fresh water impairment). In addition, EPA estimated that the post-construction runoff ***68794** requirements of the municipal program might result in benefits of at least $16.8 million annually from avoided future runoff. The post-construction estimate significantly underestimates potential program benefits because it does not account for avoided hydrologic changes and resulting water quality impairment associated with increases in imperviousness from development and redevelopment. Summing the benefits across the water quality use support levels yields an estimate of benefits ranging from approximately $121.9 million to $378.2 million per year.

ii. Marine Waters Benefits

In addition to the fresh water benefits captured by the Carson and Mitchell study, EPA anticipates benefits as a result of improvements to marine waters. Sufficient methods have not been developed to quantify national-level benefits for commercial or recreational fishing. EPA used beach closure data and visitation estimates from its Beach Watch Program to estimate potential reductions in marine swimming visits due to storm water runoff contamination events in 1997. The estimated 86,100 trips that did not occur because of beach closures in coastal Phase II communities is a lower bound because it represents only those beaches that report both closures and visitation data. EPA estimates potential swimming benefits from the rule to be at least $2.1 million annually.

EPA developed an analysis of potential benefits associated with avoided health impacts from exposure to contaminants in storm sewer effluent. Based on a study of incremental illnesses found among people who swam within one yard of storm drains in Santa Monica Bay, EPA estimated a range of incremental illnesses (Haile et al., 1996). Depending on assumptions made about number of exposures to contaminants and contaminant concentrations, benefits ranged from $7.0 million to $29.9 million annually.

b. Construction Benefits

The major pollutant resulting from construction activities is sediment. However, in addition to sediment, construction activities also yield pollutants such as pesticides, petroleum products, and solvents. Because circumstances will vary considerably from site to site, data is not available with which to develop estimates of benefits for each site and aggregate to obtain a national-level estimate.

In the proposed rule, EPA estimated the combined benefits of all wet weather programs, and then used expert opinions to allocate them to different individual programs. To eliminate the possible overlap between the benefits of the soil and erosion control requirements, municipal measures, and other wet weather storm water programs, EPA chose to use an approach in today's final rule that directly estimates the benefits of soil and erosion requirements.

A survey of North Carolina residents (Paterson et al., 1993) indicated that households are willing to pay for erosion and sediment controls similar to those in today's rule. Based on income and other indicators, the values derived from the study are expected to be similar to values held in the rest of the country. Using the mean value of the willingness to pay of $25 per household, EPA projects annual benefits of the soil and erosion requirements to range from $540.5-$686 million.

c. Summary of Benefits From the National Water Quality Assessment

Total benefits from municipal measures and construction site controls are expected to range from $671.5 million to $1.1 billion per year, including benefits of approximately $13.7 million per year associated with small stream improvements. A summary of the potential benefits is presented in Exhibit 5.

As shown in Exhibit 5, it was not possible to monetize all categories of benefits using the WTP estimates. In particular, benefits for improving marine water quality such as fishing and passive use benefits are not included in the values used to estimate the potential benefits of the municipal minimum measures (excluding construction sites controls), and they are not estimated separately, because information is not currently available.

Exhibit 5.—Potential Annual Benefits of the Phase II Storm Water Rule National Water Quality Assessment Estimate

Benefit category	Annual WTP
Municipal Minimum Measures [1]	
Fresh Water Use and Passive Use [2]	$121.9-$378.2
Marine Recreational Swimming	$2.1
Human Health (Marine Waters)	$7.0-$29.9
Other Marine Use and Passive Use	+
Erosion and Sediment Controls for Construction Sites	
Fresh Water and Marine Use and Passive Use [3]	$540.5-$686
Total Phase II Program	
Total Use & Passive Use (Fresh Water and Marine)	>$671.5->$1,096.2

C. Qualitative Benefits

There are additional benefits to storm water control that cannot be quantified or monetized. Thus, the current estimate of monetized benefits may understate the true value of storm water controls because it omits many ways in which society is likely to benefit from reduced storm water pollution, such as improved ***68795** aesthetic quality of waters, benefits to wildlife and to threatened and endangered species, cultural values, and biodiversity benefits.

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A benefit that EPA did not monetize completely is the flood control benefits attributable to municipal storm water controls reducing downstream flooding, although flood control benefits associated with sediment and erosion control are already reflected to some extent in the construction benefits. Similarly, the Agency could not value the benefits from increased property value due to storm water controls reflected in the rule, even though a commenter suggested inclusion of these benefits in the estimates.

Moreover, while a number of commenters requested that EPA include ecological benefits, the Agency was not able to fully monetize these benefits. Urbanization usually increases the amount of sediment, nutrients, metals and other pollutants associated with land disturbance and development. Development usually not only results in a dramatic increase in the volume of water runoff, but also in a substantial decrease in that water's quality due to stream scour, runoff and dispersion of toxic pollutants, and oversiltation. These kinds of secondary benefits could not be fully reflected in the monetized benefits. EPA was able to only monetize the aquatic life support benefits for waters assumed to be impaired. Thus, only the aquatic life support benefits attributable to municipal controls, reflected through human satisfaction, are taken into account.

Reduced nutrient level is another benefit of the storm water control which is not fully captured by the economic analysis. High nutrient levels often lead to eutrophication of the aquatic system. The quality change in ecological sources as the result of storm water controls to reduce pollutants is not fully reflected in the present benefits.

D. National Economic Impact

Finally, the Agency determined that the rule will have minimal impacts on the economy or employment. This is because the final rule regulates small MS4s and construction sites under 5 acres, not the typical industrial plants or other non-construction activities that could directly impact production and thus those sectors of the economy.

Discussions with representatives within the construction industry indicate that construction costs will likely be passed on to buyers, thus not seriously affecting the housing industry directly. One commenter argued that the rule will have a negative employment effect because the builders will build fewer homes requiring less building materials as a result of the declining demand induced by the cost of the soil and erosion controls. EPA disagrees with this argument because the cost of the controls, as the percentage of the price of a median home, is negligible and will be passed on to final buyers.

Flexibility within the rule allows MS4s to tailor the storm water program requirements to their needs and financial position, minimizing impacts. For sedimentation and erosion controls on construction sites, the rule contemplates application of commonly used BMPs to reduce costs for the construction industry. Thus, the rule attempts to use existing practices to prevent pollution, which should minimize impacts on States, Tribes, municipalities and the construction industry.

Thus, EPA concludes that the effect of the rule, if any, on the national economy will be minimal. The benefits of today's rule more than offset any cost impacts on the national economy.

IV. Regulatory Requirements

A. Paperwork Reduction Act

The Office of Management and Budget (OMB) has approved some of the information collection requirements contained in this final rule (i.e. those found in 40 CFR 122.26(g) and 123.35(b)) under the provisions of the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. and has assigned OMB control number 2040-0211.

The burden and costs described below are for the information collection, reporting, and record keeping requirements for the three year period beginning with the effective date of today's rule. Additional information collection requirements

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for regulated small MS4s and small construction sites will occur after this initial three year period and will be counted in a subsequent information collection requirement. The total burden of the information collection requirements for the first three years of this rule is estimated at 56,369 hours with a corresponding cost of $2,151,305 million annually. This burden and cost is for industrial facilities to complete and submit the no exposure certification, for NPDES-authorized States to process and review the no exposure certification, and for the NPDES-authorized States to develop designation criteria and assess additional MS4s outside of urbanized areas. Compliance with the applicable information collection requirements imposed under this rule are mandatory, pursuant to CWA section 402.

Exhibit 6 presents average annual burden and cost estimates for Phase II respondents for the first three years. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust existing ways for complying with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

Exhibit 6.—Average Annual Burden and Cost Estimates for Phase II Respondents

Information collection activity	A	B	(A)x(B)=C	D	(C)x(D)=E
	Respondents per year (projected) [1]	Burden hours per respondent per year (predicted)	Annual respondent burden hours (projected)	Respondent labor cost ($/hr) (1998 $)	Annual Cost ($) (projected)
Ind. No Expos. Facilities: [2]					
No Expos. Certification	36,377	1.0	36,377	44.35	1,613,320
Annual Subtotal			36,377		1,613,320
NPDES-Authorized States: [3]					
Designation of Addit. MS4s [4]	15	332.8	4,892	26.91	131,644
No Exp. Cert. Proc. & Rev	30,200	0.5	15,100	26.91	406,341
Annual Subtotal			19,992		537,985
Annual Totals			56,369		2,151,305

***68796** Given the requirements of today's regulation, EPA believes there will be no capital startup and no operation and maintenance costs associated with information collection requirements of the rule.

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The government burden associated with today's rule will impact State, Tribal, and Territorial governments (NPDES-authorized governmental entities) that have storm water program authority, as well as the federal government (i.e., EPA), where it is the NPDES permitting authority. As of March 1999, 43 States and the Virgin Islands had NPDES authority.

The annual burden imposed upon authorized governmental entities (delegated States and the Virgin Islands) and the federal government for the next three years is estimated to be 19,992 hours ($537,985) and 4,087 hours ($115,948) respectively, for a total of 24,079 hours ($653,933). This estimate is based on the average time that governments will expend to carry out the following activities: designate additional MS4s (332.8 hours) and process and review “no exposure” certificates from industrial dischargers (0.5 hour).

Under the existing rule, storm water discharges from light industrial activities identified under §122.26(b)(14)(xi) were exempted from the permit application requirements if they were not exposed to storm water. Today's rule expands the applicability of the “no exposure” exclusion to include all industrial activity regulated under §122.26(b)(14) (except category (x), construction). The “no exposure” provision is applied through the use of a written certification process, thus representing a slight reporting burden increase for “light” industries with “no exposure'.

In addition to the information collection, reporting, and record keeping burden for the next three years, today's rule contains information collection requirements that will not begin until three years or more from the effective date of today's rule. These information collection requirements were not included in the information collection request approved by OMB. EPA will submit these burden estimates for OMB approval when it submits ICR 2040-0211 to OMB for renewal in three years. The rule burdens for regulated small MS4s and small construction sites that will be included in the ICR renewal fall into three areas: application for an NPDES permit or submittal of waiver information, record keeping of storm water management activities, and submittal of reports to the permitting authority. There will also be an additional burden for the permitting authority to review this information.

An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 48 CFR Chapter 15. EPA is amending the table in 40 CFR Part 9 of currently approved ICR control numbers issued by OMB for various regulations to list the first three years of information requirements contained in this final rule.

B. Executive Order 12866

Under Executive Order 12866, [58 FR 51,735 (October 4, 1993)] the Agency must determine whether the regulatory action is “significant” and therefore subject to OMB review and the requirements of the Executive Order. The Order defines “significant regulatory action” as one that is likely to result in a rule that may:

(1) have an annual effect on the economy of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities;

(2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency;

(3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or

(4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

Pursuant to the terms of Executive Order 12866, it has been determined that this rule is a "significant regulatory action". As such, this action was submitted to OMB for review. Changes made in response to OMB suggestions or recommendations will be documented in the public record.

C. Unfunded Mandates Reform Act

Title II of the Unfunded Mandates Reform Act of 1995 (UMRA), Public Law 104-4, establishes requirements for Federal agencies to assess the effects of their regulatory actions on State, local, and tribal governments and the private sector. Under section 202 of the UMRA, EPA generally must prepare a written statement, including a cost-benefit analysis, for proposed and final rules with "Federal mandates" that may result in expenditures to State, local, and tribal governments, in the aggregate, or to the private sector, of $100 million or more in any one year. Before promulgating an EPA rule for which a ***68797** written statement is needed, section 205 of the UMRA generally requires EPA to identify and consider a reasonable number of regulatory alternatives and adopt the least costly, most cost-effective or least burdensome alternative that achieves the objectives of the rule. The provisions of section 205 do not apply when they are inconsistent with applicable law. Moreover, section 205 allows EPA to adopt an alternative other than the least costly, most cost-effective or least burdensome alternative if the Administrator publishes with the final rule an explanation why that alternative was not adopted.

EPA has determined that today's rule contains a Federal mandate that may result in expenditures of $100 million or more in any one year for both State, local, and tribal governments, in the aggregate, and the private sector. Accordingly, EPA has prepared under section 202 of the UMRA a written statement which is summarized below.

1. Summary of UMRA Section 202 Written Statement

EPA promulgates today's storm water regulation pursuant to the specific mandate of Clean Water Act section 402(p)(6), as well as sections 301, 308, 402, and 501. (33 U.S.C. sections 1342(p)(6), 1311, 1318, 1342, 1361.) Section 402(p)(6) of the CWA requires that EPA designate sources to be regulated to protect water quality and establish a comprehensive program to regulate those sources.

In the Economic Analysis of the Final Phase II Rule (EA), EPA describes the qualitative and monetized benefits associated with today's rule and then compares the monetized benefits with the estimated costs for the rule. EPA developed detailed estimates of the costs and benefits of complying with each of the incremental requirements imposed by the rule. These estimates, including descriptions of the methodology and assumptions used, are described in detail in the EA. The Agency used two approaches, a national water quality model and national water quality assessment, to estimate the potential benefits of the rule. Both approaches show that the benefits are likely to exceed costs. Exhibit 3 in section III of this preamble summarizes the costs and benefits associated with the basic elements of today's rule.

There are additional benefits to storm water control that cannot be quantified or monetized. Thus, the current estimate of monetized benefits may understate the true value of storm water controls because it omits many ways by which society is likely to benefit from reduced storm water pollution, such as improved aesthetic quality of waters, benefits to wildlife and to threatened and endangered species, cultural values, and biodiversity benefits.

Several commenters asserted that today's rule is an unfunded mandate and that, without funding, the monitoring of the already existing pollution control programs would suffer. In section II.D.3 of the preamble, EPA lists some of the programs that EPA anticipates may provide funds to help develop and, in limited circumstances, implement storm water management programs.

In the EA, EPA reviewed the expected effect of today's rule on the national economy. The Agency determined that the rule will have minimal impacts on the economy or employment. This is because the final rule regulates small MS4s and

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construction sites under 5 acres, not the typical industrial plants or other non-construction activities that could directly impact production and thus those sectors of the economy.

Discussions with representatives within the construction industry indicate that construction costs will likely be passed on to buyers, thus not seriously affecting the housing industry directly. Flexibility within the rule allows MS4s to tailor the storm water program requirements to their needs and financial position, minimizing impacts. For sedimentation and erosion controls on construction sites, the rule contemplates application of commonly used BMPs to reduce costs for the construction industry. Thus, the rule attempts to use existing practices to prevent pollution, which should minimize impacts on States, Tribes, municipalities and the construction industry.

Thus, EPA concludes that the effect of the rule, if any, on the national economy would be minimal. The benefits of today's rule more than offset any cost impacts on the national economy.

Consistent with the intergovernmental consultation provisions of section 204 of the UMRA and Executive Order 12875, "Enhancing the Intergovernmental Partnership," EPA consulted with the governmental entities affected by this rule.

First, EPA provided States, Tribal and local governments with the opportunity to comment on draft alternative approaches for the proposed rule through publishing a notice requesting information and public comment in the Federal Register on September 9, 1992 (57 FR 41344). This notice presented a full range of regulatory alternatives. At that time, EPA received more than 130 comments, including approximately 43 percent from municipalities and 24 percent from State or Federal agencies. These comments were the genesis of many of the provisions in the today's rule, including reliance on the NPDES program framework (including general permits), providing State and local governments flexibility in selecting additional sources requiring regulation, and focusing on high priority polluters. These comments helped to focus on pollution prevention, watershed-based concerns and BMPs. They also led to certain exemptions for facilities that do not pollute national waters.

In early 1993, EPA, in conjunction with the Rensselaerville Institute, held public and expert meetings to assist in developing and analyzing options for identifying unregulated storm water sources and possible controls. These meetings provided participants an additional opportunity to provide input into the CWA section 402(p)(6) program development process. The final rule addresses several of the key concerns identified in these groups, including provisions that provide flexibility to the States to select sources to be controlled and types of permits to be issued, and flexibility to MS4s in selecting BMPs.

EPA also conducted outreach with representatives of small entities, including small government representatives, in conjunction with the convening of a Small Business Advocacy Review Panel under SBREFA which is discussed in section IV.E. of the preamble.

In addition, EPA established the Urban Wet Weather Flows Advisory Committee under the Federal Advisory Committee Act (FACA). The Urban Wet Weather Flows Advisory Committee, in turn established the Storm Water Phase II Subcommittee. Consistent with FACA, the membership of the Committee and the Storm Water Phase II Subcommittee was balanced among EPA's various outside stakeholder interests, including representatives from State governments, municipal governments (both elected officials and appointed officials) and Tribal governments, as well as industrial and commercial sectors, agriculture, environmental and public interest groups.

In general, municipal and Tribal government representatives supported the NPDES approach in today's rule for the following reasons: It will be uniformly applied on a nationwide basis; it provides flexibility to allow incorporation of State and local programs; it resolves the problem of donut holes that cause water quality impacts in urbanized areas; and it allows co-permitting of small regulated ***68798** MS4s with those regulated under the existing storm water program.

In contrast, State representatives sought alternative approaches for State implementation of the storm water program for Phase II sources. State representatives asserted that a non-NPDES alternative approach best facilitated watershed management and avoided duplication and overlapping regulations. These representatives pointed out that there are a variety of State programs—not based on the CWA—implementing effective storm water controls, and that EPA should provide incentives for their implementation and improvement in performance. EPA continues to believe that an NPDES approach is the best approach in order to adequately protect water quality. However, EPA has worked with States on an alternative approach that provides flexibility within the NPDES framework. The final rule allows States with a watershed permitting approach to phase in permit coverage for MS4s in jurisdictions with a population less than 10,000 and provides two waivers from coverage for small MS4s. This issue is discussed in section II.C of the preamble, Program Framework: NPDES Approach.

Some municipal governments objected that the rule's minimum measures for small MS4s violate the Tenth Amendment insofar as they require the operators of MS4s to regulate third parties according to the "minimum measures" for municipal storm water management programs. EPA disagrees that today's rule is inconsistent with Tenth Amendment principles. Permits issued under today's rule will not compel political subdivisions of States to regulate in their sovereign capacities, but rather to effectively control discharges out of their storm sewer systems in their owner/operator capacities. For MS4s that do not accept this "default" minimum measures-based approach (to control discharges out of the storm sewer system by exercising local powers to control discharges into the storm sewer system), today's rule allows for alternative permits through individual permit applications. EPA made revisions to the rule to allow regulated small MS4s to opt out of the minimum measures approach and instead apply for an individual permit. This issue is discussed in section II.H.3.c.iii of the preamble, Alternative Permit Option/Tenth Amendment.

2. Selection of the Least Costly, Most Cost-Effective or Least Burdensome Alternative That Achieves the Objectives of the Statute

Today's rule evolved over time and incorporated aspects of alternatives that responded to concerns presented by the various stakeholders. A primary characteristic of today's rule is the flexibility it offers both the permitting authority and the regulated sources (small MS4s and small construction sites), by the use of general permits, implementation of BMPs suited to specific locations, and allowing MS4s to develop their own program goals.

In the administrative record supporting the proposed rule, EPA estimated ranges of costs associated with six different options, including a no action option, the proposed option, and four other options that considered various combinations of the following: Covering all the unregulated construction sites below 5 acres, all small MS4s, certain industrial and commercial activities, and all point sources. EPA developed detailed cost estimates for the incremental requirements imposed under the final regulation, and for each of the alternatives, and applied these estimates to the remaining unregulated point sources of storm water. The Agency compared the estimated annual range of costs imposed under today's rule and other major options considered. The range of values for each option included the costs for compliance, including paperwork requirements for the operators of small construction sites, industrial facilities, and MS4s and administrative costs for State and Federal NPDES permitting authorities.

Today's rule reflects the least costly option that achieves the objectives of the statute, thus meeting the requirements of section 205. EPA did not consider "no regulation" to be an "option" because it would not achieve the objectives of CWA section 402(p)(6). A portion of currently unregulated point sources of storm water need to reduce pollutants to protect water quality.

Today's rule is estimated to range in cost from $847.6 million to $981.3 million annually, although the cost estimate for the proposed rule was reported as a range of $138 to $869 million annually. That range reflected a unit cost range for the municipal minimum measures and a cost range per construction site for soil erosion control. EPA has since revised its cost analysis to allow it to report the current estimate, which is toward the high end of the original cost range. The

four other regulatory options considered at proposal involved higher regulatory costs and, therefore, were not selected. These four options and their estimated costs are as follows:

(1) An option based on the August 7, 1995 direct final rule was estimated to cost between $2.2 billion and $78.9 billion per year.

(2) A “Plan B” option was estimated to cost between $0.6 billion and $3.2 billion per year.

(3) An option based on the September 30, 1996 draft proposed rule was estimated to cost between $0.2 billion and $3.7 billion per year.

(4) An option based on the February 13, 1997 draft proposed rule, was estimated to cost between $0.2 billion and $3.5 billion.

There are three reasons why the costs for these four options exceeded the estimated cost range for the proposed rule. The first two options regulated substantially more municipal governments. The first, third, and fourth options required industrial facilities to apply for permits. Finally, the first three options applied permit requirements to construction sites below 1 acre. Consequently, these options would be more costly than today's rule even with the revised analysis methods used to estimate costs.

3. Effects on Small Governments

Before EPA establishes any regulatory requirements that may significantly or uniquely affect small governments, including tribal governments, it must have developed under section 203 of the UMRA a small government agency plan. The plan must provide for notifying potentially affected small governments, enabling officials of affected small governments to have meaningful and timely input in the development of EPA regulatory proposals with significant Federal intergovernmental mandates, and informing, educating, and advising small governments on compliance with the regulatory requirements. EPA has determined that this rule contains no regulatory requirements that might significantly or uniquely affect small governments. Although today's rule expands the NPDES program (with modifications) to certain MS4s serving populations below 100,000 and although many MS4s are owned by small governments, EPA does not believe today's rule significantly or uniquely affects small governments. As explained in section IV.E. of the preamble, EPA today certifies that the rule will not have a significant impact on small governmental jurisdictions. In addition, the rule will not have a unique impact on small governments because the rule will affect small governments in ***68799** to the same extent as (or to a lesser extent than) larger governments that are already covered by the existing storm water rules. Thus, today's rule is not subject to the requirements of section 203 of UMRA.

Notwithstanding this finding, in developing today's rule, EPA provided notice of the requirements to potentially affected small governments; enabled officials of affected small governments to provide meaningful and timely input in the development of regulatory proposals; and informed, educated and advised small governments on compliance with the requirements.

Concerning notice, EPA provided States, local, and Tribal governments with the opportunity to comment on alternative approaches for an early draft of the proposed rule by publishing a notice requesting information and public comment in the Federal Register on September 9, 1992 (57 FR 41344). This notice presented a full range of regulatory alternatives. At that time, EPA received more than 130 comments, including approximately 43 percent from municipalities and 24 percent from State or Federal agencies.

The Agency also provided, through the SBREFA panel process and the FACA process, the opportunity for elected officials of small governments (and their representatives) to meaningfully participate in the development of the rule. Through such participation and exchange, EPA not only notified potentially affected small governments of requirements

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of the developing rule, but also allowed officials of affected small governments to have meaningful and timely input into the development of regulatory proposals.

In addition to involving municipalities in the development of the rule, EPA also continues to inform, educate, and advise small governments on compliance with the requirements of today's rule. For example, EPA supported 10 workshops, presented by the American Public Works Association from September 1998 through May 1999, designed to educate local governments on the implementation of the rule. The workshop curriculum included information on a variety of key issues such as anticipated regulatory requirements, agency reporting, best management practices, construction site controls, post construction management for new and redeveloped sites, public education and public involvement strategies, detection and control of illicit discharges, and good housekeeping practices. Moreover, EPA has prepared a series of fact sheets, available on the EPA website at www.epa.gov/owm/sw/toolbox, that explains the rule in detail.

Finally, to assist small governments in implementing the Phase II program, EPA is committed to the following: (1) developing a tool box of implementation strategies; (2) providing written technical assistance, including guidance on developing BMPs and measurable goals; and (3) compiling a comprehensive evaluation of the NPDES municipal storm water Phase II program over the next 13 years.

D. Executive Order 13132

Executive Order 13132, entitled "Federalism" (64 FR 43255, August 10, 1999), requires EPA to develop an accountable process to ensure "meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications." "Policies that have federalism implications" is defined in the Executive Order to include regulations that have "substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government." Under Executive Order 13132, EPA may not issue a regulation that has federalism implications, that imposes substantial direct compliance costs, and that is not required by statute, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or EPA consults with State and local officials early in the process of developing the proposed regulation. EPA also may not issue a regulation that has federalism implications and that preempts State law unless the Agency consults with State and local officials early in the process of developing the proposed regulation.

If EPA complies by consulting, Executive Order 13132 requires EPA to provide to the Office of Management and Budget (OMB), in a separately identified section of the preamble to the rule, a federalism summary impact statement (FSIS). The FSIS must include a description of the extent of EPA's prior consultation with State and local officials, a summary of the nature of their concerns and the agency's position supporting the need to issue the regulation, and a statement of the extent to which the concerns of State and local officials have been met. For final rules subject to Executive Order 13132, EPA also must submit to OMB a statement from the agency's Federalism Official certifying that EPA has fulfilled the Executive Order's requirements.

EPA has concluded that this final rule may have federalism implications. As discussed above in section IV.C., the rule contains a Federal mandate that may result in the expenditure by State, local and tribal governments, in the aggregate, of $100 million or more in any one year. Accordingly, the rule may have substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government, as specified in Executive Order 13132. Moreover, the rule will impose substantial direct compliance costs on State or local governments. Accordingly, EPA provides the following FSIS under section 6(b) of Executive Order 13132.

1. Description of the Extent of the Agency's Prior Consultation with State and Local Governments

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Although this rule was proposed long before the November 2, 1999 effective date of Executive Order 13132, EPA consulted extensively with affected State and local governments pursuant to the intergovernmental consultation provisions of Executive Order 12875, "Enhancing the Intergovernmental Partnership" (now revoked by Executive Order 13132) and section 204 of UMRA.

First, EPA provided State and local governments the opportunity to comment on draft alternative approaches for the proposed rule through publishing a notice requesting information and public comment in the Federal Register on September 9, 1992 (57 FR 41344). This notice presented a full range of regulatory alternatives. At that time, EPA received more than 130 comments, including approximately 43 percent from municipalities and 24 percent from State or Federal agencies. These comments were the genesis of many of the provisions in the today's rule, including reliance on the NPDES program framework (including general permits), providing State and local governments flexibility in selecting additional sources requiring regulation, and focusing on high priority polluters. These comments helped to focus on pollution prevention, watershed-based concerns and BMPs. They also led to certain exemptions for facilities that do not pollute national waters.

In early 1993, EPA, in conjunction with the Rensselaerville Institute, held public and expert meetings to assist in developing and analyzing options for identifying unregulated storm water sources and possible controls. These meetings provided participants an additional opportunity to provide input into the CWA section 402(p)(6) program ***68800** development process. The final rule addresses several of the key concerns identified in these groups, including provisions that provide flexibility to the States to select sources to be controlled and types of permits to be issued, and flexibility to MS4s in selecting BMPs.

EPA also conducted outreach with representatives of small entities, including small governments, in conjunction with the convening of a Small Business Advocacy Review Panel under SBREFA which is discussed in section III.F. of the preamble.

In addition, EPA established the Urban Wet Weather Flows Advisory Committee (FACA), which in turn established the Storm Water Phase II Subcommittee. Consistent with the Federal Advisory Committee Act, the membership of the Committee and the Storm Water Phase II Subcommittee was balanced among EPA's various outside stakeholder interests, including representatives from State governments, municipal governments (both elected officials and appointed officials) and Tribal governments, as well as industrial and commercial sectors, agriculture, environmental and public interest groups.

2. Summary of Nature of State and Local Government Concerns, and Statement of the Extent to Which Those Concerns Have Been Met

In general, municipal government representatives supported the NPDES approach in today's rule for the following reasons: it will be uniformly applied on a nationwide basis; it provides flexibility to allow incorporation of State and local programs; it resolves the problem of donut holes that cause water quality impacts in urbanized areas; and it allows co-permitting of small regulated MS4s with those regulated under the existing storm water program.

In contrast, State representatives sought alternative approaches for State implementation of the storm water program for Phase II sources. State representatives asserted that a non-NPDES alternative approach best facilitated watershed management and avoided duplication and overlapping regulations. These representatives pointed out that there are a variety of State programs—not based on the CWA—implementing effective storm water controls, and that EPA should provide incentives for their implementation and improvement in performance. EPA continues to believe that an NPDES approach is the best approach in order to adequately protect water quality. However, EPA has worked with States on an alternative approach that provides flexibility within the NPDES framework. The final rule allows States with a watershed permitting approach to phase in permit coverage for MS4s in jurisdictions with a population less than 10,000

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and provides two waivers from coverage for small MS4s. This issue is discussed in section II.C of the preamble, Program Framework: NPDES Approach.

Some municipal governments objected that the rule's minimum measures for small MS4s violate the Tenth Amendment insofar as they require the operators of MS4s to regulate third parties according to the "minimum measures" for municipal storm water management programs. EPA disagrees that today's rule is inconsistent with Tenth Amendment principles. Permits issued under today's rule will not compel political subdivisions of States to regulate in their sovereign capacities, but rather to effectively control discharges out of their storm sewer systems in their owner/operator capacities. For MS4s that do not accept this "default" minimum measures-based approach (to control discharges out of the storm sewer system by exercising local powers to control discharges into the storm sewer system), today's rule allows for alternative permits through individual permit applications. EPA made revisions to the rule to allow regulated small MS4s to opt out of the minimum measures approach and instead apply for an individual permit. This issue is discussed in section II.H.3.c.iii of the preamble, Alternative Permit Option/Tenth Amendment.

3. Summary of the Agency's Position Supporting the Need To Issue the Regulation

As discussed more fully in section I.B. above, today's rule is needed because uncontrolled storm water discharges from areas of urban development and construction activity have been shown to have negative impacts on receiving waters by changing the physical, biological, and chemical composition of the water, resulting in an unhealthy environment for aquatic organisms, wildlife, and people. As discussed in section II.C., the NPDES approach in today's rule is needed to ensure uniform application on a nationwide basis, to provide flexibility to allow incorporation of State and local programs, to resolve the problem of donut holes that cause water quality impacts in urbanized areas, and to allow co-permitting of small regulated MS4s with those regulated under the existing storm water program.

The draft final rule was transmitted to OMB on July 6, 1999. Because transmittal occurred before the November 2, 1999 effective date of Executive Order 13132, certification under section 8 of the Executive Order is not required.

E. Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), 5 U.S.C. 601 et seq.

The RFA generally requires an Agency to prepare a regulatory flexibility analysis of any rule subject to notice and comment rulemaking requirements under the Administrative Procedure Act or any other statute unless the agency certifies that the rule will not have a significant economic impact on a substantial number of small entities. Small entities include small businesses, small organizations, and small governmental jurisdictions.

For purposes of assessing the impact of today's rule on small entities, small entity is defined as: (1) a building contractor (SIC 15) with up to $17.0 million in annual revenue; (2) a small governmental jurisdiction that is a government of a city, county, town, school district, or special district with a population of less than 50,000; and (3) a small organization that is any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.

After considering the economic impacts of today's final rule on small entities, I certify that this action will not have a significant economic impact on a substantial number of small entities.

Although this final rule will not have a significant economic impact on a substantial number of small entities, EPA nonetheless has tried to reduce the impact of this rule on small entities.

For purposes of evaluating the economic impact of this rule on small governmental jurisdictions, EPA compared annual compliance costs with annual government revenues obtained from the 1992 Census of Governments, using state-specific estimates of annual revenue per capita for municipalities in three population size categories (fewer than 10,000, 10,000-25,000, and 25,000-50,000).

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In order to estimate the annual compliance cost for small governmental jurisdictions, EPA used the mean variable municipal cost of $8.93 per household as calculated in a 1998 study of 121 municipalities conducted by the national Association of Flood and Stormwater Management Agencies (NAFSMA). In addition, EPA used the estimated fixed administrative costs of $1,545 per municipality for reporting, ***68801** recordkeeping, and application requirements for today's rule.

In evaluating the economic impact of this rule on small governmental jurisdictions, EPA determined that compliance costs represent more than 1 percent of estimated revenues for only 10 percent of small governments and more than 3 percent of the revenue for 0.7 percent of these entities. In both absolute and relative terms, EPA does not consider this a significant economic impact on a substantial number of small entities.

EPA normally uses the “sales test” for determining the economic impact on small businesses. Under a sales test, annual compliance costs are compared with the small business's total annual sales. However, the direct application of the sales test is not suitable in this case, because of the uncertainty associated with estimating the number of units an “average” developer/contractor develops or builds in a typical year. For this rule, EPA has approximated the sales test by estimating compliance costs for three sizes of construction sites and comparing them with a representative sale price for three building categories. Although EPA's analysis is not exactly a “sales test,” it is similar to the sales test, producing comparable results.

For small building contractors, EPA estimated administrative compliance costs of $870 per site for applying for coverage, reporting, record keeping, monitoring and preparing a storm water pollution prevention plan. EPA estimated compliance costs for installing soil and erosion controls as ranging from $1,206 to $8,709 per site. EPA compliance cost estimates are based on 27 theoretical model construction sites designed to mimic the mostly likely used best management practices around the country.

In evaluating the economic impact on small building contractors, EPA divided the revised compliance costs per construction start by the appropriate homes-to-site ratio for each of the three sizes of construction sites. The average compliance cost per home ranges from approximately $450 to $650. EPA concluded that compliance costs are roughly 0.22 to 0.43 percent of both the mean, $181,300, and median, $151,000, sale price of a home.

The absence of data to specifically assess annual compliance costs for building contractors as a percentage of annual sales (i.e., a very direct estimate of the impact on potentially affected small businesses) led EPA to perform additional market analysis to examine the ability of potentially affected firms to pass along regulatory costs to buyers for single-family homes constructed subject to today's rule. If the small building contractors covered by the rule are able to pass on the costs of compliance, either completely or partially, to their purchasers, then the rule's impact on these small business entities is significantly reduced. The market analysis shows that demand for homes is not overly sensitive to small changes in price, therefore builders should be able to pass on at least a significant fraction of the compliance costs to buyers.

EPA also assessed the effect of the building contractors' costs on average monthly mortgage rates and on the demand for new homes. Based on that screening analysis, EPA concludes that the costs to building contractors, and the potential changes in housing prices and monthly mortgage payments for single-family home buyers, are not expected to have a significant impact on the market for single-family houses. In both absolute and relative terms, EPA does not consider this a significant economic impact on a substantial number of small entities.

EPA also certified this rule at proposal. Even though the Agency was not required to, we convened a Small Business Advocacy Review Panel (“Panel”) in June 1997. A number of small entity representatives had already been actively involved with EPA through the FACA process, and were, therefore, broadly knowledgeable about the development of the proposed and final rules. Prior to convening the Panel, EPA consulted with the Small Business Administration to

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identify a group of small entity representatives to advise the Panel. The Agency distributed a briefing package describing its preliminary analysis under the RFA to the small entity representatives (as well as to representatives from OMB and SBA) and conducted two telephone conference calls and an all-day meeting at EPA Headquarters in May of 1997 with small entity representatives. With this preliminary work complete, in June 1997, EPA formally convened the SBREFA Panel, comprising representatives from OMB, SBA, EPA's Office of Water and EPA's Small Business Advocacy Chair. The Panel received written comments from small entity representatives based on their involvement in the earlier meetings, and invited additional comments.

Consistent with requirements of the RFA, the Panel evaluated the assembled materials and small-entity comments on issues related to: (1) a description and the number of small entities that would be regulated; (2) a description of the projected record keeping, reporting and other compliance requirements applicable to small entities; (3) identification of other Federal rules that may duplicate, overlap, or conflict with the proposal to the final rule; and (4) regulatory alternatives that would minimize any significant economic impact of the rule on small entities while accomplishing the stated objectives of the CWA section 402(p)(6).

On August 7, 1997, the Panel provided a Final Report (hereinafter, "Report") to the EPA Administrator. A copy of the Report is included in the docket for the rule. The Panel acknowledged and commended EPA's efforts to work with stakeholders, including small entities, through the FACA process. The SBREFA Panel stated that, because of EPA's extensive outreach and responsiveness in addressing stakeholder concerns, commenters during the SBREFA process raised fewer concerns than might otherwise have been expected. Based on the advice and recommendations of the Panel, today's rule includes a number of provisions designed to minimize any significant impact on small entities. (See Appendix 5).

F. National Technology Transfer And Advancement Act

Section 12(d) of the National Technology Transfer and Advancement Act of 1995 ("NTTAA"), Public Law 104-113, section 12(d) (15 U.S.C. 272 note) directs EPA to use voluntary consensus standards in its regulatory activities unless to do so would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., materials specifications, test methods, sampling procedures, and business practices) that are developed or adopted by voluntary consensus standard bodies. The NTTAA directs EPA to provide Congress, through OMB, explanations when the Agency decides not to use available and applicable voluntary consensus standards.

This action does not mandate the use of any particular technical standards, although in designing appropriate BMPs regulated small MS4s and small construction sites are encouraged to use any voluntary consensus standards that may be applicable and appropriate. Because no specific technical standards are included in the rule, section 12(d) of the NTTAA is not applicable.

G. Executive Order 13045

Executive Order 13045: "Protection of Children from Environmental Health Risks and Safety Risks" (62 FR 19885, April 23, 1997) applies to any rule that: (1) Is determined to be "economically ***68802** significant" as defined under E.O. 12866, and (2) concerns an environmental health or safety risk that EPA has reason to believe may have a disproportionate effect on children. If the regulatory action meets both criteria, the Agency must evaluate the environmental health or safety effects of the planned rule on children, and explain why the planned regulation is preferable to other potentially effective and reasonably feasible alternatives considered by the Agency.

This final rule is not subject to E.O. 13045 because it does not concern an environmental health or safety risk that may have a disproportionate effect on children. The rule expands the scope of the existing NPDES permitting program to require small municipalities and small construction sites to regulate their storm water discharges. The rule does not itself, however, establish standards or criteria that would be included in permits for those sources. Such standards or criteria

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will be developed through other actions, for example, in the establishment of water quality standards or subsequently in the issuance of permits themselves. As such, today's action does not concern an environmental health or safety risk that may have a disproportionate effect on children. To the extent it does address a risk that may have a disproportionate effect on children, expanding the scope of the permitting program will have a corresponding disproportionate benefit to children to protect them from such risk.

H. Executive Order 13084

Under Executive Order 13084, EPA may not issue a regulation that is not required by statute, that significantly or uniquely affects the communities of Indian tribal governments, and that imposes substantial direct compliance costs on those communities, unless the Federal government provides the funds necessary to pay the direct compliance costs incurred by the Tribal governments, or EPA consults with those governments. If EPA complies by consulting, Executive Order 13084 requires EPA to provide to the Office of Management and Budget, in a separately identified section of the preamble to the rule, a description of the extent of EPA's prior consultation with representatives of affected Tribal governments, a summary of the nature of their concerns, and a statement supporting the need to issue the regulation. In addition, Executive Order 13084 requires EPA to develop an effective process permitting elected officials and other representatives of Indian Tribal governments "to provide meaningful and timely input in the development of regulatory policies on matters that significantly or uniquely affect their communities."

Today's rule does not significantly or uniquely affect the communities of Indian Tribal governments. Even though the Agency is not required to address Tribes under the Regulatory Flexibility Act, EPA used the same revenue test that was used for municipalities to assess the impact of the rule on communities of Tribal governments and determine that they will not be significantly affected. In addition, the rule will not have a unique impact on the communities of Tribal governments because small municipal governments are also covered by this rule and larger municipal governments are already covered by the existing storm water rules. Accordingly, the requirements of section 3(b) of Executive Order 13084 do not apply to this rule.

I. Congressional Review Act

The Congressional Review Act, 5 U.S.C. section 801 et seq., as added by the Small Business Regulatory Enforcement Fairness Act of 1996, generally provides that before a rule may take effect, the agency promulgating the rule must submit a rule report, which includes a copy of the rule, to each House of the Congress and the Comptroller General of the United States. EPA will submit a report containing this rule and other required information to the U.S. Senate, the U.S. House of Representatives, and the Comptroller General of the United States prior to publication of the rule in the Federal Register. A major rule cannot take effect until 60 days after it is published in the Federal Register. This rule is a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective on February 7, 2000.

List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Part 122

Administrative practice and procedure, Confidential business information, Environmental protection, Hazardous substances, Incorporation by reference, Reporting and recordkeeping requirements, Sewage disposal, Waste treatment and disposal, Water pollution control.

40 CFR Part 123

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Administrative practice and procedure, Confidential business information, Hazardous materials, Indians—lands, Intergovernmental relations, Penalties, Reporting and recordkeeping requirements, Sewage disposal, Waste treatment and disposal, Water pollution control, Penalties.

40 CFR Part 124

Administrative practice and procedure, Air pollution control, Hazardous waste, Indians—lands, Reporting and recordkeeping requirements, Water pollution control, Water supply.

Dated: October 29, 1999.

Carol M. Browner,

Administrator.

Appendices to the Preamble

Appendix 1 to Preamble—Federally-Recognized American Indian Areas Located Fully or Partially in Bureau of the Census Urbanized Areas

[Based on 1990 Census data]

State	American Indian Area	Urbanized Area
AZ	Pascua Yacqui Reservation (pt.): Pascua Yacqui Tribe of Arizona	Tucson, AZ (Phase I).
AZ	Salt River Reservation (pt.): Salt River Pima-Maricopa Indian Community of the Salt River Reservation, California	Phoenix, AZ (Phase I).
AZ	San Xavier Reservation (pt.): Tohono O'odham Nation of Arizona (formerly known as the Papago Tribe of the Sells, Gila Bend & San Xavier Reservation)	Tucson, AZ (Phase I).
CA	Augustine Reservation: Augustine Band of Cahuilla Mission of Indians of the Augustine Reservation, CA	Indio- Coachella, CA (Phase I).
CA	Cabazon Reservation: Cabazon Band of Cahuilla Mission Indians of the Cabazon Reservation, CA	Indio- Coachella, CA (Phase I).
CA	Fort Yuma (Quechan) (pt.): Quechan Tribe of the Fort Yuma Indian Reservation, California & Arizona	Yuma, AZ-CA.
CA	Redding Rancheria: Redding Rancheria of California	Redding, CA.
FL	Hollywood Reservation: Seminole Tribe	Fort Lauderdale, FL (Phase I).

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FL	Seminole Trust Lands: Seminole Tribe of Florida, Dania, Big Cypress & Brighton Reservations	Fort Lauderdale, FL (Phase I).
ID	Fort Hall Reservation and Trust Lands: Shosone-Bannock Tribes of the Fort Hall Reservation of Idaho	Pocatello, ID.
ME	Penobscot Reservation and Trust Lands (pt.): Penobscot Tribe of Maine	Bangor, ME.
MN	Shakopee Community: Shakopee Mdewakanton Sioux Community of Minnesota (Prior Lake)	Minneapolis-St. Paul, MN (Phase I).
NM	Sandia Pueblo (pt.): Pueblo of Sandia, New Mexico	Albuquerque, NM (Phase I).
NV	Las Vegas Colony: Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony, Nevada	Las Vegas, NV (Phase I).
NV	Reno-Sparks Colony: Reno-Sparks Indian Colony, Nevada	Reno, NV (Phase I).
OK	Osage Reservation (pt.): Osage Nation of Oklahoma	Tulsa, OK (Phase I).
OK	Absentee Shawnee-Citizens Band of Potawatomi TJSA (pt.): Absentee-Shawnee Tribe of Indians of Oklahoma; Citizen Potawatomi Nation, Oklahoma	Oklahoma City, OK (Phase I).
OK	Cherokee TJSA 9 (pt.): Cherokee Nation of Oklahoma; United Keetoowah Band of Cherokee Indians of Oklahoma	Ft. Smith, AR-OK; Tulsa, OK (Phase I).
OK	Cheyenne-Arapaho TJSA (pt.): Cheyenne-Arapaho Tribes of Oklahoma	Oklahoma City, OK (Phase I).
OK	Choctaw TJSA (pt.): Choctaw Nation of Oklahoma	Ft. Smith, AR-OK (Phase I).
OK	Creek TJSA (pt.): Alabama-Quassarte Tribal Town of the Creek Nation of Oklahoma; Kialegee Tribal Town of the Creek Indian Nation of Oklahoma; Muscogee (Creek) Nation of Oklahoma; Thlopthlocco Tribal Town of the Creek Nation of Oklahoma	Tulsa, OK (Phase I).
OK	Kiowa-Comanche-Apache-Ft. Sill Apache: Apache Tribe of Oklahoma; Comanche Indian Tribe, Oklahoma; Fort Sill Apache Tribe of Oklahoma; Kiowa Indian Tribe of Oklahoma	Lawton, OK.
TX	Ysleta del Sur Reservation: Ysleta Del Sur Pueblo of Texas	El Paso, TX-NM (Phase I).
WA	Muckleshoot Reservation and Trust Lands (pt.): Muckleshoot Indian Tribe of the Muckleshoot Reservation	Seattle, WA (Phase I).

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WA	Puyallup Reservation and Trust Lands (pt.): Puyallup Tribe of the Puyallup Reservation, WA	Tacoma, WA (Phase I).
WA	Yakima Reservation (pt.): Confederated Tribes and Bands of the Yakama Indian Nation of the Yakama Reservation, WA	Yakima, WA.
WI	Oneida (West) (pt.): Oneida Tribe of Wisconsin	Green Bay, WI.

***68803 Please Note**

"(pt.)" indicates that the American Indian Area (AIA) listed is only partially located within the referenced urbanized area.

The first line under "American Indian Area" is the name of the federally-recognized reservation/colony/rancheria or trust land as it appears in the Bureau of the Census data. After this first line, the names of the tribes included in the AIA are listed as they appear in the Bureau of Indian Affairs' list of Federally Recognized Indian Tribes. [Federal Register: Nov. 13, 1996, Vol. 66, No. 220, pgs. 58211-58216]

"TJSAs" are Tribal Jurisdiction Statistical Areas in Oklahoma that are defined in conjunction with the federally-recognized tribes in Oklahoma who have definite land areas under their jurisdiction, but do not have reservation status.

"(Phase I)" indicates that the referenced urbanized area includes a medium or large MS4 currently regulated under the existing NPDES storm water program (i.e., Phase I). Any Tribally operated MS4 within these such urban areas would not automatically have been covered under Phase I, however.

Sources

Michael Ratcliffe, Geographic Concepts Division, Bureau of the Census, U.S. Department of Commerce.

1990 Census of Population and Housing, Summary Population and Housing Characteristics, United States. Tables 9 & 10. [1990 CPH-1-1]. Bureau of the Census, U.S. Department of Commerce.

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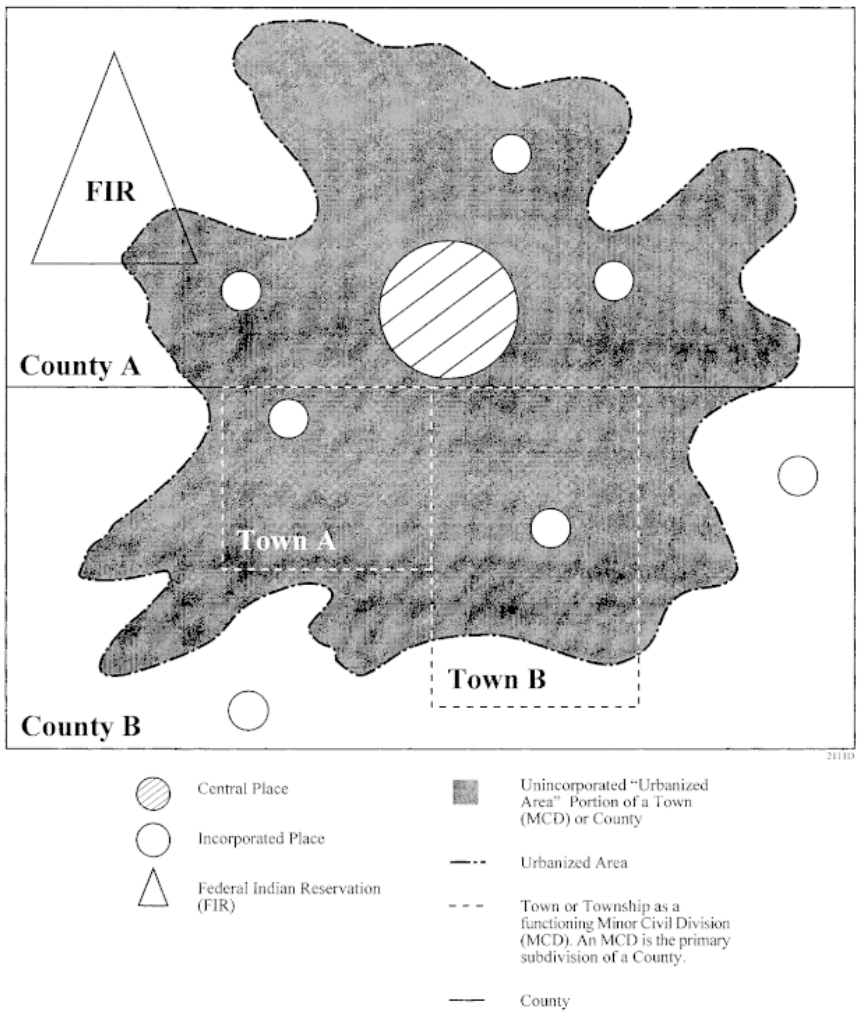
APPENDIX 2 TO PREAMBLE—URBANIZED AREA ILLUSTRATION



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***68805 Appendix 3 to the Preamble—Urbanized Areas of the United States and Puerto Rico**

(Source: 1990 Census of Population and Housing, U.S. Bureau of the Census—This list is subject to change with the Decennial Census)

Alabama

Anniston

Auburn-Opelika

Birmingham

Columbus, GA-AL

Decatur

Dothan

Florence

Gadsden

Huntsville

Mobile

Montgomery

Tuscaloosa

Alaska

Anchorage

Arizona

Phoenix

Tucson

Yuma, AZ-CA

Arkansas

Fayetteville-Springdale

Fort Smith, AR-OK

Little Rock-North Little Rock

Memphis, TN-AR-MS

Pine Bluff

Texarkana, AR-TX

California

Antioch-Pittsburgh

Bakersfield

Chico

Davis

Fairfield

Fresno

Hemet-San Jacinto

Hesperia-Apple Valley-Victorville

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Indio-Coachella

Lancaster-Palmdale

Lodi

Lompoc

Los Angeles

Merced

Modesto

Napa

Oxnard-Ventura

Palm Springs

Redding

Riverside-San Bernardino

Sacramento

Salinas

San Diego

San Francisco-Oakland

San Jose

San Luis Obispo

Santa Barbara

Santa Cruz

Santa Maria

Santa Rosa

Seaside-Monterey

Simi Valley

Stockton

Vacaville

Visalia

Watsonville

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Yuba City

Yuma

Colorado

Boulder

Colorado Springs

Denver

Fort Collins

Grand Junction

Greeley

Longmont

Pueblo

Connecticut

Bridgeport-Milford

Bristol

Danbury, CT-NY

Hartford-Middletown

New Britain

New Haven-Meriden

New London-Norwich

Norwalk

Springfield, MA-CT

Stamford, CT-NY

Waterbury

Worcester, MA-CT

Delaware

Dover

Wilmington, DE-NJ-MD-PA

District of Columbia

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Washington, DC-MD-VA

Florida

Daytona Beach

Deltona

Fort Lauderdale-Hollywood-Pompano Beach

Fort Myers-Cape Coral

Fort Pierce

Fort Walton Beach

Gainesville

Jacksonville

Kissimmee

Lakeland

Melbourne-Palm Bay

Miami-Hialeah

Naples

Ocala

Orlando

Panama City

Pensacola

Punta Gorda

Sarasota-Bradenton

Spring Hill

Stuart

Tallahassee

Tampa-St. Petersburg-Clearwater

Titusville

Vero Beach

West Palm Beach-Boca Raton-Delray Beach

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Winter Haven

Georgia

Albany

Athens

Atlanta

Augusta

Brunswick

Chattanooga

Columbus

Macon

Rome

Savannah

Warner Robins

Hawaii

Honolulu

Kailua

Idaho

Boise City

Idaho Falls

Pocatello

Illinois

Alton

Aurora

Beloit, WI-IL

Bloomington-Normal

Champaign-Urbana

Chicago, IL-Northwestern IN

Crystal Lake

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Davenport-Rock Island-Moline, IA-IL

Decatur

Dubuque

Elgin

Joliet

Kankakee

Peoria

Rockford

Round Lake Beach-McHenry, IL-WI

St. Louis, MO-IL

Springfield

Indiana

Anderson

Bloomington

Chicago, IL-Northwestern IN

Elkhart-Goshen

Evansville, IN-KY

Fort Wayne

Indianapolis

Kokomo

Lafayette-West Lafayette

Louisville, KY-IN

Muncie

South Bend-Mishawaka, IN-MI

Terre Haute

Iowa

Cedar Rapids

Davenport-Rock Island-Moline, IA-IL

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Des Moines

Dubuque, IA-IL-WI

Iowa City

Omaha, NE-IA

Sioux City, IA-NE-SD

Waterloo-Cedar Falls

Kansas

Kansas City, MO-KS

Lawrence

St. Joseph, MO-KS

Topeka

Wichita

Kentucky

Cincinnati, OH-KY

Clarksville, TN-KY

Evansville, IN-KY

Huntington-Ashland, WV-KY-OH

Lexington-Fayette

Louisville, KY-IN

Owensboro

Louisiana

Alexandria

Baton Rouge

Houma

Lafayette

Lake Charles

Monroe

New Orleans

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Shreveport ***68806**

Slidell

Maine

Bangor

Lewiston-Auburn

Portland

Portsmouth-Dover-Rochester, NH-ME

Maryland

Annapolis

Baltimore

Cumberland

Frederick

Hagerstown, MD-PA-WV

Washington, DC-MD-VA

Wilmington, DE-NJ-MD-PA

Massachusetts

Boston

Brockton

Fall River, MA-RI

Fitchburg-Leominster

Hyannis

Lawrence-Haverhill, MA-NH

Lowell, MA-NH

New Bedford

Pittsfield

Providence-Pawtucket, RI-MA

Springfield, MA-CT

Taunton

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Worcester, MA-CT

Michigan

Ann Arbor

Battle Creek

Bay City

Benton Harbor

Detroit

Flint

Grand Rapids

Holland

Jackson

Kalamazoo

Lansing-East Lansing

Muskegon

Port Huron

Saginaw

South Bend-Mishawaka, IN-MI

Toledo, OH-MI

Minnesota

Duluth, MN-WI

Fargo-Moorhead, ND-MN

Grand Forks, ND-MN

La Crosse, WI-MN

Minneapolis-St.Paul

Rochester

St. Cloud

Mississippi

Biloxi-Gulfport

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Hattiesburg

Jackson

Memphis, TN-AR-MS

Pascagoula

Missouri

Columbia

Joplin

Kansas City, MO-KS

St. Joseph, MO-KS

St. Louis, MO-IL

Springfield

Montana

Billings

Great Falls

Missoula

Nebraska

Lincoln

Omaha, NE-IA

Sioux City, IA-NE-SD

Nevada

Las Vegas

Reno

New Hampshire

Lawrence-Haverhill, MA-NH

Lowell, MA-NH

Manchester

Nashua

Portsmouth-Dover-Rochester, NH-ME

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New Jersey

Allentown-Bethlehem-Easton, PA-NJ

Atlantic City

New York, NY-Northeastern NJ

Philadelphia, PA-NJ

Trenton, NJ-PA

Vineland-Millville

Wilmington, DE-NJ-MD-PA

New Mexico

Albuquerque

El Paso

Las Cruces

Santa Fe

New York

Albany-Schenectady-Troy

Binghamton

Buffalo-Niagara Falls

Danbury, CT-NY

Elmira

Glens Falls

Ithaca

Newburgh

New York, NY-Northeastern NJ

Poughkeepsie

Rochester

Stamford, CT-NY

Syracuse

Utica-Rome

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North Carolina

Asheville

Burlington

Charlotte

Durham

Fayetteville

Gastonia

Goldsboro

Greensboro

Greenville

Hickory

High Point

Jacksonville

Kannapolis

Raleigh

Rocky Mount

Wilmington

Winston-Salem

North Dakota

Bismark

Fargo-Moorhead, ND-MN

Grand Forks, ND-MN

Ohio

Akron

Canton

Cincinnati, OH-KY

Cleveland

Columbus

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Dayton

Hamilton

Huntington-Ashland, WV-KY-OH

Lima

Lorain-Elyria

Mansfield

Middletown

Newark

Parkersburg, WV-OH

Sharon, PA-OH

Springfield

Steubenville-Weirton, OH-WV-PA

Toledo, OH-MI

Wheeling, WV-OH

Youngstown-Warren

Oklahoma

Fort Smith, AR-OK

Lawton

Oklahoma City

Tulsa

Oregon

Eugene-Springfield

Longview

Medford

Portland-Vancouver, OR-WA

Salem

Pennsylvania

Allentown-Bethlehem-Easton, PA-NJ

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Altoona

Erie

Hagerstown, MD-PA-WV

Harrisburg

Johnstown

Lancaster

Monessen

Philadelphia, PA-NJ

Pittsburgh

Pottstown

Reading

Scranton-Wilkes-Barre

Sharon, PA-OH

State College

Steubenville-Weirton, OH-WV-PA

Trenton, NJ-PA

Williamsport

Wilmington, DE-NJ-MD-PA

York

Rhode Island

Fall River, MA-RI

Newport

Providence-Pawtucket, RI-MA

South Carolina

Anderson

Augusta, GA-SC

Charleston

Columbia

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Florence

Greenville

Myrtle Beach

Rock Hill

Spartanburg

Sumter

South Dakota

Rapid City

Sioux City, IA-NE-SD

Sioux Falls

Tennessee

Bristol, TN-Bristol, VA ***68807**

Chattanooga, TN-GA

Clarksville, TN-KY

Jackson

Johnson City

Kingsport, TN-VA

Knoxville

Memphis, TN-AR-MS

Nashville

Texas

Abilene

Amarillo

Austin

Beaumont

Brownsville

Bryan-College Station

Corpus Christi

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Dallas-Fort Worth

Denton

El Paso, TX-NM

Galveston

Harlingen

Houston

Killeen

Laredo

Lewisville

Longview

Lubbock

McAllen-Edinburg-Mission

Midland

Odessa

Port Arthur

San Angelo

San Antonio

Sherman-Denison

Temple

Texarkana, TX-Texarkana, AR

Texas City

Tyler

Victoria

Waco

Wichita Falls

Utah

Logan

Ogden

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Provo-Orem

Salt Lake City

Vermont

Burlington

Virginia

Bristol, TN-Bristol, VA

Charlottesville

Danville

Fredericksburg

Kingsport, TN-VA

Lynchburg

Norfolk-Virginia Beach-Newport News

Petersburg

Richmond

Roanoke

Washington, DC-MD-VA

Washington

Bellingham

Bremerton

Longview, WA-OR

Olympia

Portland-Vancouver, OR-WA

Richland-Kennewick-Pasco

Seattle

Spokane

Tacoma

Yakima

West Virginia

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Charleston

Cumberland, MD-WV

Hagerstown, MD-PA-WV

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Parkersburg, WV-OH

Steubenville-Weirton, OH-WV-PA

Wheeling, WV-OH

Wisconsin

Appleton-Neenah

Beloit, WI-IL

Duluth, MN-WI

Eau Claire

Green Bay

Janesville

Kenosha

La Crosse, WI-MN

Madison

Milwaukee

Oshkosh

Racine

Round Lake Beach-McHenry, IL-WI

Sheboygan

Wausau

Wyoming

Casper

Cheyenne

Puerto Rico

Aquadilla

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Arecibo

Caguas

Cayey

Humacao

Mayaguez

Ponce

San Juan

Vega Baja-Manati
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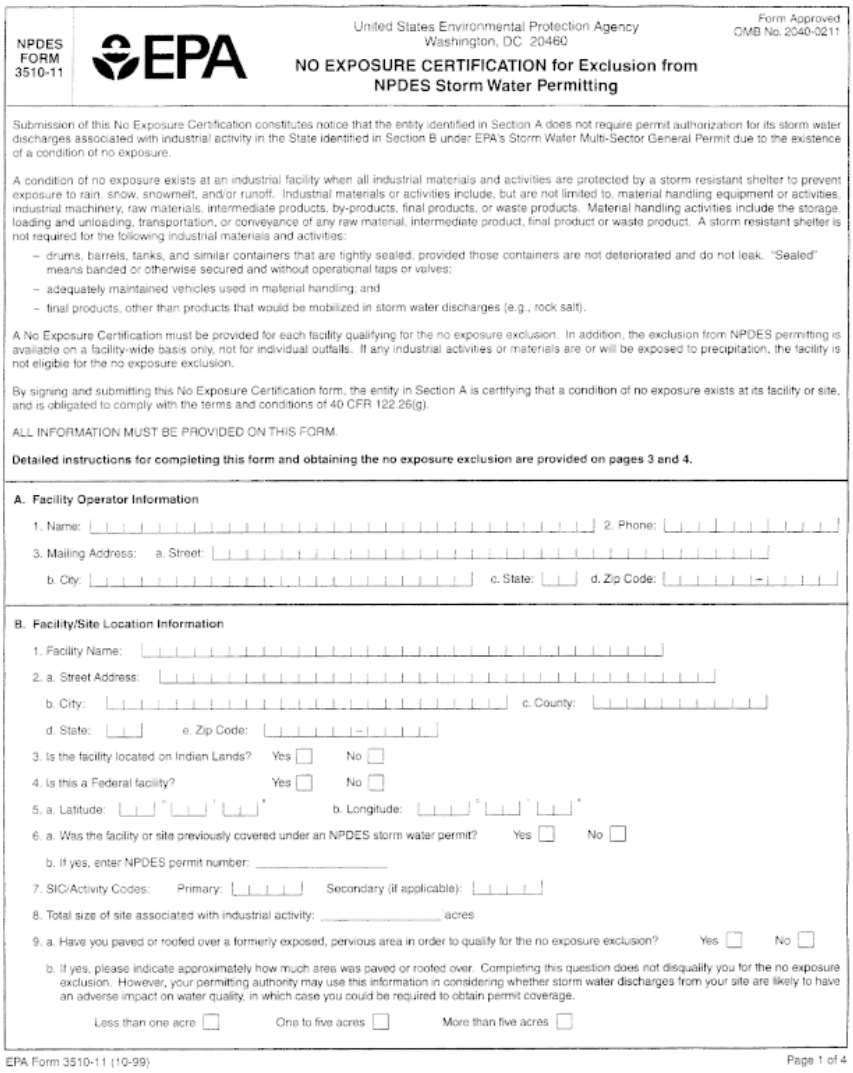
***68808 Appendix 4 to the Preamble—No Exposure Certification Form**



NPDES FORM 3510-11

EPA

United States Environmental Protection Agency
Washington, DC 20460

Form Approved
OMB No. 2040-0211

NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting

Submission of this No Exposure Certification constitutes notice that the entity identified in Section A does not require permit authorization for its storm water discharges associated with industrial activity in the State identified in Section B under EPA's Storm Water Multi-Sector General Permit due to the existence of a condition of no exposure.

A condition of no exposure exists at an industrial facility when all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product. A storm resistant shelter is not required for the following industrial materials and activities:

- drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak. "Sealed" means banded or otherwise secured and without operational taps or valves;
- adequately maintained vehicles used in material handling; and
- final products, other than products that would be mobilized in storm water discharges (e.g., rock salt).

A No Exposure Certification must be provided for each facility qualifying for the no exposure exclusion. In addition, the exclusion from NPDES permitting is available on a facility-wide basis only, not for individual outfalls. If any industrial activities or materials are or will be exposed to precipitation, the facility is not eligible for the no exposure exclusion.

By signing and submitting this No Exposure Certification form, the entity in Section A is certifying that a condition of no exposure exists at its facility or site, and is obligated to comply with the terms and conditions of 40 CFR 122.26(g).

ALL INFORMATION MUST BE PROVIDED ON THIS FORM.

Detailed instructions for completing this form and obtaining the no exposure exclusion are provided on pages 3 and 4.

A. Facility Operator Information

1. Name: 2. Phone:
3. Mailing Address: a. Street:
b. City: c. State: d. Zip Code:

B. Facility/Site Location Information

1. Facility Name:
2. a. Street Address:
b. City: c. County:
d. State: e. Zip Code:
3. Is the facility located on Indian Lands? Yes ☐ No ☐
4. Is this a Federal facility? Yes ☐ No ☐
5. a. Latitude: ° ' " b. Longitude: ° ' "
6. a. Was the facility or site previously covered under an NPDES storm water permit? Yes ☐ No ☐
b. If yes, enter NPDES permit number:
7. SIC/Activity Codes: Primary: Secondary (if applicable):
8. Total size of site associated with industrial activity: acres
9. a. Have you paved or roofed over a formerly exposed, pervious area in order to qualify for the no exposure exclusion? Yes ☐ No ☐
b. If yes, please indicate aproximately how much area was paved or roofed over. Completing this question does not disqualify you for the no exposure exclusion. However, your permitting authority may use this information in considering whether storm water discharges from your site are likely to have an adverse impact on water quality, in which case you could be required to obtain permit coverage.
Less than one acre ☐ One to five acres ☐ More than five acres ☐

EPA Form 3510-11 (10-99) Page 1 of 4

NPDES FORM 3510-11 | EPA

NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting

Form Approved OMB No. 2040-0211

C. Exposure Checklist

Are any of the following materials or activities exposed to precipitation, now or in the foreseeable future? (Please check either "Yes" or "No" in the appropriate box.) **If you answer "Yes" to any of these questions (1) through (11), you are not eligible for the no exposure exclusion.**

	Yes	No
1. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water	☐	☐
2. Materials or residuals on the ground or in storm water inlets from spills/leaks	☐	☐
3. Materials or products from past industrial activity	☐	☐
4. Material handling equipment (except adequately maintained vehicles)	☐	☐
5. Materials or products during loading/unloading or transporting activities	☐	☐
6. Materials or products stored outdoors (except final products intended for outside use [e.g., new cars] where exposure to storm water does not result in the discharge of pollutants)	☐	☐
7. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers	☐	☐
8. Materials or products handled/stored on roads or railways owned or maintained by the discharger	☐	☐
9. Waste material (except waste in covered, non-leaking containers [e.g., dumpsters])	☐	☐
10. Application or disposal of process wastewater (unless otherwise permitted)	☐	☐
11. Particulate matter or visible deposits of residuals from roof stacks and/or vents not otherwise regulated (i.e., under an air quality control permit) and evident in the storm water outflow	☐	☐

D. Certification Statement

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from NPDES storm water permitting.

I certify under penalty of law that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility or site identified in this document (except as allowed under 40 CFR 122.26(g)(2)).

I understand that I am obligated to submit a no exposure certification form once every five years to the NPDES permitting authority and, if requested, to the operator of the local municipal separate storm sewer system (MS4) into which the facility discharges (where applicable). I understand that I must allow the NPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility.

Additionally, I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: _____

Print Title: _____

Signature: _____

Date: _____

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NPDES FORM 3510-11

EPA

Instructions for the NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting

Form Approved OMB No. 2040-0211

Who May File a No Exposure Certification

Federal law at 40 CFR Part 122.26 prohibits point source discharges of storm water associated with industrial activity to waters of the U.S. without a National Pollutant Discharge Elimination System (NPDES) permit. However, NPDES permit coverage is not required for discharges of storm water associated with industrial activities identified at 40 CFR 122.26(b)(14)(i)-(ix) and (xi) if the discharger can certify that a condition of "no exposure" exists at the industrial facility or site.

Storm water discharges from construction activities identified in 40 CFR 122.26(b)(14)(x) and (b)(15) are not eligible for the no exposure exclusion.

Obtaining and Maintaining the No Exposure Exclusion

This form is used to certify that a condition of no exposure exists at the industrial facility or site described herein. This certification is only applicable in jurisdictions where EPA is the NPDES permitting authority and must be re-submitted at least once every five years.

The industrial facility operator must maintain a condition of no exposure at its facility or site in order for the no exposure exclusion to remain applicable. If conditions change resulting in the exposure of materials and activities to storm water, the facility operator must obtain coverage under an NPDES storm water permit immediately.

Where to File the No Exposure Certification Form

Mail the completed no exposure certification form to:

Storm Water No Exposure Certification (4203)
USEPA
401 M Street, SW
Washington, D.C. 20460

Completing the Form

You must type or print, using uppercase letters, in appropriate areas only. Enter only one character per space (i.e., between the marks). Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words. One form must be completed for each facility or site for which you are seeking to certify a condition of no exposure. Additional guidance on completing this form can be accessed through EPA's web site at www.epa.gov/owm/sw. Please make sure you have addressed all applicable questions and have made a photocopy for your records before sending the completed form to the above address.

Section A. Facility Operator Information

1. Provide the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this certification. The name of the operator may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility's operation, rather than the plant or site manager.

2. Provide the telephone number of the facility operator.

3. Provide the mailing address of the operator (P.O. Box numbers may be used). Include the city, state, and zip code. All correspondence will be sent to this address.

Section B. Facility/Site Location Information

1. Enter the official or legal name of the facility or site.

2. Enter the complete street address (if no street address exists, provide a geographic description (e.g., Intersection of Routes 9 and 55)), city, county, state, and zip code. Do not use a P.O. Box number.

3. Indicate whether the facility is located on Indian Lands.

4. Indicate whether the industrial facility is operated by a department or agency of the Federal Government (see also Section 313 of the Clean Water Act).

5. Enter the latitude and longitude of the approximate center of the facility or site in degrees/minutes/seconds. Latitude and longitude can be obtained from United States Geological Survey (USGS) quadrangle or topographic maps, by calling 1-(888) ASK-USGS, or by accessing EPA's web site at http://www.epa.gov/owm/sw/industry/index.htm and selecting Latitude and Longitude Finders under the Resources/Permit section.

   Latitude and longitude for a facility in decimal form must be converted to degrees (°), minutes (′), and seconds (″) for proper entry on the certification form. To convert decimal latitude or longitude to degrees/minutes/seconds, follow the steps in the following example.

   Example: Convert decimal latitude 45.1234567 to degrees (°), minutes (′), and seconds (″).

   a) The numbers to the left of the decimal point are the degrees: 45°.

   b) To obtain minutes, multiply the first four numbers to the right of the decimal point by 0.006: 1234 x 0.006 = 7.404.

   c) The numbers to the left of the decimal point in the result obtained in (b) are the minutes: 7′.

   d) To obtain seconds, multiply the remaining three numbers to the right of the decimal from the result obtained in (b) by 0.06: 404 x 0.06 = 24.24. Since the numbers to the right of the decimal point are not used, the result is 24″.

   e) The conversion for 45.1234567 = 45° 7′ 24″.

6. Indicate whether the facility was previously covered under an NPDES storm water permit. If so, include the permit number.

7. Enter the 4-digit SIC code which identifies the facility's primary activity, and second 4-digit SIC code identifying the facility's secondary activity, if applicable. SIC codes can be obtained from the Standard Industrial Classification Manual, 1987.

8. Enter the total size of the site associated with industrial activity in acres. Acreage may be determined by dividing square footage by 43,560, as demonstrated in the following example.

   Example: Convert 54,450 ft^2 to acres

   Divide 54,450 ft^2 by 43,560 square feet per acre:
   54,450 ft^2 ÷ 43,560 ft^2/acre = 1.25 acres.

9. Check "Yes" or "No" as appropriate to indicate whether you have paved or roofed over a formerly exposed, pervious area (i.e., lawn, meadow, dirt or gravel road/parking lot) in order to qualify for no exposure. If yes, also indicate approximately how much area was paved or roofed over and is now impervious area.

EPA Form 3510-11 (10-99)

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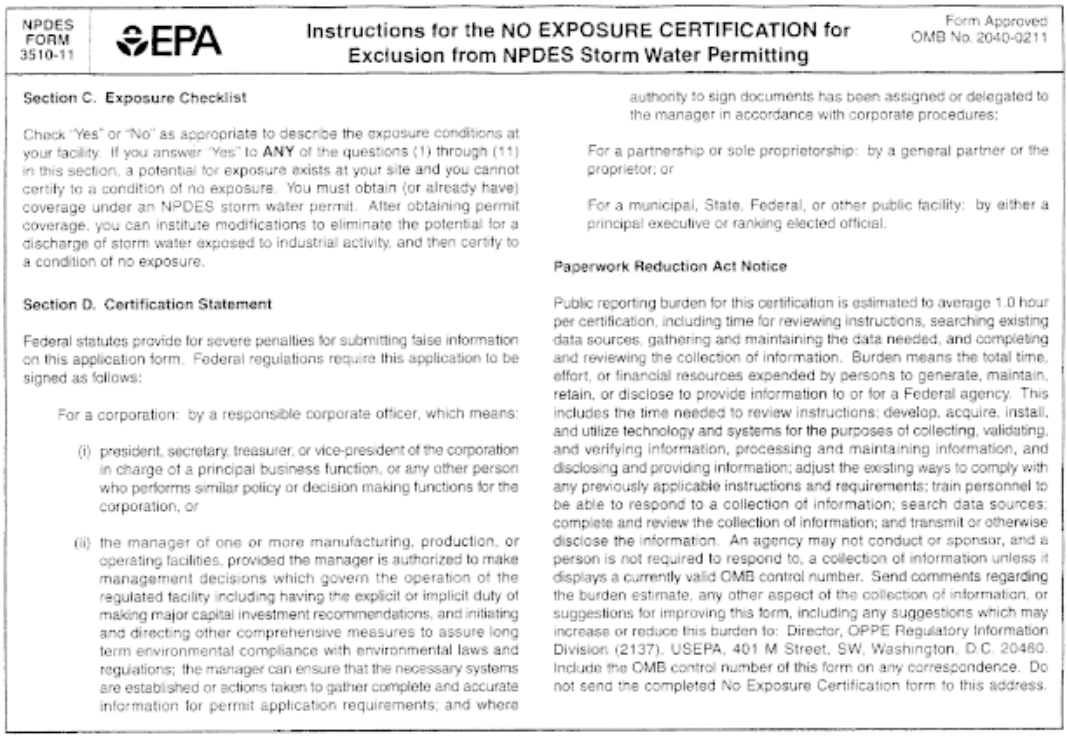

NPDES FORM 3510-11

EPA

Instructions for the NO EXPOSURE CERTIFICATION for Exclusion from NPDES Storm Water Permitting

Form Approved OMB No. 2040-0211

Section C. Exposure Checklist

Check "Yes" or "No" as appropriate to describe the exposure conditions at your facility. If you answer "Yes" to **ANY** of the questions (1) through (11) in this section, a potential for exposure exists at your site and you cannot certify to a condition of no exposure. You must obtain (or already have) coverage under an NPDES storm water permit. After obtaining permit coverage, you can institute modifications to eliminate the potential for a discharge of storm water exposed to industrial activity, and then certify to a condition of no exposure.

Section D. Certification Statement

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means:

(i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation, or

(ii) the manager of one or more manufacturing, production, or operating facilities, provided the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipal, State, Federal, or other public facility: by either a principal executive or ranking elected official.

Paperwork Reduction Act Notice

Public reporting burden for this certification is estimated to average 1.0 hour per certification, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose to provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Director, OPPE Regulatory Information Division (2137), USEPA, 401 M Street, SW, Washington, D.C. 20460. Include the OMB control number of this form on any correspondence. Do not send the completed No Exposure Certification form to this address.

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BILLING CODE 6560-50-C

***68811 Appendix 5 to Preamble—Regulatory Flexibility for Small Entities**

A. Regulatory Flexibility for Small Municipal Storm Sewer Systems (MS4s)

Different Compliance, Reporting, or Timetables That Are Responsive to Resources of Small Entities

NPDES permitting authorities can issue general permits instead of requiring individual permits. This flexibility avoids the high application costs and administrative burden associated with individual permits.

NPDES permitting authorities can specify a time period of up to five years for small MS4s to fully develop and implement their program

Analytic monitoring is not required.

After the first permit term and subsequent permit terms, submittal of a summary report is only required in years two and four (Phase I municipalities are currently required to submit a detailed report each year).

A brief reporting format is encouraged to facilitate compiling and analyzing data from submitted reports. EPA intends to develop a model form for this purpose.

NPDES Permitting Authorities can phase in permit coverage for small MS4s serving jurisdictions with a population under 10,000 on a schedule consistent with a State watershed permitting approach.

Clarifying, Consolidating, or Simplifying Compliance and Reporting Requirements

The rule avoids duplication in permit requirements by allowing NPDES permitting authorities to include permit conditions that direct an MS4 to follow the requirements of a qualifying local program rather than the requirements of a minimum measure. Compliance with these programs is considered compliance with the NPDES general permit.

The rule allows NPDES permitting authorities to recognize existing responsibilities among different municipal entities to satisfy obligations for the minimum control measures.

A further alternative allows a small MS4 to satisfy its NPDES permit obligations if another governmental entity is already implementing a minimum control measure in the jurisdiction of the small MS4. The following conditions must be met:

1. The other entity is implementing the control measure,

2. The particular control measure (or component thereof) is at least as stringent as the corrersponding NPDES permit requirement, and

3. The other entity agrees to implement the control measure on your behalf.

The rule allows a covered small MS4 to "piggy-back" on to the storm water management program of an adjoining Phase I MS4. A small MS4 is waived from the application requirements of §122.26(d)(1)(iii), (iv) and (d)(2)(iii) [discharge characterization] and may satisfy the requirements of §122.26(d)(1)(v) and (d)(2)(iv) [identifying a management plan] by referencing the adjoining Phase I MS4's storm water management plan.

The rule accommodates the use of the watershed approach through NPDES general permits that could be issued on a watershed basis. The small MS4 can develop measures that are tailored to meet their watershed requirements. The small MS4's storm water management program can tie into watershed-wide plans.

Performance Rather Than Design Standards for Small Entities

Small governmental jurisdictions whose MS4s are covered by this rule are allowed to choose the best management practices (BMPs) to be implemented and the measurable goals for each of the minimum control measures:

1. Public education and outreach on storm water impacts

2. Public Involvement/Participation

3. Illicit discharge detection and elimination ***68812**

4. Construction site storm water runoff control

5. Post-construction storm water management in new development and redevelopment

6. Pollution prevention/good housekeeping for municipal operations

EPA will provide guidance and recommend, but not mandate, certain BMPs for some of the minimum control measures listed above. States can provide guidance to supplement or supplant EPA guidance.

Small MS4s can identify the measurable goals for each of the minimum control measures listed above. In their reports to the NPDES permitting authority, the small MS4s must evaluate their progress towards achievement of their identified measurable goals.

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Waivers for Small Entities From Coverage

The rule allows permitting authorities to waive from coverage MS4s operated by small governmental jurisdictions located within an urbanized area and serving a population less than 1,000 people where the permitting authority has determined the MS4 is not contributing substantially to the pollutant loadings of an interconnected MS4 and, if the MS4 discharges pollutants that have been identified as a cause of impairment in the receiving water of the MS4 then the permitting authority has determined that storm water controls are not needed based on a TMDL that addresses the pollutants of concern.

The rule allows the permitting authority to waive from coverage MS4s serving a population under 10,000 where the permitting authority has evaluated all waters that receive a discharge from the MS4 and the permitting authority has determined that storm water controls are not needed based on a TMDL that addresses the pollutants of concern and future discharges do not have the potential to result in exceedances of water quality standards.

B. Regulatory Flexibility for Small Construction Activities

Different Compliance, Reporting, or Timetables That Are Responsive to Resources of Small Entities

The rule gives NPDES permitting authorities discretion not to require the submittal of a notice of intent (NOI) for coverage under a NPDES general permit, thereby reducing administrative and financial burden. All construction sites disturbing greater than 5 acres must submit an NOI.

Clarifying, Consolidating, or Simplifying Compliance and Reporting Requirements

The rule avoids duplication by allowing the NPDES permitting authority to incorporate by reference State, Tribal, or local programs under a NPDES general permit. Compliance with these programs is considered compliance with the NPDES general permit.

Performance Rather Than Design Standards for Small Entities

The operator of a covered construction activity selects and implement the BMPs most appropriate for the construction site based on the operator's storm water pollution prevention plan.

Waivers for Small Entities From Coverage

Waivers could be granted based on the use of a rainfall erosivity factor or a comprehensive analysis of water quality impacts.

(A) Low rainfall waiver: When the rainfall erosivity factor (“R” from Revised Universal Soil Loss Equation) is less than 5 during the period of construction activity, a permit is not required.

(B) Determination based on Water Quality Analysis: The NPDES permitting authority can waive from coverage construction activities disturbing from 1 acre up to 5 acres of land where storm water controls are not needed based on:

1. A TMDL approved or established by EPA that addresses the pollutants of concern, or

2. For non-impaired waters, an equivalent analysis that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety.

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C. Regulatory Flexibility for Industrial/Commercial Facilities

Waivers for Small Entities From Coverage

The rule provides a "no-exposure" waiver provision for Phase I industrial/commercial facilities. Qualifying facilities seeking this provision simply need to complete a self-certification form indicating that no industrial materials or activities are exposed to rain, snow, snow melt and/or runoff.

Appendix 6 of Preamble—Governmental Entities Located Fully or Partially Within an Urbanized Area

(This is a reference list only, not a list of all operators of small MS4s subject to §§122.32-122.36. For example, a listed governmental entity is only regulated if it operates a small MS4 within an "urbanized area" boundary as determined by the Bureau of the Census. Furthermore, entities such as military bases, large hospitals, prison complexes, universities, sewer districts, and highway departments that operate a small MS4 within an urbanized area are also subject to the permitting regulations but are not individually listed here. See §122.26(b)(16) for the definition of a small MS4 and §122.32(a) for the definition of a regulated small MS4.)

(Source: 1990 Census of Population and Housing, U.S. Bureau of the Census. This list is subject to change with the Decennial Census)

AL Anniston city

AL Attalla city

AL Auburn city

AL Autauga County

AL Blue Mountain town

AL Calhoun County

AL Colbert County

AL Dale County

AL Decatur city

AL Dothan city

AL Elmore County

AL Etowah County

AL Flint City town

AL Florence city

AL Gadsden city

AL Glencoe city

AL Grimes town

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AL Hartselle city

AL Hobson City town

AL Hokes Bluff city

AL Houston County

AL Kinsey town

AL Lauderdale County

AL Lee County

AL Limestone County

AL Madison County

AL Midland City town

AL Montgomery County

AL Morgan County

AL Muscle Shoals city

AL Napier Field town

AL Northport city

AL Opelika city

AL Oxford city

AL Phenix City city

AL Prattville city

AL Priceville town

AL Rainbow City city

AL Russell County

AL Sheffield city

AL Southside city

AL Sylvan Springs town

AL Talladega County

AL Tuscaloosa city

AL Tuscaloosa County

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AL Tuscumbia city

AL Weaver city

AR Alexander town

AR Barling city

AR Benton County

AR Cammack Village city

AR Crawford County

AR Crittenden County

AR Farmington city

AR Fayetteville city

AR Fort Smith city

AR Greenland town

AR Jacksonville city

AR Jefferson County

AR Johnson city

AR Marion city

AR Miller County

AR North Little Rock city

AR Pine Bluff city

AR Pulaski County

AR Saline County

AR Sebastian County

AR Shannon Hills city

AR Sherwood city

AR Springdale city

AR Sunset town

AR Texarkana city

AR Van Buren city

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AR Washington County

AR West Memphis city

AR White Hall city

AZ Apache Junction city

AZ Chandler city

AZ El Mirage town

AZ Gilbert town

AZ Guadalupe town

AZ Maricopa County

AZ Oro Valley town

AZ Paradise Valley town

AZ Peoria city

AZ Pinal County ***68813**

AZ South Tucson city

AZ Surprise town

AZ Tolleson city

AZ Youngtown town

AZ Yuma city

AZ Yuma County

CA Apple Valley town

CA Belvedere city

CA Benicia city

CA Brentwood city

CA Butte County

CA Capitola city

CA Carmel-by-the-Sea city

CA Carpinteria city

CA Ceres city

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CA Chico city

CA Compton city

CA Corte Madera town

CA Cotati city

CA Davis city

CA Del Rey Oaks city

CA Fairfax town

CA Hesperia city

CA Imperial County

CA Lakewood city

CA Lancaster city

CA Larkspur city

CA Lodi city

CA Lompoc city

CA Marin County

CA Marina city

CA Marysville city

CA Merced city

CA Merced County

CA Mill Valley city

CA Monterey city

CA Monterey County

CA Morgan Hill city

CA Napa city

CA Napa County

CA Novato city

CA Pacific Grove city

CA Palm Desert city

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CA Palmdale city

CA Piedmont city

CA Placer County

CA Redding city

CA Rocklin city

CA Rohnert Park city

CA Roseville city

CA Ross town

CA San Anselmo town

CA San Buenaventura (Ventura) city

CA San Francisco city

CA San Joaquin County

CA San Luis Obispo city

CA San Luis Obispo County

CA San Rafael city

CA Sand City city

CA Santa Barbara city

CA Santa Barbara County

CA Santa Cruz city

CA Santa Cruz County

CA Santa Maria city

CA Sausalito city

CA Scotts Valley city

CA Seaside city

CA Shasta County

CA Solano County

CA Sonoma County

CA Stanislaus County

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CA Suisun City city

CA Sutter County

CA Tiburon town

CA Tulare County

CA Vacaville city

CA Victorville city

CA Villa Park city

CA Visalia city

CA Watsonville city

CA West Sacramento city

CA Yolo County

CA Yuba City city

CA Yuba County

CO Adams County

CO Arvada city

CO Boulder city

CO Boulder County

CO Bow Mar town

CO Broomfield city

CO Cherry Hills Village city

CO Columbine Valley town

CO Commerce City city

CO Douglas County

CO Edgewater city

CO El Paso County

CO Englewood city

CO Evans city

CO Federal Heights city

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CO Fort Collins city

CO Fountain city

CO Garden City town

CO Glendale city

CO Golden city

CO Grand Junction city

CO Greeley city

CO Greenwood Village city

CO Jefferson County

CO La Salle town

CO Lakeside town

CO Larimer County

CO Littleton city

CO Longmont city

CO Manitou Springs city

CO Mesa County

CO Mountain View town

CO Northglenn city

CO Pueblo city

CO Pueblo County

CO Sheridan city

CO Thornton city

CO Weld County

CO Westminster city

CO Wheat Ridge city

CT Ansonia city

CT Avon town

CT Beacon Falls town

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CT Berlin town

CT Bethel town

CT Bloomfield town

CT Bozrah town

CT Branford town

CT Bridgeport city

CT Bristol city

CT Brookfield town

CT Burlington town

CT Cheshire town

CT Cromwell town

CT Danbury city

CT Darien town

CT Derby city

CT Durham town

CT East Granby town

CT East Hartford town

CT East Haven town

CT East Lyme town

CT East Windsor town

CT Easton town

CT Ellington town

CT Enfield town

CT Fairfield County

CT Fairfield town

CT Farmington town

CT Franklin town

CT Glastonbury town

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CT Greenwich town

CT Groton city

CT Groton town

CT Guilford town

CT Hamden town

CT Hartford city

CT Hartford County

CT Ledyard town

CT Lisbon town

CT Litchfield County

CT Manchester town

CT Meriden city

CT Middlebury town

CT Middlefield town

CT Middlesex County

CT Middletown city

CT Milford city (remainder)

CT Monroe town

CT Montville town

CT Naugatuck borough

CT New Britain city

CT New Canaan town

CT New Fairfield town

CT New Haven city

CT New Haven County

CT New London city

CT New London County

CT New Milford town

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CT Newington town

CT Newtown town

CT North Branford town

CT North Haven town

CT Norwalk city

CT Norwich city

CT Orange town

CT Oxford town

CT Plainville town

CT Plymouth town

CT Portland town

CT Preston town

CT Prospect town

CT Rocky Hill town

CT Seymour town

CT Shelton city

CT Sherman town

CT Somers town

CT South Windsor town

CT Southington town

CT Sprague town

CT Stonington town

CT Stratford town

CT Suffield town

CT Thomaston town

CT Thompson town

CT Tolland County

CT Tolland town

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CT Trumbull town

CT Vernon town

CT Wallingford town

CT Waterbury city

CT Waterford town

CT Watertown town

CT West Hartford town

CT West Haven city

CT Weston town

CT Westport town

CT Wethersfield town

CT Wilton town

CT Windham County

CT Windsor Locks town

CT Windsor town

CT Wolcott town

CT Woodbridge town ***68814**

CT Woodmont borough

DE Camden town

DE Dover city

DE Kent County

DE Newark city

DE Wyoming town

FL Alachua County

FL Baldwin town

FL Bay County

FL Belleair Shore town

FL Biscayne Park village

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FL Brevard County

FL Callaway city

FL Cape Canaveral city

FL Cedar Grove town

FL Charlotte County

FL Cinco Bayou town

FL Clay County

FL Cocoa Beach city

FL Cocoa city

FL Collier County

FL Daytona Beach city

FL Daytona Beach Shores city

FL Destin city

FL Edgewater city

FL El Portal village

FL Florida City city

FL Fort Pierce city

FL Fort Walton Beach city

FL Gainesville city

FL Gulf Breeze city

FL Hernando County

FL Hillsboro Beach town

FL Holly Hill city

FL Indialantic town

FL Indian Harbour Beach city

FL Indian River County

FL Indian River Shores town

FL Indian Shores town

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FL Kissimmee city

FL Lazy Lake village

FL Lynn Haven city

FL Malabar town

FL Marion County

FL Martin County

FL Mary Esther city

FL Melbourne Beach town

FL Melbourne city

FL Melbourne Village town

FL Naples city

FL New Smyrna Beach city

FL Niceville city

FL Ocala city

FL Ocean Breeze Park town

FL Okaloosa County

FL Orange Park town

FL Ormond Beach city

FL Osceola County

FL Palm Bay city

FL Panama City city

FL Parker city

FL Ponce Inlet town

FL Port Orange city

FL Port St. Lucie city

FL Punta Gorda city

FL Rockledge city

FL Santa Rosa County

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FL Satellite Beach city

FL Sewall's Point town

FL Shalimar town

FL South Daytona city

FL Springfield city

FL St. Johns County

FL St. Lucie County

FL St. Lucie village

FL Stuart city

FL Sweetwater city

FL Titusville city

FL Valparaiso city

FL Vero Beach city

FL Virginia Gardens village

FL Volusia County

FL Walton County

FL Weeki Wachee city

FL West Melbourne city

FL Windermere town

GA Albany city

GA Athens city

GA Bartow County

GA Brunswick city

GA Catoosa County

GA Centerville city

GA Chattahoochee County

GA Cherokee County

GA Chickamauga city

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GA Clarke County

GA Columbia County

GA Conyers city

GA Dade County

GA Dougherty County

GA Douglas County

GA Douglasville city

GA Fayette County

GA Floyd County

GA Fort Oglethorpe city

GA Glynn County

GA Grovetown city

GA Henry County

GA Houston County

GA Jones County

GA Lee County

GA Lookout Mountain city

GA Mountain Park city

GA Oconee County

GA Payne city

GA Rockdale County

GA Rome city

GA Rossville city

GA Stockbridge city

GA Vernonburg town

GA Walker County

GA Warner Robins city

GA Winterville city

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GA Woodstock city

IA Altoona city

IA Asbury city

IA Bettendorf city

IA Black Hawk County

IA Buffalo city

IA Carter Lake city

IA Cedar Falls city

IA Clive city

IA Coralville city

IA Council Bluffs city

IA Dallas County

IA Dubuque city

IA Dubuque County

IA Elk Run Heights city

IA Evansdale city

IA Hiawatha city

IA Iowa City city

IA Johnson County

IA Johnston city

IA Le Claire city

IA Linn County

IA Marion city

IA Norwalk city

IA Panorama Park city

IA Pleasant Hill city

IA Polk County

IA Pottawattamie County

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IA Raymond city

IA Riverdale city

IA Robins city

IA Scott County

IA Sergeant Bluff city

IA Sioux City city

IA University Heights city

IA Urbandale city

IA Warren County

IA Waterloo city

IA West Des Moines city

IA Windsor Heights city

IA Woodbury County

ID Ada County

ID Ammon city

ID Bannock County

ID Bonneville County

ID Chubbuck city

ID Idaho Falls city

ID Iona city

ID Pocatello city

ID Power County

IL Addison township

IL Addison village

IL Algonquin township

IL Algonquin village

IL Alorton village

IL Alsip village

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IL Alton city

IL Antioch township

IL Antioch village

IL Arlington Heights village

IL Aroma Park village

IL Aroma township

IL Aurora city

IL Aurora township

IL Avon township

IL Ball township

IL Bannockburn village

IL Barrington township

IL Barrington village

IL Bartlett village

IL Bartonville village

IL Batavia city

IL Batavia township

IL Beach Park village

IL Bedford Park village

IL Belleville city

IL Bellevue village

IL Bellwood village

IL Bensenville village

IL Benton township

IL Berkeley village

IL Berwyn city

IL Bethalto village

IL Blackhawk township

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IL Bloom township

IL Bloomingdale township

IL Bloomingdale village

IL Bloomington city

IL Bloomington township

IL Blue Island city

IL Bolingbrook village

IL Bourbonnais township

IL Bourbonnais village

IL Bowling township

IL Bradley village

IL Bremen township

IL Bridgeview village

IL Bristol township

IL Broadview village

IL Brookfield village

IL Brooklyn village

IL Buffalo Grove village

IL Burbank city

IL Burnham village

IL Burr Ridge village ***68815**

IL Burritt township

IL Burton township

IL Cahokia village

IL Calumet City city

IL Calumet Park village

IL Calumet township

IL Canteen township

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IL Capital township

IL Carbon Cliff village

IL Carol Stream village

IL Carpentersville Village

IL Cary village

IL Caseyville township

IL Caseyville village

IL Centreville city

IL Centreville township

IL Champaign city

IL Champaign County

IL Champaign township

IL Channahon township

IL Cherry Valley township

IL Cherry Valley village

IL Chicago city

IL Chicago Heights city

IL Chicago Ridge village

IL Chouteau township

IL Cicero town

IL Cincinnati township

IL Clarendon Hills village

IL Coal Valley township

IL Coal Valley village

IL Collinsville city

IL Collinsville township

IL Colona township

IL Colona village

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IL Columbia city

IL Country Club Hills city

IL Countryside city

IL Crest Hill city

IL Crestwood village

IL Crete township

IL Crete village

IL Creve Coeur village

IL Crystal Lake city

IL Cuba township

IL Curran township

IL Darien city

IL Decatur city

IL Decatur township

IL Deer Park village

IL Deerfield township

IL Deerfield village

IL Des Plaines city

IL Dixmoor village

IL Dolton village

IL Dorr township

IL Downers Grove township

IL Downers Grove village

IL Dry Grove township

IL Du Page township

IL Dundee township

IL Dunleith township

IL Dupo village

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IL East Alton village

IL East Dubuque city

IL East Dundee village

IL East Hazel Crest village

IL East Moline city

IL East Peoria city

IL East St. Louis city

IL Edwardsville city

IL Edwardsville township

IL Ela township

IL Elgin city

IL Elgin township

IL Elk Grove township

IL Elk Grove Village village

IL Elm Grove township

IL Elmhurst city

IL Elmwood Park village

IL Evanston city

IL Evergreen Park village

IL Fairmont City village

IL Fairview Heights city

IL Flossmoor village

IL Fondulac township

IL Ford Heights village

IL Forest Park village

IL Forest View village

IL Forsyth village

IL Fort Russell township

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IL Foster township

IL Fox Lake village

IL Fox River Grove village

IL Frankfort township

IL Frankfort village

IL Franklin Park village

IL Fremont township

IL Gardner township

IL Geneva city

IL Geneva township

IL Gilberts village

IL Glen Carbon village

IL Glen Ellyn village

IL Glencoe village

IL Glendale Heights village

IL Glenview village

IL Glenwood village

IL Godfrey township

IL Golf village

IL Grafton township

IL Grandview village

IL Granite City city

IL Grant township

IL Grayslake village

IL Green Oaks village

IL Green Rock city

IL Groveland township

IL Gurnee village

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IL Hainesville village

IL Hampton township

IL Hampton village

IL Hanna township

IL Hanover Park village

IL Hanover township

IL Harlem township

IL Harristown township

IL Harristown village

IL Hartford village

IL Harvey city

IL Harwood Heights village

IL Hawthorn Woods village

IL Hazel Crest village

IL Henry County

IL Hensley township

IL Hickory Hills city

IL Hickory Point township

IL Highland Park city

IL Highwood city

IL Hillside village

IL Hinsdale village

IL Hodgkins village

IL Hoffman Estates village

IL Hollis township

IL Homer township

IL Hometown city

IL Homewood village

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IL Indian Creek village

IL Indian Head Park village

IL Inverness village

IL Itasca village

IL Jarvis township

IL Jerome village

IL Jo Daviess County

IL Joliet city

IL Joliet township

IL Justice village

IL Kane County

IL Kankakee city

IL Kankakee County

IL Kankakee township

IL Kendall County

IL Kenilworth village

IL Kickapoo township

IL Kildeer village

IL La Grange Park village

IL La Grange village

IL Lake Barrington village

IL Lake Bluff village

IL Lake Forest city

IL Lake in the Hills village

IL Lake Villa township

IL Lake Villa village

IL Lake Zurich village

IL Lakemoor village

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IL Lakewood village

IL Lansing village

IL Leland Grove city

IL Lemont township

IL Leyden township

IL Libertyville township

IL Libertyville village

IL Limestone township

IL Lincolnshire village

IL Lincolnwood village

IL Lindenhurst village

IL Lisle township

IL Lisle village

IL Lockport city

IL Lockport township

IL Lombard village

IL Long Creek township

IL Long Grove village

IL Loves Park city

IL Lynwood village

IL Lyons township

IL Lyons village

IL Machesney Park village

IL Macon County

IL Madison city

IL Madison County

IL Maine township

IL Markham city

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IL Marquette Heights city

IL Maryville village

IL Matteson village

IL Maywood village

IL McCook village

IL McCullom Lake village

IL McHenry city

IL McHenry County

IL McHenry township

IL McLean County

IL Medina township

IL Melrose Park village

IL Merrionette Park village

IL Midlothian village

IL Milan village

IL Milton township

IL Moline city

IL Moline township

IL Monee township

IL Monroe County

IL Montgomery village

IL Moro township

IL Morton Grove village

IL Morton township

IL Morton village ***68816**

IL Mount Prospect village

IL Mount Zion township

IL Mount Zion village

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IL Mundelein village

IL Nameoki township

IL Naperville city

IL Naperville township

IL National City village

IL New Lenox township

IL New Lenox village

IL New Millford village

IL New Trier township

IL Newport township

IL Niles township

IL Niles village

IL Normal town

IL Normal township

IL Norridge village

IL North Aurora village

IL North Barrington village

IL North Chicago city

IL North Pekin village

IL North Riverside village

IL Northbrook village

IL Northfield township

IL Northfield village

IL Northlake city

IL Norwood Park township

IL Norwood village

IL Nunda township

IL Oak Brook village

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IL Oak Forest city

IL Oak Grove village

IL Oak Lawn village

IL Oak Park village

IL Oakbrook Terrace city

IL Oakley township

IL Oakwood Hills village

IL O'Fallon city

IL O'Fallon township

IL Olympia Fields village

IL Orland Hills village

IL Orland Park village

IL Orland township

IL Oswego township

IL Oswego village

IL Otto township

IL Owen township

IL Palatine township

IL Palatine village

IL Palos Heights city

IL Palos Hills city

IL Palos Park village

IL Palos township

IL Park City city

IL Park Forest village

IL Park Ridge city

IL Pekin city

IL Pekin township

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IL Peoria city

IL Peoria County

IL Peoria Heights village

IL Phoenix village

IL Pin Oak township

IL Plainfield township

IL Plainfield village

IL Pontoon Beach village

IL Posen village

IL Precinct 10

IL Prospect Heights city

IL Proviso township

IL Rich township

IL Richton Park village

IL Richwoods township

IL River Forest village

IL River Grove village

IL Riverdale village

IL Riverside township

IL Riverside village

IL Riverwoods village

IL Robbins village

IL Rochester township

IL Rock Island city

IL Rock Island County

IL Rock Island township

IL Rockdale village

IL Rockford township

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IL Rockton township

IL Rockton village

IL Rolling Meadows city

IL Romeoville village

IL Roscoe township

IL Roscoe village

IL Roselle village

IL Rosemont village

IL Round Lake Beach village

IL Round Lake Heights village

IL Round Lake Park village

IL Round Lake village

IL Roxana village

IL Rutland township

IL Sangamon County

IL Sauget village

IL Sauk Village village

IL Savoy village

IL Schaumburg township

IL Schaumburg village

IL Schiller Park village

IL Shields township

IL Shiloh Valley township

IL Shiloh village

IL Shorewood village

IL Silvis city

IL Skokie village

IL Sleepy Hollow village

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IL Somer township

IL South Beloit city

IL South Chicago Heights village

IL South Elgin village

IL South Holland village

IL South Moline township

IL South Rock Island township

IL South Roxana village

IL South Wheatland township

IL Southern View village

IL Spring Bay township

IL Springfield city

IL Springfield township

IL St. Charles city

IL St. Charles township

IL St. Clair County

IL St. Clair township

IL Steger village

IL Stickney township

IL Stickney village

IL Stites township

IL Stone Park village

IL Stookey township

IL Streamwood village

IL Sugar Grove township

IL Sugar Loaf township

IL Summit village

IL Sunnyside village

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IL Swansea village

IL Tazewell County

IL Thornton township

IL Thornton village

IL Tinley Park village

IL Tolono township

IL Tower Lakes village

IL Tremont township

IL Troy city

IL Troy township

IL University Park village

IL Urbana city

IL Urbana township

IL Venice city

IL Venice township

IL Vernon Hills village

IL Vernon township

IL Villa Park village

IL Warren township

IL Warrenville city

IL Washington city

IL Washington Park village

IL Washington township

IL Wauconda township

IL Waukegan city

IL Waukegan township

IL Wayne township

IL West Chicago city

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IL West Deerfield township

IL West Dundee village

IL West Peoria township

IL Westchester village

IL Western Springs village

IL Westmont village

IL Wheatland township

IL Wheaton city

IL Wheeling township

IL Wheeling village

IL Whitmore township

IL Will County

IL Willow Springs village

IL Willowbrook village

IL Wilmette village

IL Winfield township

IL Winfield village

IL Winnebago County

IL Winnetka village

IL Winthrop Harbor village

IL Wood Dale city

IL Wood River city

IL Wood River township

IL Woodford County

IL Woodridge village

IL Woodside township

IL Worth township

IL Worth village

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IL York township

IL Zion city

IN Aboite township

IN Adams township

IN Allen County

IN Anderson city

IN Anderson township

IN Baugo township

IN Beech Grove city

IN Bloomington city

IN Bloomington township

IN Boone County

IN Buck Creek township

IN Calumet township

IN Carmel city

IN Castleton town

IN Cedar Creek township

IN Center township

IN Centre township

IN Chesterfield town

IN Chesterton town

IN Clark County

IN Clarksville town

IN Clay township

IN Clermont town

IN Cleveland township

IN Concord township

IN Country Club Heights town ***68817**

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IN Crown Point city

IN Crows Nest town

IN Cumberland town

IN Daleville town

IN Delaware County

IN Delaware township

IN Dyer town

IN Eagle township

IN East Chicago city

IN Edgewood town

IN Elkhart city

IN Elkhart County

IN Elkhart township

IN Evansville city

IN Fairfield township

IN Fall Creek township

IN Fishers town

IN Floyd County

IN Fort Wayne city

IN Franklin township

IN Gary city

IN German township

IN Goshen city

IN Greenwood city

IN Griffith town

IN Hamilton County

IN Hamilton township

IN Hammond city

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IN Hancock County

IN Hanover township

IN Harris township

IN Harrison township

IN Hendricks County

IN Highland town

IN Hobart city

IN Hobart township

IN Homecroft town

IN Honey Creek township

IN Howard County

IN Howard township

IN Indian Village town

IN Jackson township

IN Jefferson township

IN Jeffersonville city

IN Jeffersonville township

IN Johnson County

IN Knight township

IN Kokomo city

IN Lafayette city

IN Lafayette township

IN Lake County

IN Lake Station city

IN Lawrence city

IN Lawrence township

IN Liberty township

IN Lincoln township

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IN Lost Creek township

IN Madison County

IN Meridian Hills town

IN Merrillville town

IN Mishawaka city

IN Monroe County

IN Mount Pleasant township

IN Muncie city

IN Munster town

IN New Albany city

IN New Albany township

IN New Chicago town

IN New Haven city

IN New Whiteland town

IN Newburgh town

IN North Crows Nest town

IN North township

IN Ogden Dunes town

IN Ohio township

IN Osceola town

IN Osolo township

IN Otter Creek township

IN Penn township

IN Perry township

IN Pigeon township

IN Pike township

IN Pleasant township

IN Portage city

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IN Portage township

IN Porter County

IN Porter town

IN Richland township

IN Riley township

IN River Forest town

IN Rocky Ripple town

IN Roseland town

IN Ross township

IN Salem township

IN Schererville town

IN Seelyville town

IN Sellersburg town

IN Selma town

IN Silver Creek township

IN South Bend city

IN Southport city

IN Speedway town

IN Spring Hill town

IN St. John town

IN St. John township

IN St. Joseph County

IN St. Joseph township

IN Sugar Creek township

IN Taylor township

IN Terre Haute city

IN Tippecanoe County

IN Tippecanoe township

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IN Union township

IN Utica township

IN Van Buren township

IN Vanderburgh County

IN Vigo County

IN Wabash township

IN Warren Park town

IN Warren township

IN Warrick County

IN Washington township

IN Wayne township

IN Wea township

IN West Lafayette city

IN West Terre Haute town

IN Westchester township

IN Westfield town

IN White River township

IN Whiteland town

IN Whiting city

IN Williams Creek town

IN Woodlawn Heights town

IN Wynnedale town

IN Yorktown town

IN Zionsville town

KS Attica township

KS Bel Aire city

KS Countryside city

KS Delano township

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KS Doniphan County

KS Douglas County

KS Eastborough city

KS Elwood city

KS Fairway city

KS Gypsum township

KS Haysville city

KS Johnson County

KS Kechi city

KS Kechi township

KS Lake Quivira city

KS Lawrence city

KS Leawood city

KS Lenexa city

KS Merriam city

KS Minneha township

KS Mission city

KS Mission Hills city

KS Mission township

KS Mission Woods city

KS Monticello township

KS Ohio township

KS Olathe city

KS Olathe township

KS Park City city

KS Park township

KS Prairie Village city

KS Riverside township

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KS Roeland Park city

KS Salem township

KS Sedgwick County

KS Shawnee city

KS Shawnee County

KS Shawnee township

KS Soldier township

KS Tecumseh township

KS Topeka township

KS Waco township

KS Wakarusa township

KS Washington township

KS Westwood city

KS Westwood Hills city

KS Williamsport township

KS Wyandotte County

KY Alexandria city

KY Ashland city

KY Bellefonte city

KY Bellevue city

KY Boone County

KY Boyd County

KY Bromley city

KY Bullitt County

KY Campbell County

KY Catlettsburg city

KY Christian County

KY Covington city

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KY Crescent Park city

KY Crescent Springs city

KY Crestview city

KY Crestview Hills city

KY Daviess County

KY Dayton city

KY Edgewood city

KY Elsmere city

KY Erlanger city

KY Fairview city

KY Flatwoods city

KY Florence city

KY Forest Hills city

KY Fort Mitchell city

KY Fort Thomas city

KY Fort Wright city

KY Fox Chase city

KY Greenup County

KY Hebron Estates city

KY Henderson city

KY Henderson County

KY Highland Heights city

KY Hillview city

KY Hunters Hollow city

KY Independence city

KY Jessamine County

KY Kenton County

KY Kenton Vale city

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KY Lakeside Park city

KY Latonia Lakes city

KY Ludlow city

KY Melbourne city ***68818**

KY Newport city

KY Oak Grove city

KY Owensboro city

KY Park Hills city

KY Pioneer Village city

KY Raceland city

KY Russell city

KY Silver Grove city

KY Southgate city

KY Taylor Mill city

KY Villa Hills city

KY Wilder city

KY Woodlawn city

KY Wurtland city

LA Alexandria city

LA Baker city

LA Ball town

LA Bossier City city

LA Bossier Parish

LA Broussard town

LA Caddo Parish

LA Calcasieu Parish

LA Carencro city

LA Denham Springs city

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LA Houma city

LA Lafayette city

LA Lafayette Parish

LA Lafourche Parish

LA Lake Charles city

LA Livingston Parish

LA Monroe city

LA Ouachita Parish

LA Pineville city

LA Plaquemines Parish

LA Port Allen city

LA Rapides Parish

LA Richwood town

LA Scott town

LA Slidell city

LA St. Bernard Parish

LA St. Charles Parish

LA St. Tammany Parish

LA Sulphur city

LA Terrebonne Parish

LA West Baton Rouge Parish

LA West Monroe city

LA Westlake city

LA Zachary city

MA Abington town

MA Acton town

MA Acushnet town

MA Agawam town

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MA Amesbury town

MA Andover town

MA Arlington town

MA Ashland town

MA Attleboro city

MA Auburn town

MA Avon town

MA Barnstable County

MA Barnstable town

MA Bedford town

MA Bellingham town

MA Belmont town

MA Berkshire County

MA Beverly city

MA Billerica town

MA Blackstone town

MA Boxborough town

MA Boylston town

MA Braintree town

MA Bridgewater town

MA Bristol County

MA Brockton city

MA Brookline town

MA Burlington town

MA Cambridge city

MA Canton town

MA Charlton town

MA Chelmsford town

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MA Chelsea city

MA Chicopee city

MA Cohasset town

MA Concord town

MA Dalton town

MA Danvers town

MA Dartmouth town

MA Dedham town

MA Dennis town

MA Dighton town

MA Dover town

MA Dracut town

MA Dudley town

MA East Bridgewater town

MA East Longmeadow town

MA Easthampton town

MA Easton town

MA Essex County

MA Essex town

MA Everett city

MA Fairhaven town

MA Fall River city

MA Fitchburg city

MA Foxborough town

MA Framingham town

MA Franklin town

MA Freetown town

MA Georgetown town

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MA Gloucester city

MA Grafton town

MA Granby town

MA Groton town

MA Groveland town

MA Hadley town

MA Halifax town

MA Hamilton town

MA Hampden County

MA Hampden town

MA Hampshire County

MA Hanover town

MA Hanson town

MA Haverhill city

MA Hingham town

MA Hinsdale town

MA Holbrook town

MA Holden town

MA Holliston town

MA Holyoke city

MA Hudson town

MA Hull town

MA Lanesborough town

MA Lawrence city

MA Leicester town

MA Leominster city

MA Lexington town

MA Lincoln town

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MA Littleton town

MA Longmeadow town

MA Lowell city

MA Ludlow town

MA Lunenburg town

MA Lynn city

MA Lynnfield town

MA Malden city

MA Manchester town

MA Mansfield town

MA Marblehead town

MA Marlborough city

MA Mashpee town

MA Maynard town

MA Medfield town

MA Medford city

MA Medway town

MA Melrose city

MA Merrimac town

MA Methuen town

MA Middlesex County

MA Middleton town

MA Millbury town

MA Millis town

MA Millville town

MA Milton town

MA Nahant town

MA Natick town

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MA Needham town

MA New Bedford city

MA Newton city

MA Norfolk town

MA North Andover town

MA North Attleborough town

MA North Reading town

MA Northampton city

MA Northborough town

MA Northbridge town

MA Norton town

MA Norwell town

MA Norwood town

MA Oxford town

MA Paxton town

MA Peabody city

MA Pembroke town

MA Pittsfield city

MA Plainville town

MA Plymouth County

MA Quincy city

MA Randolph town

MA Raynham town

MA Reading town

MA Rehoboth town

MA Revere city

MA Rockland town

MA Rockport town

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MA Salem city

MA Sandwich town

MA Saugus town

MA Scituate town

MA Seekonk town

MA Sharon town

MA Shrewsbury town

MA Somerset town

MA Somerville city

MA South Hadley town

MA Southampton town

MA Southborough town

MA Southwick town

MA Springfield city

MA Stoneham town

MA Stoughton town

MA Stow town

MA Sudbury town

MA Sutton town

MA Swampscott town

MA Swansea town

MA Taunton city

MA Tewksbury town

MA Tyngsborough town

MA Uxbridge town

MA Wakefield town

MA Walpole town

MA Waltham city

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MA Watertown town

MA Wayland town

MA Webster town

MA Wellesley town

MA Wenham town

MA West Boylston town

MA West Bridgewater town

MA West Springfield town ***68819**

MA Westborough town

MA Westfield city

MA Westford town

MA Westminster town

MA Weston town

MA Westport town

MA Westwood town

MA Weymouth town

MA Whitman town

MA Wilbraham town

MA Williamsburg town

MA Wilmington town

MA Winchester town

MA Winthrop town

MA Woburn city

MA Worcester County

MA Wrentham town

MA Yarmouth town

MD Allegany County

MD Annapolis city

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MD Bel Air town

MD Berwyn Heights town

MD Bladensburg town

MD Bowie city

MD Brentwood town

MD Brookeville town

MD Capitol Heights town

MD Cecil County

MD Cheverly town

MD Chevy Chase Section Five village

MD Chevy Chase Section Three village

MD Chevy Chase town

MD Chevy Chase Village town

MD College Park city

MD Colmar Manor town

MD Cottage City town

MD Cumberland city

MD District Heights city

MD Edmonston town

MD Elkton town

MD Fairmount Heights town

MD Forest Heights town

MD Frederick city

MD Frostburg city

MD Funkstown town

MD Gaithersburg city

MD Garrett Park town

MD Glen Echo town

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MD Glenarden town

MD Greenbelt city

MD Hagerstown city

MD Highland Beach town

MD Hyattsville city

MD Kensington town

MD Landover Hills town

MD Laurel city

MD Martin's Additions village

MD Morningside town

MD Mount Rainier city

MD New Carrollton city

MD North Brentwood town

MD Riverdale town

MD Rockville city

MD Seat Pleasant city

MD Smithsburg town

MD Somerset town

MD Takoma Park city

MD University Park town

MD Walkersville town

MD Washington Grove town

MD Williamsport town

ME Androscoggin County

ME Auburn city

ME Bangor city

ME Berwick town

ME Brewer city

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ME Cape Elizabeth town

ME Cumberland County

ME Eliot town

ME Falmouth town

ME Gorham town

ME Kittery town

ME Lebanon town

ME Lewiston city

ME Lisbon town

ME Old Town city

ME Orono town

ME Penobscot County

ME Penobscot Indian Island Reservation

ME Portland city

ME Sabattus town

ME Scarborough town

ME South Berwick town

ME South Portland city

ME Veazie town

ME Westbrook city

ME York County

MI Ada township

MI Allegan County

MI Allen Park city

MI Alpine township

MI Ann Arbor township

MI Auburn Hills city

MI Bangor township

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MI Bath township

MI Battle Creek city

MI Bay City city

MI Bay County

MI Bedford township

MI Belleville city

MI Benton Charter township

MI Benton Harbor city

MI Berkley city

MI Berlin township

MI Berrien County

MI Beverly Hills village

MI Bingham Farms village

MI Birmingham city

MI Blackman township

MI Bloomfield Hills city

MI Bloomfield township

MI Bridgeport township

MI Brownstown township

MI Buena Vista Charter township

MI Burtchville township

MI Burton city

MI Byron township

MI Calhoun County

MI Canton township

MI Carrollton township

MI Cascade township

MI Cass County

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MI Center Line city

MI Chesterfield township

MI Clarkston village

MI Clawson city

MI Clay township

MI Clayton township

MI Clinton County

MI Clinton township

MI Clio city

MI Clyde township

MI Commerce township

MI Comstock township

MI Cooper township

MI Dalton township

MI Davison city

MI Davison township

MI De Witt township

MI Dearborn city

MI Dearborn Heights city

MI Delhi Charter township

MI Delta township

MI Detroit city

MI East China township

MI East Detroit city

MI East Grand Rapids city

MI East Lansing city

MI Eaton County

MI Ecorse city

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MI Emmett township

MI Erie township

MI Essexville city

MI Farmington city

MI Farmington Hills city

MI Ferndale city

MI Fillmore township

MI Flat Rock city

MI Flint township

MI Flushing city

MI Flushing township

MI Fort Gratiot township

MI Frankenlust township

MI Franklin village

MI Fraser city

MI Fruitport township

MI Gaines township

MI Garden City city

MI Genesee County

MI Genesee township

MI Georgetown township

MI Gibraltar city

MI Grand Blanc city

MI Grand Blanc township

MI Grand Rapids Charter township

MI Grandville city

MI Grosse Ile township

MI Grosse Pointe city

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MI Grosse Pointe Farms city

MI Grosse Pointe Park city

MI Grosse Pointe Shores village

MI Grosse Pointe Woods city

MI Hampton township

MI Hamtramck city

MI Harper Woods city

MI Harrison township

MI Hazel Park city

MI Highland Park city

MI Highland township

MI Holland city

MI Holland township

MI Howard township

MI Hudsonville city

MI Huntington Woods city

MI Huron township

MI Independence township

MI Ingham County

MI Inkster city

MI Ira township

MI Jackson city

MI Jackson County

MI James township

MI Kalamazoo city

MI Kalamazoo County

MI Kalamazoo township

MI Keego Harbor city

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MI Kent County

MI Kentwood city

MI Kimball township

MI Kochville township

MI Lake Angelus city

MI Laketon township

MI Laketown township

MI Lansing city

MI Lansing township

MI Lathrup Village city

MI Leoni township

MI Lincoln Park city ***68820**

MI Lincoln township

MI Livonia city

MI Macomb County

MI Macomb township

MI Madison Heights city

MI Marysville city

MI Melvindale city

MI Meridian township

MI Milford township

MI Milton township

MI Monitor township

MI Monroe County

MI Mount Clemens city

MI Mount Morris city

MI Mount Morris township

MI Mundy township

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MI Muskegon city

MI Muskegon County

MI Muskegon Heights city

MI Muskegon township

MI New Baltimore city

MI Niles city

MI Niles township

MI North Muskegon city

MI Northville city

MI Northville township

MI Norton Shores city

MI Novi city

MI Novi township

MI Oak Park city

MI Oakland Charter township

MI Oakland County

MI Orchard Lake Village city

MI Orion township

MI Oshtemo township

MI Ottawa County

MI Parchment city

MI Park township

MI Pavilion township

MI Pennfield township

MI Pittsfield township

MI Plainfield township

MI Pleasant Ridge city

MI Plymouth city

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MI Plymouth township

MI Pontiac city

MI Port Huron city

MI Port Huron township

MI Portage city

MI Portsmouth township

MI Redford township

MI Richfield township

MI River Rouge city

MI Riverview city

MI Rochester city

MI Rochester Hills city

MI Rockwood city

MI Romulus city

MI Roosevelt Park city

MI Roseville city

MI Ross township

MI Royal Oak city

MI Royal Oak township

MI Saginaw city

MI Saginaw County

MI Saginaw township

MI Schoolcraft township

MI Scio township

MI Shelby township

MI Shoreham village

MI Sodus township

MI South Rockwood village

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MI Southfield city

MI Southfield township

MI Southgate city

MI Spaulding township

MI Spring Arbor township

MI Springfield city

MI Springfield township

MI St. Clair city

MI St. Clair County

MI St. Clair Shores city

MI St. Clair township

MI St. Joseph Charter township

MI St. Joseph city

MI Stevensville village

MI Sullivan township

MI Summit township

MI Sumpter township

MI Superior township

MI Swartz Creek city

MI Sylvan Lake city

MI Taylor city

MI Texas township

MI Thetford township

MI Thomas township

MI Trenton city

MI Troy city

MI Utica city

MI Van Buren township

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MI Vienna township

MI Walker city

MI Walled Lake city

MI Washington township

MI Washtenaw County

MI Waterford township

MI Wayne city

MI West Bloomfield township

MI Westland city

MI White Lake township

MI Whiteford township

MI Williamstown township

MI Wixom city

MI Wolverine Lake village

MI Woodhaven city

MI Wyandotte city

MI Wyoming city

MI Ypsilanti city

MI Ypsilanti township

MI Zeeland city

MI Zilwaukee city

MN Andover city

MN Anoka city

MN Anoka County

MN Apple Valley city

MN Arden Hills city

MN Benton County

MN Birchwood Village city

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MN Blaine city

MN Bloomington city

MN Brooklyn Center city

MN Brooklyn Park city

MN Burnsville city

MN Carver County

MN Cascade township

MN Champlin city

MN Chanhassen city

MN Circle Pines city

MN Clay County

MN Coon Rapids city

MN Cottage Grove city

MN Credit River township

MN Crystal city

MN Dakota County

MN Dayton city

MN Deephaven city

MN Dilworth city

MN Duluth city

MN Eagan city

MN East Grand Forks city

MN Eden Prairie city

MN Excelsior city

MN Falcon Heights city

MN Farmington city

MN Fort Snelling unorg.

MN Fridley city

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MN Gem Lake city

MN Golden Valley city

MN Grant township

MN Greenwood city

MN Ham Lake city

MN Haven township

MN Hennepin County

MN Hermantown city

MN Hilltop city

MN Hopkins city

MN Houston County

MN Inver Grove Heights city

MN La Crescent city

MN La Crescent township

MN Lake Elmo city

MN Lakeville city

MN Landfall city

MN Lauderdale city

MN Le Sauk township

MN Lexington city

MN Lilydale city

MN Lino Lakes city

MN Little Canada city

MN Long Lake city

MN Loretto city

MN Mahtomedi city

MN Maple Grove city

MN Maple Plain city

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MN Maplewood city

MN Marion township

MN Medicine Lake city

MN Medina city

MN Mendota city

MN Mendota Heights city

MN Midway township

MN Minden township

MN Minnetonka Beach city

MN Minnetonka city

MN Minnetrista city

MN Moorhead city

MN Moorhead township

MN Mound city

MN Mounds View city

MN New Brighton city

MN New Hope city

MN Newport city

MN North Oaks city

MN North St. Paul city

MN Oakdale city

MN Oakport township

MN Olmsted County

MN Orono city

MN Osseo city

MN Plymouth city

MN Polk County

MN Prior Lake city

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MN Proctor city

MN Ramsey city

MN Robbinsdale city

MN Rochester city

MN Rochester township

MN Rosemount city

MN Roseville city

MN Sartell city

MN Sauk Rapids city

MN Sauk Rapids township

MN Savage city

MN Scott County

MN Sherburne County

MN Shoreview city

MN Shorewood city

MN South St. Paul city ***68821**

MN Spring Lake Park city

MN Spring Park city

MN St. Anthony city

MN St. Cloud city

MN St. Cloud township

MN St. Louis County

MN St. Paul Park city

MN Stearns County

MN Sunfish Lake city

MN Tonka Bay city

MN Vadnais Heights city

MN Victoria city

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MN Waite Park city

MN Washington County

MN Wayzata city

MN West St. Paul city

MN White Bear Lake city

MN White Bear township

MN Willernie city

MN Woodbury city

MN Woodland city

MN Wright County

MO Airport Drive village

MO Airport township

MO Andrew County

MO Arnold city

MO Avondale city

MO Ballwin city

MO Battlefield town

MO Bella Villa city

MO Bellefontaine Neighbors city

MO Bellerive village

MO Bel-Nor village

MO Bel-Ridge village

MO Belton city

MO Berkeley city

MO Beverly Hills city

MO Big Creek township

MO Birmingham village

MO Black Jack city

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MO Blanchette township

MO Blue Springs city

MO Blue township

MO Bonhomme township

MO Boone County

MO Boone township

MO Breckenridge Hills village

MO Brentwood city

MO Bridgeton city

MO Brooking township

MO Buchanan County

MO Calverton Park village

MO Campbell No. 1 township

MO Campbell No. 2 township

MO Carl Junction city

MO Carroll township

MO Carterville city

MO Cass County

MO Cedar township

MO Center township

MO Charlack city

MO Chesterfield city

MO Chouteau township

MO Christian County

MO Clarkson Valley city

MO Clay County

MO Clay township

MO Claycomd village

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MO Clayton city

MO Clayton township

MO Cliff Village village

MO Columbia city

MO Columbia township

MO Concord township

MO Cool Valley city

MO Cottleville town

MO Cottleville township

MO Country Club Hills city

MO Country Club village

MO Country Life Acres village

MO Crestwood city

MO Creve Coeur city

MO Creve Coeur township

MO Crystal Lake Park city

MO Dardenne township

MO Dellwood city

MO Dennis Acres village

MO Des Peres city

MO Duquesne village

MO Edmundson village

MO Ellisville city

MO Fenton city

MO Ferguson city

MO Ferguson township

MO Flordell Hills city

MO Florissant city

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MO Florissant township

MO Fox township

MO Friedens township

MO Frontenac city

MO Galena township

MO Gallatin township

MO Gladstone city

MO Glen Echo Park village

MO Glenaire village

MO Glendale city

MO Grandview city

MO Grantwood Village town

MO Gravois township

MO Greendale city

MO Greene County

MO Hadley township

MO Hanley Hills village

MO Harvester township

MO Hazelwood city

MO High Ridge township

MO Hillsdale village

MO Houston Lake city

MO Huntleigh city

MO Imperial township

MO Iron Gates village

MO Jackson County

MO Jasper County

MO Jefferson County

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MO Jefferson township

MO Jennings city

MO Joplin city

MO Joplin township

MO Kickapoo township

MO Kimmswick city

MO Kinloch city

MO Kirkwood city

MO Ladue city

MO Lake St. Louis city

MO Lake Tapawingo city

MO Lake Waukomis city

MO Lakeshire city

MO Leawood village

MO Lee's Summit city

MO Lemay township

MO Lewis and Clark township

MO Liberty city

MO Liberty township

MO Mac Kenzie village

MO Manchester city

MO Maplewood city

MO Marlborough village

MO Maryland Heights city

MO May township

MO Meramec township

MO Midland township

MO Mineral township

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MO Missouri River township

MO Missouri township

MO Moline Acres city

MO Mount Pleasant township

MO Newton County

MO Normandy city

MO Normandy township

MO North Campbell No. 1 township

MO North Campbell No. 2 township

MO North Campbell No. 3 township

MO North Kansas City city

MO North View township

MO Northmoor city

MO Northwest township

MO Northwoods city

MO Norwood Court town

MO Oakland city

MO Oakland Park village

MO Oaks village

MO Oakview village

MO Oakwood Park village

MO Oakwood village

MO O'Fallon city

MO O'Fallon township

MO Olivette city

MO Overland city

MO Pagedale city

MO Parkdale town

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MO Parkville city

MO Pasadena Hills city

MO Pasadena Park village

MO Pettis township

MO Pine Lawn city

MO Platte County

MO Platte township

MO Platte Woods city

MO Pleasant Valley city

MO Prairie township

MO Queeny township

MO Randolph village

MO Raymore city

MO Raymore township

MO Raytown city

MO Redings Mill village

MO Richmond Heights city

MO Rivers township

MO Riverside city

MO Riverview village

MO Rock Hill city

MO Rock township

MO Rocky Fork township

MO Saginaw village

MO Shoal Creek Drive village

MO Shoal Creek township

MO Shrewsbury city

MO Silver Creek village

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MO Sioux township

MO Sni-A-Bar township

MO Spanish Lake township

MO Spencer Creek township

MO St. Ann city

MO St. Charles city

MO St. Ferdinand township

MO St. George city

MO St. John city

MO St. Joseph city

MO St. Louis city

MO St. Peters city

MO St. Peters township

MO Sugar Creek city

MO Sunset Hills city

MO Sycamore Hills village

MO Town and Country city

MO Twin Groves township

MO Twin Oaks village

MO Unity Village village ***68822**

MO University City city

MO Uplands Park village

MO Valley Park city

MO Velda Village city

MO Velda Village Hills village

MO Vinita Park city

MO Vinita Terrace village

MO Warson Woods city

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MO Washington township

MO Wayne township

MO Weatherby Lake city

MO Webb City city

MO Webster Groves city

MO Wellston city

MO Wentzville township

MO Westwood village

MO Wilbur Park village

MO Wilson township

MO Winchester city

MO Windsor township

MO Woodson Terrace city

MO Zumbehl township

MS Bay St. Louis city

MS Biloxi city

MS Brandon city

MS Clinton city

MS DeSoto County

MS D'Iberville city

MS Flowood town

MS Forrest County

MS Gautier city

MS Gulfport city

MS Hancock County

MS Harrison County

MS Hattiesburg city

MS Hinds County

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MS Horn Lake city

MS Jackson County

MS Lamar County

MS Long Beach city

MS Madison city

MS Madison County

MS Moss Point city

MS Ocean Springs city

MS Pascagoula city

MS Pass Christian city

MS Pearl city

MS Petal city

MS Rankin County

MS Richland city

MS Ridgeland city

MS Southaven city

MS Waveland city

MT Billings city

MT Cascade County

MT Great Falls city

MT Missoula city

MT Missoula County

MT Yellowstone County

NC Alamance County

NC Apex town

NC Archdale city

NC Asheville city

NC Belmont city

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NC Belville town

NC Bessemer City city

NC Biltmore Forest town

NC Black Mountain town

NC Brookford town

NC Brunswick County

NC Buncombe County

NC Burke County

NC Burlington city

NC Cabarrus County

NC Carrboro town

NC Cary town

NC Catawba County

NC Chapel Hill town

NC China Grove town

NC Clemmons village

NC Concord city

NC Conover city

NC Cramerton town

NC Dallas town

NC Davidson County

NC Durham County

NC Edgecombe County

NC Elon College town

NC Fletcher town

NC Forsyth County

NC Garner town

NC Gaston County

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NC Gastonia city

NC Gibsonville town

NC Goldsboro city

NC Graham city

NC Greenville city

NC Guilford County

NC Harnett County

NC Haw River town

NC Henderson County

NC Hickory city

NC High Point city

NC Hildebran town

NC Hope Mills town

NC Indian Trail town

NC Jacksonville city

NC Jamestown town

NC Kannapolis city

NC Landis town

NC Leland town

NC Long View town

NC Lowell city

NC Matthews town

NC McAdenville town

NC Mebane city

NC Mecklenburg County

NC Mint Hill town

NC Montreat town

NC Mount Holly city

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NC Nash County

NC New Hanover County

NC Newton city

NC Onslow County

NC Orange County

NC Pineville town

NC Pitt County

NC Randolph County

NC Ranlo town

NC Rocky Mount city

NC Rowan County

NC Rural Hall town

NC Spring Lake town

NC Stallings town

NC Thomasville city

NC Union County

NC Wake County

NC Walkertown town

NC Wayne County

NC Weaverville town

NC Wilmington city

NC Winterville town

NC Woodfin town

NC Wrightsville Beach town

ND Barnes township

ND Bismarck city

ND Bismarck unorg.

ND Burleigh County

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ND Captain's Landing township

ND Cass County

ND Fargo city

ND Grand Forks city

ND Grand Forks County

ND Grand Forks township

ND Hay Creek township

ND Lincoln city

ND Mandan city

ND Mandan unorg.

ND Morton County

ND Reed township

ND West Fargo city

NE Bellevue city

NE Bellevue No. 2 precinct

NE Benson precinct

NE Boys Town village

NE Chicago precinct

NE Covington precinct

NE Dakota County

NE Douglas County

NE Douglas precinct

NE Florence precinct

NE Garfield precinct

NE Gilmore No. 1 precinct

NE Gilmore No. 2 precinct

NE Gilmore No. 3 precinct

NE Grant precinct

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NE Highland No. 1 precinct

NE Highland No. 2 precinct

NE Jefferson precinct

NE La Platte precinct

NE La Vista city

NE Lancaster County

NE Lancaster precinct

NE McArdle precinct

NE Millard precinct

NE Papillion city

NE Papillion No. 2 precinct

NE Pawnee precinct

NE Ralston city

NE Richland No. 1 precinct

NE Richland No. 2 precinct

NE Richland No. 3 precinct

NE Sarpy County

NE South Sioux City city

NE Union precinct

NE Yankee Hill precinct

NH Amherst town

NH Auburn town

NH Bedford town

NH Dover city

NH Durham town

NH Goffstown town

NH Hillsborough County

NH Hollis town

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NH Hooksett town

NH Hudson town

NH Litchfield town

NH Londonderry town

NH Madbury town

NH Manchester city

NH Merrimack County

NH Merrimack town

NH Nashua city

NH New Castle town

NH Newington town

NH Pelham town

NH Plaistow town

NH Portsmouth city

NH Rochester city

NH Rockingham County

NH Rollinsford town

NH Rye town

NH Salem town

NH Somersworth city

NH Strafford County

NH Windham town

NJ Aberdeen township

NJ Absecon city ***68823**

NJ Allendale borough

NJ Allenhurst borough

NJ Alpha borough

NJ Alpine borough

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NJ Asbury Park city

NJ Atlantic City city

NJ Atlantic County

NJ Atlantic Highlands borough

NJ Audubon borough

NJ Audubon Park borough

NJ Avon-by-the-Sea borough

NJ Barrington borough

NJ Bay Head borough

NJ Bayonne city

NJ Beachwood borough

NJ Bedminster township

NJ Belleville township

NJ Bellmawr borough

NJ Belmar borough

NJ Bergenfield borough

NJ Berkeley Heights township

NJ Berkeley township

NJ Berlin borough

NJ Berlin township

NJ Bernards township

NJ Bernardsville borough

NJ Beverly city

NJ Bloomfield township

NJ Bloomingdale borough

NJ Bogota borough

NJ Boonton town

NJ Boonton township

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NJ Bordentown city

NJ Bordentown township

NJ Bound Brook borough

NJ Bradley Beach borough

NJ Branchburg township

NJ Brick township

NJ Bridgewater township

NJ Brielle borough

NJ Brigantine city

NJ Brooklawn borough

NJ Buena borough

NJ Buena Vista township

NJ Burlington city

NJ Burlington County

NJ Burlington township

NJ Butler borough

NJ Byram township

NJ Caldwell Borough township

NJ Camden city

NJ Cape May County

NJ Carlstadt borough

NJ Carneys Point township

NJ Carteret borough

NJ Cedar Grove township

NJ Chatham borough

NJ Chatham township

NJ Cherry Hill township

NJ Chesilhurst borough

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NJ Chester township

NJ Chesterfield township

NJ Cinnaminson township

NJ City of Orange township

NJ Clark township

NJ Clayton borough

NJ Clementon borough

NJ Cliffside Park borough

NJ Clifton city

NJ Closter borough

NJ Collingswood borough

NJ Colts Neck township

NJ Commercial township

NJ Cranford township

NJ Cresskill borough

NJ Cumberland County

NJ Deal borough

NJ Delanco township

NJ Delran township

NJ Demarest borough

NJ Denville township

NJ Deptford township

NJ Dover town

NJ Dover township

NJ Dumont borough

NJ Dunellen borough

NJ East Brunswick township

NJ East Greenwich township

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NJ East Hanover township

NJ East Newark borough

NJ East Orange city

NJ East Rutherford borough

NJ Eastampton township

NJ Eatontown borough

NJ Edgewater borough

NJ Edgewater Park township

NJ Edison township

NJ Egg Harbor township

NJ Elizabeth city

NJ Elk township

NJ Elmwood Park borough

NJ Emerson borough

NJ Englewood city

NJ Englewood Cliffs borough

NJ Englishtown borough

NJ Essex Fells township

NJ Evesham township

NJ Ewing township

NJ Fair Haven borough

NJ Fair Lawn borough

NJ Fairfield township

NJ Fairview borough

NJ Fanwood borough

NJ Fieldsboro borough

NJ Florence township

NJ Florham Park borough

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NJ Fort Lee borough

NJ Franklin Lakes borough

NJ Franklin township

NJ Freehold borough

NJ Freehold township

NJ Galloway township

NJ Garfield city

NJ Garwood borough

NJ Gibbsboro borough

NJ Glassboro borough

NJ Glen Ridge Borough township

NJ Glen Rock borough

NJ Gloucester City city

NJ Gloucester County

NJ Gloucester township

NJ Green Brook township

NJ Greenwich township

NJ Guttenberg town

NJ Hackensack city

NJ Haddon Heights borough

NJ Haddon township

NJ Haddonfield borough

NJ Hainesport township

NJ Haledon borough

NJ Hamilton township

NJ Hanover township

NJ Harding township

NJ Harrington Park borough

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NJ Harrison town

NJ Hasbrouck Heights borough

NJ Haworth borough

NJ Hawthorne borough

NJ Hazlet township

NJ Helmetta borough

NJ Highland Park borough

NJ Highlands borough

NJ Hillsborough township

NJ Hillsdale borough

NJ Hillside township

NJ Hi-Nella borough

NJ Hoboken city

NJ Ho-Ho-Kus borough

NJ Holmdel township

NJ Hopatcong borough

NJ Hopewell township

NJ Howell township

NJ Hunterdon County

NJ Interlaken borough

NJ Irvington township

NJ Island Heights borough

NJ Jackson township

NJ Jamesburg borough

NJ Jefferson township

NJ Jersey City city

NJ Keansburg borough

NJ Kearny town

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NJ Kenilworth borough

NJ Keyport borough

NJ Kinnelon borough

NJ Lakehurst borough

NJ Lakewood township

NJ Laurel Springs borough

NJ Lavallette borough

NJ Lawnside borough

NJ Lawrence township

NJ Leonia borough

NJ Lincoln Park borough

NJ Linden city

NJ Lindenwold borough

NJ Linwood city

NJ Little Falls township

NJ Little Ferry borough

NJ Little Silver borough

NJ Livingston township

NJ Loch Arbour village

NJ Lodi borough

NJ Long Branch city

NJ Longport borough

NJ Lopatcong township

NJ Lumberton township

NJ Lyndhurst township

NJ Madison borough

NJ Magnolia borough

NJ Mahwah township

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NJ Manalapan township

NJ Manasquan borough

NJ Manchester township

NJ Mantoloking borough

NJ Mantua township

NJ Manville borough

NJ Maple Shade township

NJ Maplewood township

NJ Margate City city

NJ Marlboro township

NJ Matawan borough

NJ Maywood borough

NJ Medford Lakes borough

NJ Medford township

NJ Mendham borough

NJ Mendham township

NJ Mercer County

NJ Merchantville borough

NJ Metuchen borough

NJ Middlesex borough

NJ Middlesex County

NJ Middletown township

NJ Midland Park borough

NJ Millburn township

NJ Millstone borough

NJ Milltown borough

NJ Millville city

NJ Mine Hill township ***68824**

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NJ Monmouth Beach borough

NJ Monmouth County

NJ Monroe township

NJ Montclair township

NJ Montvale borough

NJ Montville township

NJ Moonachie borough

NJ Moorestown township

NJ Morris County

NJ Morris Plains borough

NJ Morris township

NJ Morristown town

NJ Mount Arlington borough

NJ Mount Ephraim borough

NJ Mount Holly township

NJ Mount Laurel township

NJ Mount Olive township

NJ Mountain Lakes borough

NJ Mountainside borough

NJ National Park borough

NJ Neptune City borough

NJ Neptune township

NJ Netcong borough

NJ New Brunswick city

NJ New Milford borough

NJ New Providence borough

NJ Newark city

NJ Newfield borough

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NJ North Arlington borough

NJ North Bergen township

NJ North Brunswick township

NJ North Caldwell township

NJ North Haledon borough

NJ North Plainfield borough

NJ Northfield city

NJ Northvale borough

NJ Norwood borough

NJ Nutley township

NJ Oakland borough

NJ Oaklyn borough

NJ Ocean City city

NJ Ocean County

NJ Ocean Gate borough

NJ Ocean township

NJ Oceanport borough

NJ Old Bridge township

NJ Old Tappan borough

NJ Oradell borough

NJ Palisades Park borough

NJ Palmyra borough

NJ Paramus borough

NJ Park Ridge borough

NJ Parsippany-Troy Hills township

NJ Passaic city

NJ Passaic County

NJ Passaic township

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NJ Paterson city

NJ Paulsboro borough

NJ Pennington borough

NJ Penns Grove borough

NJ Pennsauken township

NJ Pennsville township

NJ Pequannock township

NJ Perth Amboy city

NJ Phillipsburg town

NJ Pine Beach borough

NJ Pine Hill borough

NJ Pine Valley borough

NJ Piscataway township

NJ Pitman borough

NJ Pittsgrove township

NJ Plainfield city

NJ Pleasantville city

NJ Pohatcong township

NJ Point Pleasant Beach borough

NJ Point Pleasant borough

NJ Pompton Lakes borough

NJ Prospect Park borough

NJ Rahway city

NJ Ramsey borough

NJ Randolph township

NJ Raritan borough

NJ Readington township

NJ Red Bank borough

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NJ Ridgefield borough

NJ Ridgefield Park village

NJ Ridgewood village

NJ Ringwood borough

NJ River Edge borough

NJ River Vale township

NJ Riverdale borough

NJ Riverside township

NJ Riverton borough

NJ Rochelle Park township

NJ Rockaway borough

NJ Rockaway township

NJ Rockleigh borough

NJ Roseland borough

NJ Roselle borough

NJ Roselle Park borough

NJ Roxbury township

NJ Rumson borough

NJ Runnemede borough

NJ Rutherford borough

NJ Saddle Brook township

NJ Saddle River borough

NJ Salem County

NJ Sayreville borough

NJ Scotch Plains township

NJ Sea Bright borough

NJ Sea Girt borough

NJ Seaside Heights borough

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NJ Seaside Park borough

NJ Secaucus town

NJ Shamong township

NJ Shrewsbury borough

NJ Shrewsbury township

NJ Somerdale borough

NJ Somers Point city

NJ Somerset County

NJ Somerville borough

NJ South Amboy city

NJ South Belmar borough

NJ South Bound Brook borough

NJ South Brunswick township

NJ South Hackensack township

NJ South Orange Village township

NJ South Plainfield borough

NJ South River borough

NJ South Toms River borough

NJ Spotswood borough

NJ Spring Lake borough

NJ Spring Lake Heights borough

NJ Springfield township

NJ Stanhope borough

NJ Stratford borough

NJ Summit city

NJ Sussex County

NJ Tabernacle township

NJ Tavistock borough

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NJ Teaneck township

NJ Tenafly borough

NJ Teterboro borough

NJ Tinton Falls borough

NJ Totowa borough

NJ Trenton city

NJ Union Beach borough

NJ Union City city

NJ Union township

NJ Upper Saddle River borough

NJ Upper township

NJ Ventnor City city

NJ Verona township

NJ Victory Gardens borough

NJ Vineland city

NJ Voorhees township

NJ Waldwick borough

NJ Wall township

NJ Wallington borough

NJ Wanaque borough

NJ Warren County

NJ Warren township

NJ Washington township

NJ Watchung borough

NJ Waterford township

NJ Wayne township

NJ Weehawken township

NJ Wenonah borough

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NJ West Caldwell township

NJ West Deptford township

NJ West Long Branch borough

NJ West New York town

NJ West Orange township

NJ West Paterson borough

NJ Westampton township

NJ Westfield town

NJ Westville borough

NJ Westwood borough

NJ Wharton borough

NJ Willingboro township

NJ Winfield township

NJ Winslow township

NJ Woodbridge township

NJ Woodbury city

NJ Woodbury Heights borough

NJ Woodcliff Lake borough

NJ Woodlynne borough

NJ Wood-Ridge borough

NJ Wyckoff township

NM Bernalillo County

NM Corrales village

NM Dona Ana County

NM Las Cruces city

NM Los Ranchos de Albuquerque village

NM Mesilla town

NM Rio Rancho city

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NM Sandoval County

NM Santa Fe city

NM Santa Fe County

NM Sunland Park city

NY Albany city

NY Albany County

NY Amherst town

NY Amityville village

NY Ardsley village

NY Ashland town

NY Atlantic Beach village

NY Babylon town

NY Babylon village

NY Baldwinsville village

NY Ballston town

NY Barker town

NY Baxter Estates village

NY Bayville village

NY Beacon city

NY Bedford town

NY Belle Terre village

NY Bellerose village

NY Bellport village

NY Bethlehem town

NY Big Flats town

NY Binghamton city

NY Binghamton town

NY Blasdell village

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NY Boston town

NY Briarcliff Manor village

NY Brighton town

NY Brightwaters village ***68825**

NY Bronxville village

NY Brookhaven town

NY Brookville village

NY Broome County

NY Brunswick town

NY Buchanan village

NY Buffalo city

NY Camillus town

NY Camillus village

NY Carmel town

NY Cayuga Heights village

NY Cedarhurst village

NY Charlton town

NY Cheektowaga town

NY Chemung County

NY Chenango town

NY Chestnut Ridge village

NY Chili town

NY Cicero town

NY Clarence town

NY Clarkstown town

NY Clay town

NY Clayville village

NY Clifton Park town

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NY Clinton village

NY Cohoes city

NY Colonie town

NY Colonie village

NY Conklin town

NY Cornwall on Hudson village

NY Cornwall town

NY Cortlandt town

NY Croton-on-Hudson village

NY De Witt town

NY Deerfield town

NY Depew village

NY Dickinson town

NY Dobbs Ferry village

NY Dryden town

NY Dutchess County

NY East Fishkill town

NY East Greenbush town

NY East Hills village

NY East Rochester village

NY East Rockaway village

NY East Syracuse village

NY East Williston village

NY Eastchester town

NY Elma town

NY Elmira city

NY Elmira Heights village

NY Elmira town

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NY Elmsford village

NY Endicott village

NY Erie County

NY Evans town

NY Fairport village

NY Farmingdale village

NY Fayetteville village

NY Fenton town

NY Fishkill town

NY Fishkill village

NY Floral Park village

NY Flower Hill village

NY Floyd town

NY Fort Edward town

NY Fort Edward village

NY Frankfort town

NY Freeport village

NY Garden City village

NY Gates town

NY Geddes town

NY Glen Cove city

NY Glens Falls city

NY Glenville town

NY Grand Island town

NY Grand View-on-Hudson village

NY Great Neck Estates village

NY Great Neck Plaza village

NY Great Neck village

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NY Greece town

NY Green Island village

NY Greenburgh town

NY Guilderland town

NY Halfmoon town

NY Hamburg town

NY Hamburg village

NY Harrison village

NY Hastings-on-Hudson village

NY Haverstraw town

NY Haverstraw village

NY Hempstead town

NY Hempstead village

NY Henrietta town

NY Herkimer County

NY Hewlett Bay Park village

NY Hewlett Harbor village

NY Hewlett Neck village

NY Hillburn village

NY Horseheads town

NY Horseheads village

NY Hudson Falls village

NY Huntington Bay village

NY Huntington town

NY Hyde Park town

NY Irondequoit town

NY Irvington village

NY Island Park village

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NY Islandia village

NY Islip town

NY Ithaca city

NY Ithaca town

NY Johnson City village

NY Kenmore village

NY Kensington village

NY Kent town

NY Kings Point village

NY Kingsbury town

NY Kirkland town

NY Kirkwood town

NY La Grange town

NY Lackawanna city

NY LaFayette town

NY Lake Grove village

NY Lake Success village

NY Lancaster town

NY Lancaster village

NY Lansing town

NY Lansing village

NY Larchmont village

NY Lattingtown village

NY Lawrence village

NY Lee town

NY Lewiston town

NY Lewiston village

NY Lindenhurst village

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NY Liverpool village

NY Lloyd Harbor village

NY Lloyd town

NY Long Beach city

NY Lynbrook village

NY Lysander town

NY Malta town

NY Malverne village

NY Mamaroneck town

NY Mamaroneck village

NY Manlius town

NY Manlius village

NY Manorhaven village

NY Marcy town

NY Massapequa Park village

NY Matinecock village

NY Menands village

NY Mill Neck village

NY Mineola village

NY Minoa village

NY Monroe County

NY Montebello village

NY Montgomery town

NY Moreau town

NY Mount Kisco village

NY Mount Pleasant town

NY Mount Vernon city

NY Munsey Park village

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NY Muttontown village

NY New Castle town

NY New Hartford town

NY New Hartford village

NY New Hempstead village

NY New Hyde Park village

NY New Rochelle city

NY New Square village

NY New Windsor town

NY New York Mills village

NY Newburgh city

NY Newburgh town

NY Niagara County

NY Niagara Falls city

NY Niagara town

NY Niskayuna town

NY North Castle town

NY North Greenbush town

NY North Hempstead town

NY North Hills village

NY North Syracuse village

NY North Tarrytown village

NY North Tonawanda city

NY Northport village

NY Nyack village

NY Ogden town

NY Old Brookville village

NY Old Westbury village

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NY Oneida County

NY Onondaga County

NY Onondaga town

NY Orange County

NY Orangetown town

NY Orchard Park town

NY Orchard Park village

NY Oriskany village

NY Ossining town

NY Ossining village

NY Oswego County

NY Owego town

NY Oyster Bay town

NY Paris town

NY Patchogue village

NY Patterson town

NY Peekskill city

NY Pelham Manor village

NY Pelham town

NY Pelham village

NY Pendleton town

NY Penfield town

NY Perinton town

NY Philipstown town

NY Phoenix village

NY Piermont village

NY Pittsford town

NY Pittsford village

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NY Plandome Heights village

NY Plandome Manor village

NY Plandome village

NY Pleasant Valley town

NY Pleasantville village

NY Poestenkill town

NY Pomona village

NY Poospatuck Reservation ***68826**

NY Poquott village

NY Port Chester village

NY Port Dickinson village

NY Port Jefferson village

NY Port Washington North village

NY Poughkeepsie city

NY Poughkeepsie town

NY Pound Ridge town

NY Putnam County

NY Putnam Valley town

NY Queensbury town

NY Ramapo town

NY Rensselaer city

NY Rensselaer County

NY Riverhead town

NY Rochester city

NY Rockville Centre village

NY Rome city

NY Roslyn Estates village

NY Roslyn Harbor village

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NY Roslyn village

NY Rotterdam town

NY Russell Gardens village

NY Rye Brook village

NY Rye city

NY Rye town

NY Saddle Rock village

NY Salina town

NY Sands Point village

NY Saratoga County

NY Scarsdale town

NY Scarsdale village

NY Schaghticoke town

NY Schenectady city

NY Schenectady County

NY Schodack town

NY Schroeppel town

NY Schuyler town

NY Scotia village

NY Sea Cliff village

NY Shoreham village

NY Sloan village

NY Sloatsburg village

NY Smithtown town

NY Solvay village

NY Somers town

NY South Floral Park village

NY South Glens Falls village

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NY South Nyack village

NY Southampton town

NY Southport town

NY Spencerport village

NY Spring Valley village

NY Stewart Manor village

NY Stony Point town

NY Suffern village

NY Suffolk County

NY Syracuse city

NY Tarrytown village

NY Thomaston village

NY Tioga County

NY Tompkins County

NY Tonawanda city

NY Tonawanda town

NY Troy city

NY Tuckahoe village

NY Ulster County

NY Union town

NY Upper Brookville village

NY Upper Nyack village

NY Utica city

NY Valley Stream village

NY Van Buren town

NY Vestal town

NY Veteran town

NY Village of the Branch village

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NY Wappinger town

NY Wappingers Falls village

NY Warren County

NY Washington County

NY Waterford town

NY Waterford village

NY Watervliet city

NY Webster town

NY Webster village

NY Wesley Hills village

NY West Haverstraw village

NY West Seneca town

NY Westbury village

NY Westchester County

NY Western town

NY Wheatfield town

NY White Plains city

NY Whitesboro village

NY Whitestown town

NY Williamsville village

NY Williston Park village

NY Woodsburgh village

NY Yonkers city

NY Yorktown town

NY Yorkville village

OH Addyston village

OH Allen County

OH Allen township

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OH Amberley village

OH Amelia village

OH American township

OH Amherst city

OH Amherst township

OH Anderson township

OH Arlington Heights village

OH Auglaize County

OH Aurora city

OH Austintown township

OH Avon city

OH Avon Lake city

OH Bainbridge township

OH Barberton city

OH Batavia township

OH Bath township

OH Bay Village city

OH Beachwood city

OH Beaver township

OH Beavercreek city

OH Beavercreek township

OH Bedford city

OH Bedford Heights city

OH Bellaire city

OH Bellbrook city

OH Belmont County

OH Belpre city

OH Belpre township

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OH Bentleyville village

OH Berea city

OH Bethel township

OH Bexley city

OH Blendon township

OH Blue Ash city

OH Boardman township

OH Brady Lake village

OH Bratenahl village

OH Brecksville city

OH Brice village

OH Bridgeport village

OH Brilliant village

OH Brimfield township

OH Broadview Heights city

OH Brook Park city

OH Brookfield township

OH Brooklyn city

OH Brooklyn Heights village

OH Brookside village

OH Brown township

OH Brownhelm township

OH Brunswick city

OH Brunswick Hills township

OH Butler County

OH Butler township

OH Campbell city

OH Canfield city

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OH Canfield township

OH Canton city

OH Canton township

OH Carlisle township

OH Carlisle village

OH Centerville city

OH Chagrin Falls township

OH Chagrin Falls village

OH Champion township

OH Chesapeake village

OH Cheviot city

OH Chippewa township

OH Cincinnati city

OH Clark County

OH Clear Creek township

OH Clermont County

OH Cleveland city

OH Cleveland Heights city

OH Cleves village

OH Clinton township

OH Coal Grove village

OH Coitsville township

OH Colerain township

OH Columbia township

OH Concord township

OH Copley township

OH Coventry township

OH Cridersville village

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OH Cross Creek township

OH Cuyahoga County

OH Cuyahoga Falls city

OH Cuyahoga Heights village

OH Deer Park city

OH Deerfield township

OH Delaware County

OH Delhi township

OH Doylestown village

OH Dublin city

OH Duchouquet township

OH East Cleveland city

OH Eastlake city

OH Eaton township

OH Elmwood Place village

OH Elyria city

OH Elyria township

OH Englewood city

OH Erie County

OH Etna township

OH Euclid city

OH Evendale village

OH Fairborn city

OH Fairfax village

OH Fairfield city

OH Fairfield County

OH Fairfield township

OH Fairlawn city

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OH Fairport Harbor village

OH Fairview Park city

OH Fayette township

OH Forest Park city

OH Fort Shawnee village

OH Franklin city

OH Franklin County

OH Franklin township

OH Gahanna city

OH Garfield Heights city

OH Geauga County

OH Genoa township ***68827**

OH German township

OH Girard city

OH Glendale village

OH Glenwillow village

OH Golf Manor village

OH Goshen township

OH Grand River village

OH Grandview Heights city

OH Green township

OH Green village

OH Greene County

OH Greenhills village

OH Grove City city

OH Groveport village

OH Hamilton city

OH Hamilton County

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OH Hamilton township

OH Hanging Rock village

OH Hanover township

OH Harbor View village

OH Harrison township

OH Hartville village

OH Heath city

OH Highland Heights city

OH Hilliard city

OH Hills and Dales village

OH Hinckley township

OH Holland village

OH Howland township

OH Hubbard city

OH Hubbard township

OH Huber Heights city

OH Hudson township

OH Hudson village

OH Independence city

OH Ironton city

OH Island Creek township

OH Jackson township

OH Jefferson County

OH Jefferson township

OH Jerome township

OH Kent city

OH Kettering city

OH Kirtland city

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OH Lake County

OH Lake township

OH Lakeline village

OH Lakemore village

OH Lakewood city

OH Lawrence County

OH Lawrence township

OH Lemon township

OH Lexington village

OH Liberty township

OH Licking County

OH Licking township

OH Lima city

OH Lima township

OH Lincoln Heights city

OH Linndale village

OH Lockland village

OH Lorain city

OH Lorain County

OH Louisville city

OH Loveland city

OH Lowellville village

OH Lucas County

OH Lyndhurst city

OH Macedonia city

OH Mad River township

OH Madeira city

OH Madison township

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OH Mahoning County

OH Maineville village

OH Mansfield city

OH Maple Heights city

OH Marble Cliff village

OH Mariemont village

OH Martins Ferry city

OH Mason city

OH Massillon city

OH Maumee city

OH Mayfield Heights city

OH Mayfield village

OH McDonald village

OH Mead township

OH Medina County

OH Mentor city

OH Mentor-on-the-Lake city

OH Meyers Lake village

OH Miami County

OH Miami township

OH Miamisburg city

OH Middleburg Heights city

OH Middletown city

OH Mifflin township

OH Milford city

OH Millbury village

OH Millville village

OH Minerva Park village

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OH Mingo Junction city

OH Mogadore village

OH Monclova township

OH Monroe township

OH Monroe village

OH Montgomery city

OH Montgomery County

OH Moorefield township

OH Moraine city

OH Moreland Hills village

OH Mount Healthy city

OH Munroe Falls village

OH New Miami village

OH New Middletown village

OH New Rome village

OH Newark city

OH Newark township

OH Newburgh Heights village

OH Newton township

OH Newtown village

OH Niles city

OH Nimishillen township

OH North Bend village

OH North Canton city

OH North College Hill city

OH North Olmsted city

OH North Randall village

OH North Ridgeville city

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OH North Royalton city

OH Northfield Center township

OH Northfield village

OH Northwood city

OH Norton city

OH Norwich township

OH Norwood city

OH Oakwood city

OH Oakwood village

OH Obetz village

OH Ohio township

OH Olmsted Falls city

OH Olmsted township

OH Ontario village

OH Orange township

OH Orange village

OH Oregon city

OH Ottawa County

OH Ottawa Hills village

OH Painesville city

OH Painesville township

OH Palmyra township

OH Parma city

OH Parma Heights city

OH Pease township

OH Pepper Pike city

OH Perry township

OH Perrysburg city

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OH Perrysburg city

OH Perrysburg township

OH Pierce township

OH Plain township

OH Pleasant township

OH Poland township

OH Poland village

OH Portage County

OH Powell village

OH Prairie township

OH Proctorville village

OH Pultney township

OH Randolph township

OH Ravenna city

OH Ravenna township

OH Reading city

OH Reminderville village

OH Reynoldsburg city

OH Richfield township

OH Richfield village

OH Richland County

OH Richmond Heights city

OH Riveredge township

OH Riverlea village

OH Riverside village

OH Rocky River city

OH Rome township

OH Ross township

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OH Rossford city

OH Russell township

OH Russia township

OH Sagamore Hills township

OH Seven Hills city

OH Shadyside village

OH Shaker Heights city

OH Sharon township

OH Sharonville city

OH Shawnee Hills village

OH Shawnee township

OH Sheffield Lake city

OH Sheffield township

OH Sheffield village

OH Silver Lake village

OH Silverton city

OH Solon city

OH South Amherst village

OH South Euclid city

OH South Point village

OH South Russell village

OH Springboro city

OH Springdale city

OH Springfield city

OH Springfield township

OH St. Bernard city

OH St. Clair township

OH Stark County

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OH Steubenville city

OH Steubenville township

OH Stow city

OH Strongsville city

OH Struthers city

OH Suffield township

OH Sugar Bush Knolls village

OH Sugar Creek township

OH Summit County

OH Sycamore township

OH Sylvania city

OH Sylvania township

OH Symmes township

OH Tallmadge city

OH Terrace Park village

OH The Village of Indian Hill city ***68828**

OH Timberlake village

OH Trenton city

OH Trotwood city

OH Troy township

OH Trumbull County

OH Truro township

OH Turtle Creek township

OH Tuscarawas township

OH Twinsburg city

OH Twinsburg township

OH Union city

OH Union County

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OH Union township

OH University Heights city

OH Upper Arlington city

OH Upper township

OH Urbancrest village

OH Valley View village

OH Valleyview village

OH Vandalia city

OH Vermilion city

OH Vermilion township

OH Violet township

OH Wadsworth city

OH Wadsworth township

OH Waite Hill village

OH Walbridge village

OH Walton Hills village

OH Warren city

OH Warren County

OH Warren township

OH Warrensville Heights city

OH Warrensville township

OH Washington County

OH Washington township

OH Wayne County

OH Wayne township

OH Weathersfield township

OH Wells township

OH West Carrollton City city

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OH West Milton village

OH Westerville city

OH Westlake city

OH Whitehall city

OH Whitewater township

OH Wickliffe city

OH Willoughby city

OH Willoughby Hills city

OH Willowick city

OH Wintersville village

OH Wood County

OH Woodlawn village

OH Woodmere village

OH Worthington city

OH Wyoming city

OH Youngstown city

OK Arkoma town

OK Bethany city

OK Bixby city

OK Broken Arrow city

OK Canadian County

OK Catoosa city

OK Choctaw city

OK Cleveland County

OK Comanche County

OK Creek County

OK Del City city

OK Edmond city

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OK Forest Park town

OK Hall Park town

OK Harrah town

OK Jenks city

OK Jones town

OK Lake Aluma town

OK Lawton city

OK Le Flore County

OK Logan County

OK Midwest City city

OK Moffett town

OK Moore city

OK Mustang city

OK Nichols Hills city

OK Nicoma Park city

OK Norman city

OK Oklahoma County

OK Osage County

OK Pottawatomie County

OK Rogers County

OK Sand Springs city

OK Sequoyah County

OK Smith Village town

OK Spencer city

OK The Village city

OK Tulsa County

OK Valley Brook town

OK Wagoner County

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OK Warr Acres city

OK Woodlawn Park town

OK Yukon city

OR Central Point city

OR Columbia County

OR Durham city

OR Jackson County

OR Keizer city

OR King City city

OR Lane County

OR Marion County

OR Maywood Park city

OR Medford city

OR Phoenix city

OR Polk County

OR Rainier city

OR Springfield city

OR Troutdale city

OR Tualatin city

OR Wood Village city

PA Abington township

PA Adamsburg borough

PA Alburtis borough

PA Aldan borough

PA Aleppo township

PA Aliquippa city

PA Allegheny County

PA Allegheny township

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PA Allen township

PA Allenport borough

PA Alsace township

PA Altoona city

PA Ambler borough

PA Ambridge borough

PA Amwell township

PA Antis township

PA Antrim township

PA Archbald borough

PA Arnold city

PA Ashley borough

PA Aspinwall borough

PA Aston township

PA Avalon borough

PA Avoca borough

PA Baden borough

PA Baldwin borough

PA Baldwin township

PA Beaver borough

PA Beaver County

PA Beaver Falls city

PA Bell Acres borough

PA Belle Vernon borough

PA Bellevue borough

PA Ben Avon borough

PA Ben Avon Heights borough

PA Bensalem township

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PA Berks County

PA Bern township

PA Bethel Park borough

PA Bethel township

PA Bethlehem city

PA Bethlehem township

PA Big Beaver borough

PA Birdsboro borough

PA Birmingham township

PA Blair County

PA Blair township

PA Blakely borough

PA Blawnox borough

PA Boyertown borough

PA Brackenridge borough

PA Braddock borough

PA Braddock Hills borough

PA Bradfordwoods borough

PA Brentwood borough

PA Bridgeport borough

PA Bridgeville borough

PA Bridgewater borough

PA Brighton township

PA Bristol borough

PA Bristol township

PA Brookhaven borough

PA Brownstown borough

PA Brownsville borough

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PA Brownsville township

PA Bryn Athyn borough

PA Buckingham township

PA Bucks County

PA California borough

PA Caln township

PA Cambria County

PA Camp Hill borough

PA Canonsburg borough

PA Canton township

PA Carbondale city

PA Carbondale township

PA Carnegie borough

PA Carroll township

PA Castle Shannon borough

PA Catasauqua borough

PA Cecil township

PA Center township

PA Centre County

PA Chalfant borough

PA Chalfont borough

PA Charleroi borough

PA Charlestown township

PA Chartiers township

PA Cheltenham township

PA Chester city

PA Chester County

PA Chester Heights borough

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PA Chester township

PA Cheswick borough

PA Chippewa township

PA Churchill borough

PA Clairton city

PA Clarks Green borough

PA Clarks Summit borough

PA Clifton Heights borough

PA Coal Center borough

PA Coatesville city

PA Colebrookdale township

PA College township

PA Collegeville borough

PA Collier township

PA Collingdale borough

PA Columbia borough

PA Colwyn borough

PA Concord township

PA Conemaugh township

PA Conestoga township ***68829**

PA Conewago township

PA Conshohocken borough

PA Conway borough

PA Coplay borough

PA Coraopolis borough

PA Courtdale borough

PA Crafton borough

PA Crescent township

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PA Cumberland County

PA Cumru township

PA Daisytown borough

PA Dale borough

PA Dallas borough

PA Dallas township

PA Dallastown borough

PA Darby borough

PA Darby township

PA Daugherty township

PA Dauphin County

PA Delaware County

PA Delmont borough

PA Derry township

PA Dickson City borough

PA Donora borough

PA Dormont borough

PA Douglass township

PA Dover borough

PA Dover township

PA Downingtown borough

PA Doylestown borough

PA Doylestown township

PA Dravosburg borough

PA Duboistown borough

PA Duncansville borough

PA Dunlevy borough

PA Dunmore borough

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PA Dupont borough

PA Duquesne city

PA Duryea borough

PA East Allen township

PA East Bradford township

PA East Brandywine township

PA East Caln township

PA East Conemaugh borough

PA East Coventry township

PA East Deer township

PA East Fallowfield township

PA East Goshen township

PA East Hempfield township

PA East Lampeter township

PA East Lansdowne borough

PA East McKeesport borough

PA East Norriton township

PA East Pennsboro township

PA East Petersburg borough

PA East Pikeland township

PA East Pittsburgh borough

PA East Rochester borough

PA East Taylor township

PA East Vincent township

PA East Washington borough

PA East Whiteland township

PA Easton city

PA Easttown township

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PA Eastvale borough

PA Economy borough

PA Eddystone borough

PA Edgewood borough

PA Edgeworth borough

PA Edgmont township

PA Edwardsville borough

PA Elco borough

PA Elizabeth borough

PA Elizabeth township

PA Ellport borough

PA Ellwood City borough

PA Emmaus borough

PA Emsworth borough

PA Erie city

PA Erie County

PA Etna borough

PA Exeter borough

PA Exeter township

PA Export borough

PA Fairfield township

PA Fairview township

PA Fallowfield township

PA Falls township

PA Fallston borough

PA Farrell city

PA Fayette City borough

PA Fayette County

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PA Fell township

PA Ferguson township

PA Ferndale borough

PA Findlay township

PA Finleyville borough

PA Folcroft borough

PA Forest Hills borough

PA Forks township

PA Forty Fort borough

PA Forward township

PA Fountain Hill borough

PA Fox Chapel borough

PA Franconia township

PA Franklin borough

PA Franklin County

PA Franklin Park borough

PA Franklin township

PA Frankstown township

PA Frazer township

PA Freedom borough

PA Freemansburg borough

PA Geistown borough

PA Glassport borough

PA Glendon borough

PA Glenfield borough

PA Glenolden borough

PA Green Tree borough

PA Greensburg city

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PA Hallam borough

PA Hampden township

PA Hampton township

PA Hanover township

PA Harborcreek township

PA Harmar township

PA Harmony township

PA Harris township

PA Harrisburg city

PA Harrison township

PA Harveys Lake borough

PA Hatboro borough

PA Hatfield borough

PA Hatfield township

PA Haverford township

PA Haysville borough

PA Heidelberg borough

PA Hellam township

PA Hellertown borough

PA Hempfield township

PA Hepburn township

PA Hermitage city

PA Highspire borough

PA Hilltown township

PA Hollidaysburg borough

PA Homestead borough

PA Homewood borough

PA Hopewell township

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PA Horsham township

PA Houston borough

PA Hughestown borough

PA Hulmeville borough

PA Hummelstown borough

PA Hunker borough

PA Indiana township

PA Ingram borough

PA Irwin borough

PA Ivyland borough

PA Jackson township

PA Jacobus borough

PA Jeannette city

PA Jefferson borough

PA Jenkins township

PA Jenkintown borough

PA Jermyn borough

PA Jessup borough

PA Johnstown city

PA Juniata township

PA Kenhorst borough

PA Kennedy township

PA Kilbuck township

PA Kingston borough

PA Kingston township

PA Koppel borough

PA Lackawanna County

PA Laflin borough

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PA Lancaster city

PA Lancaster County

PA Lancaster township

PA Langhorne borough

PA Langhorne Manor borough

PA Lansdale borough

PA Lansdowne borough

PA Larksville borough

PA Laurel Run borough

PA Laureldale borough

PA Lawrence County

PA Lawrence Park township

PA Lebanon County

PA Leesport borough

PA Leet township

PA Leetsdale borough

PA Lehigh County

PA Lehman township

PA Lemoyne borough

PA Liberty borough

PA Limerick township

PA Lincoln borough

PA Lititz borough

PA Logan township

PA Loganville borough

PA London Britain township

PA Londonderry township

PA Lorain borough

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PA Lower Allen township

PA Lower Alsace township

PA Lower Burrell city

PA Lower Chichester township

PA Lower Frederick township

PA Lower Gwynedd township

PA Lower Heidelberg township

PA Lower Macungie township

PA Lower Makefield township

PA Lower Merion township

PA Lower Moreland township

PA Lower Nazareth township

PA Lower Paxton township

PA Lower Pottsgrove township

PA Lower Providence township

PA Lower Salford township

PA Lower Saucon township

PA Lower Southampton township

PA Lower Swatara township

PA Lower Yoder township

PA Loyalsock township

PA Luzerne borough

PA Luzerne County

PA Luzerne township ***68830**

PA Lycoming County

PA Lycoming township

PA Macungie borough

PA Madison borough

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PA Maidencreek township

PA Malvern borough

PA Manchester township

PA Manheim township

PA Manor borough

PA Manor township

PA Marcus Hook borough

PA Marple township

PA Marshall township

PA Marysville borough

PA Mayfield borough

PA McCandless township

PA McKean township

PA McKees Rocks borough

PA McKeesport city

PA Mechanicsburg borough

PA Media borough

PA Mercer County

PA Middle Taylor township

PA Middletown borough

PA Middletown township

PA Millbourne borough

PA Millcreek township

PA Millersville borough

PA Millvale borough

PA Modena borough

PA Mohnton borough

PA Monaca borough

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PA Monessen city

PA Monongahela city

PA Monroe township

PA Montgomery County

PA Montgomery township

PA Montoursville borough

PA Moon township

PA Moosic borough

PA Morrisville borough

PA Morton borough

PA Mount Lebanon township

PA Mount Oliver borough

PA Mount Penn borough

PA Mountville borough

PA Muhlenberg township

PA Munhall borough

PA Municipality of Monroeville borough

PA Municipality of Murrysville borough

PA Nanticoke city

PA Narberth borough

PA Nether Providence township

PA Neville township

PA New Brighton borough

PA New Britain borough

PA New Britain township

PA New Cumberland borough

PA New Eagle borough

PA New Galilee borough

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PA New Garden township

PA New Hanover township

PA New Kensington city

PA New Sewickley township

PA New Stanton borough

PA Newell borough

PA Newport township

PA Newton township

PA Newtown borough

PA Newtown township

PA Norristown borough

PA North Belle Vernon borough

PA North Braddock borough

PA North Catasauqua borough

PA North Charleroi borough

PA North Coventry township

PA North Franklin township

PA North Huntingdon township

PA North Irwin borough

PA North Londonderry township

PA North Sewickley township

PA North Strabane township

PA North Versailles township

PA North Wales borough

PA North Whitehall township

PA North York borough

PA Northampton borough

PA Northampton County

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PA Northampton township

PA Norwood borough

PA Oakmont borough

PA O'Hara township

PA Ohio township

PA Old Forge borough

PA Old Lycoming township

PA Olyphant borough

PA Ontelaunee township

PA Osborne borough

PA Paint borough

PA Paint township

PA Palmer township

PA Palmyra borough

PA Parkside borough

PA Patterson Heights borough

PA Patterson township

PA Patton township

PA Paxtang borough

PA Penbrook borough

PA Penn borough

PA Penn Hills township

PA Penn township

PA Penndel borough

PA Pennsbury Village borough

PA Pequea township

PA Perkiomen township

PA Perry County

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PA Perry township

PA Peters township

PA Phoenixville borough

PA Pine township

PA Pitcairn borough

PA Pittsburgh city

PA Pittston city

PA Pittston township

PA Plains township

PA Pleasant Hills borough

PA Plum borough

PA Plymouth borough

PA Plymouth township

PA Port Vue borough

PA Potter township

PA Pottstown borough

PA Pringle borough

PA Prospect Park borough

PA Pulaski township

PA Radnor township

PA Rankin borough

PA Ransom township

PA Reading city

PA Red Lion borough

PA Reserve township

PA Richland township

PA Ridley Park borough

PA Ridley township

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PA Robinson township

PA Rochester borough

PA Rochester township

PA Rockledge borough

PA Roscoe borough

PA Rose Valley borough

PA Ross township

PA Rosslyn Farms borough

PA Rostraver township

PA Royalton borough

PA Royersford borough

PA Rutledge borough

PA Salem township

PA Salisbury township

PA Scalp Level borough

PA Schuylkill township

PA Schwenksville borough

PA Scott township

PA Scranton city

PA Sewickley borough

PA Sewickley Heights borough

PA Sewickley Hills borough

PA Sewickley township

PA Shaler township

PA Sharon city

PA Sharon Hill borough

PA Sharpsburg borough

PA Sharpsville borough

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PA Shenango township

PA Shillington borough

PA Shiremanstown borough

PA Silver Spring township

PA Sinking Spring borough

PA Skippack township

PA Somerset County

PA Souderton borough

PA South Abington township

PA South Coatesville borough

PA South Fayette township

PA South Greensburg borough

PA South Hanover township

PA South Heidelberg township

PA South Heights borough

PA South Huntingdon township

PA South Park township

PA South Pymatuning township

PA South Strabane township

PA South Whitehall township

PA South Williamsport borough

PA Southmont borough

PA Southwest Greensburg borough

PA Speers borough

PA Spring City borough

PA Spring Garden township

PA Spring township

PA Springdale borough

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PA Springdale township

PA Springettsbury township

PA Springfield township

PA St. Lawrence borough

PA State College borough

PA Steelton borough

PA Stockdale borough

PA Stonycreek township

PA Stowe township

PA Sugar Notch borough

PA Summit township

PA Susquehanna township

PA Sutersville borough

PA Swarthmore borough

PA Swatara township

PA Swissvale borough

PA Swoyersville borough

PA Tarentum borough

PA Taylor borough

PA Telford borough

PA Temple borough

PA Thornburg borough

PA Thornbury township

PA Throop borough

PA Tinicum township

PA Towamencin township

PA Trafford borough

PA Trainer borough ***68831**

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PA Trappe borough

PA Tredyffrin township

PA Tullytown borough

PA Turtle Creek borough

PA Union township

PA Upland borough

PA Upper Allen township

PA Upper Chichester township

PA Upper Darby township

PA Upper Dublin township

PA Upper Gwynedd township

PA Upper Leacock township

PA Upper Macungie township

PA Upper Makefield township

PA Upper Merion township

PA Upper Milford township

PA Upper Moreland township

PA Upper Pottsgrove township

PA Upper Providence township

PA Upper Saucon township

PA Upper Southampton township

PA Upper St. Clair township

PA Upper Yoder township

PA Uwchlan township

PA Valley township

PA Vanport township

PA Verona borough

PA Versailles borough

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PA Wall borough

PA Warminster township

PA Warrington township

PA Warrior Run borough

PA Warwick township

PA Washington city

PA Washington County

PA Washington township

PA Wayne township

PA Wernersville borough

PA Wesleyville borough

PA West Bradford township

PA West Brownsville borough

PA West Chester borough

PA West Conshohocken borough

PA West Deer township

PA West Earl township

PA West Easton borough

PA West Elizabeth borough

PA West Fairview borough

PA West Goshen township

PA West Hanover township

PA West Hempfield township

PA West Homestead borough

PA West Lampeter township

PA West Lawn borough

PA West Manchester township

PA West Mayfield borough

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PA West Middlesex borough

PA West Mifflin borough

PA West Newton borough

PA West Norriton township

PA West Pikeland township

PA West Pittston borough

PA West Pottsgrove township

PA West Reading borough

PA West Taylor township

PA West View borough

PA West Whiteland township

PA West Wyoming borough

PA West York borough

PA Westmont borough

PA Westmoreland County

PA Westtown township

PA Wheatland borough

PA Whitaker borough

PA White Oak borough

PA White township

PA Whitehall township

PA Whitemarsh township

PA Whitpain township

PA Wilkes-Barre city

PA Wilkes-Barre township

PA Wilkins township

PA Wilkinsburg borough

PA Williams township

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PA Williamsport city

PA Willistown township

PA Wilmerding borough

PA Wilson borough

PA Windber borough

PA Windsor borough

PA Windsor township

PA Worcester township

PA Wormleysburg borough

PA Wrightsville borough

PA Wyoming borough

PA Wyomissing borough

PA Wyomissing Hills borough

PA Yardley borough

PA Yatesville borough

PA Yeadon borough

PA Yoe borough

PA York city

PA York County

PA York township

PA Youngwood borough

PR Aibonita

PR Anasco

PR Aquada

PR Aquadilla

PR Aquas Buenas

PR Arecibo

PR Bayamon

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PR Cabo Rojo

PR Caguas

PR Camuy

PR Canovanas

PR Catano

PR Cayey

PR Cidra

PR Dorado

PR Guaynabo

PR Gurabo

PR Hatillo

PR Hormigueros

PR Humacao

PR Juncos

PR Las Piedras

PR Loiza

PR Manati

PR Mayaguez

PR Moca

PR Naguabo

PR Naranjito

PR Penuelas

PR Ponce

PR Rio Grande

PR San German

PR San Lorenzo

PR Toa Alta

PR Toa Baja

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PR Trujillo Alto

PR Vega Alta

PR Vega Baja

PR Yabucao

RI Barrington town

RI Bristol town

RI Burrillville town

RI Central Falls city

RI Coventry town

RI Cranston city

RI Cumberland town

RI East Greenwich town

RI East Providence city

RI Glocester town

RI Jamestown town

RI Johnston town

RI Lincoln town

RI Middletown town

RI Newport city

RI Newport County

RI North Kingstown town

RI North Providence town

RI North Smithfield town

RI Pawtucket city

RI Portsmouth town

RI Providence city

RI Providence County

RI Scituate town

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RI Smithfield town

RI Tiverton town

RI Warren town

RI Warwick city

RI Washington County

RI West Greenwich town

RI West Warwick town

RI Woonsocket city

SC Aiken city

SC Aiken County

SC Anderson city

SC Anderson County

SC Arcadia Lakes town

SC Berkeley County

SC Burnettown town

SC Cayce city

SC Charleston city

SC Charleston County

SC City View town

SC Columbia city

SC Cowpens town

SC Darlington County

SC Dorchester County

SC Edgefield County

SC Florence city

SC Florence County

SC Folly Beach city

SC Forest Acres city

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SC Fort Mill town

SC Georgetown County

SC Goose Creek city

SC Hanahan city

SC Horry County

SC Irmo town

SC Isle of Palms city

SC Lexington County

SC Lincolnville town

SC Mount Pleasant town

SC Myrtle Beach city

SC North Augusta city

SC North Charleston city

SC Pickens County

SC Pineridge town

SC Quinby town

SC Rock Hill city

SC South Congaree town

SC Spartanburg city

SC Spartanburg County

SC Springdale town

SC Sullivan's Island town

SC Summerville town

SC Sumter city

SC Sumter County

SC Surfside Beach town

SC West Columbia city

SC York County

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SD Big Sioux township

SD Central Pennington unorg.

SD Lincoln County

SD Mapleton township ***68832**

SD Minnehaha County

SD North Sioux City city

SD Pennington County

SD Rapid City city

SD Split Rock township

SD Union County

SD Wayne township

TN Alcoa city

TN Anderson County

TN Bartlett town

TN Belle Meade city

TN Berry Hill city

TN Blount County

TN Brentwood city

TN Bristol city

TN Carter County

TN Church Hill town

TN Clarksville city

TN Collegedale city

TN Davidson County

TN East Ridge city

TN Elizabethton city

TN Farragut town

TN Forest Hills city

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TN Germantown city

TN Goodlettsville city

TN Hamilton County

TN Hawkins County

TN Hendersonville city

TN Jackson city

TN Johnson City city

TN Jonesborough town

TN Kingsport city

TN Knox County

TN Lakesite city

TN Lakewood city

TN Lookout Mountain town

TN Loudon County

TN Madison County

TN Maryville city

TN Montgomery County

TN Mount Carmel town

TN Mount Juliet city

TN Oak Hill city

TN Red Bank city

TN Ridgeside city

TN Rockford city

TN Shelby County

TN Signal Mountain town

TN Soddy-Daisy city

TN Sullivan County

TN Sumner County

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TN Washington County

TN Williamson County

TN Wilson County

TX Addison city

TX Alamo city

TX Alamo Heights city

TX Allen city

TX Archer County

TX Azle city

TX Balch Springs city

TX Balcones Heights city

TX Bayou Vista village

TX Baytown city

TX Bedford city

TX Bell County

TX Bellaire city

TX Bellmead city

TX Belton city

TX Benbrook city

TX Beverly Hills city

TX Bexar County

TX Blue Mound city

TX Bowie County

TX Brazoria County

TX Brazos County

TX Brookside Village city

TX Brownsville city

TX Bryan city

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TX Buckingham town

TX Bunker Hill Village city

TX Cameron County

TX Carrollton city

TX Castle Hills city

TX Cedar Hill city

TX Cedar Park city

TX Chambers County

TX Cibolo city

TX Clear Lake Shores city

TX Clint town

TX Cockrell Hill city

TX College Station city

TX Colleyville city

TX Collin County

TX Comal County

TX Combes town

TX Converse city

TX Copperas Cove city

TX Corinth town

TX Coryell County

TX Crowley city

TX Dallas County

TX Dalworthington Gardens city

TX Deer Park city

TX Denison city

TX Denton city

TX Denton County

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TX DeSoto city

TX Dickinson city

TX Donna city

TX Double Oak town

TX Duncanville city

TX Ector County

TX Edgecliff village

TX Edinburg city

TX El Lago city

TX El Paso County

TX Ellis County

TX Euless city

TX Everman city

TX Farmers Branch city

TX Flower Mound town

TX Forest Hill city

TX Fort Bend County

TX Friendswood city

TX Galena Park city

TX Galveston city

TX Galveston County

TX Grand Prairie city

TX Grapevine city

TX Grayson County

TX Gregg County

TX Groves city

TX Guadalupe County

TX Haltom City city

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TX Hardin County

TX Harker Heights city

TX Harlingen city

TX Harrison County

TX Hedwig Village city

TX Hewitt city

TX Hickory Creek town

TX Hidalgo County

TX Highland Park town

TX Highland Village city

TX Hill Country Village city

TX Hilshire Village city

TX Hitchcock city

TX Hollywood Park town

TX Howe town

TX Humble city

TX Hunters Creek Village city

TX Hurst city

TX Hutchins city

TX Impact town

TX Jacinto City city

TX Jefferson County

TX Jersey Village city

TX Johnson County

TX Jones County

TX Katy city

TX Kaufman County

TX Keller city

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TX Kemah city

TX Kennedale city

TX Killeen city

TX Kirby city

TX Kleberg County

TX La Marque city

TX La Porte city

TX Lacy-Lakeview city

TX Lake Dallas city

TX Lake Worth city

TX Lakeside City town

TX Lakeside town

TX Lampasas County

TX Lancaster city

TX League City city

TX Leander city

TX Leon Valley city

TX Lewisville city

TX Live Oak city

TX Longview city

TX Lubbock County

TX Lumberton city

TX Martin County

TX McAllen city

TX McLennan County

TX Meadows city

TX Midland city

TX Midland County

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TX Mission city

TX Missouri City city

TX Montgomery County

TX Morgan's Point city

TX Nash city

TX Nassau Bay city

TX Nederland city

TX Nolanville city

TX North Richland Hills city

TX Northcrest town

TX Nueces County

TX Odessa city

TX Olmos Park city

TX Palm Valley town

TX Palmview city

TX Pantego town

TX Parker County

TX Pearland city

TX Pflugerville city

TX Pharr city

TX Piney Point Village city

TX Port Arthur city

TX Port Neches city

TX Portland city

TX Potter County

TX Primera town

TX Randall County

TX Richardson city

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TX Richland Hills city

TX River Oaks city

TX Robinson city

TX Rockwall city

TX Rockwall County

TX Rollingwood city

TX Rose Hill Acres city

TX Rowlett city ***68833**

TX Sachse city

TX Saginaw city

TX San Angelo city

TX San Benito city

TX San Juan city

TX San Patricio County

TX Sansom Park city

TX Santa Fe city

TX Schertz city

TX Seabrook city

TX Seagoville city

TX Selma city

TX Shavano Park city

TX Sherman city

TX Shoreacres city

TX Smith County

TX Socorro town

TX South Houston city

TX Southside Place city

TX Spring Valley city

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TX Stafford town

TX Sugar Land city

TX Sunset Valley city

TX Tarrant County

TX Taylor County

TX Taylor Lake Village city

TX Temple city

TX Terrell Hills city

TX Texarkana city

TX Texas City city

TX Tom Green County

TX Travis County

TX Tye town

TX Tyler city

TX Universal City city

TX University Park city

TX Victoria city

TX Victoria County

TX Wake Village city

TX Waller County

TX Watauga city

TX Webb County

TX Webster city

TX Weslaco city

TX West Lake Hills city

TX West University Place city

TX Westover Hills town

TX Westworth village

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TX White Oak city

TX White Settlement city

TX Wichita County

TX Wichita Falls city

TX Williamson County

TX Wilmer city

TX Windcrest city

TX Woodway city

UT American Fork city

UT Bluffdale city

UT Bountiful city

UT Cache County

UT Cedar Hills town

UT Centerville city

UT Clearfield city

UT Clinton city

UT Davis County

UT Draper city

UT Farmington city

UT Farr West city

UT Fruit Heights city

UT Harrisville city

UT Highland city

UT Hyde Park city

UT Kaysville city

UT Layton city

UT Lehi city

UT Lindon city

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UT Logan city

UT Mapleton city

UT Midvale city

UT Millville city

UT Murray city

UT North Logan city

UT North Ogden city

UT North Salt Lake city

UT Ogden city

UT Orem city

UT Pleasant Grove city

UT Pleasant View city

UT Providence city

UT Provo city

UT River Heights city

UT Riverdale city

UT Riverton city

UT Roy city

UT Sandy city

UT Smithfield city

UT South Jordan city

UT South Ogden city

UT South Salt Lake city

UT South Weber city

UT Springville city

UT Sunset city

UT Syracuse city

UT Uintah town

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UT Utah County

UT Washington Terrace city

UT Weber County

UT West Bountiful city

UT West Jordan city

UT West Point city

UT West Valley City city

UT Woods Cross city

VA Albemarle County

VA Alexandria city

VA Amherst County

VA Bedford County

VA Botetourt County

VA Bristol city

VA Campbell County

VA Charlottesville city

VA Colonial Heights city

VA Danville city

VA Dinwiddie County

VA Fairfax city

VA Falls Church city

VA Fredericksburg city

VA Gate City town

VA Gloucester County

VA Hanover County

VA Herndon town

VA Hopewell city

VA James City County

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VA Loudoun County

VA Lynchburg city

VA Manassas city

VA Manassas Park city

VA Occoquan town

VA Petersburg city

VA Pittsylvania County

VA Poquoson city

VA Prince George County

VA Richmond city

VA Roanoke city

VA Roanoke County

VA Salem city

VA Scott County

VA Spotsylvania County

VA Stafford County

VA Suffolk city

VA Vienna town

VA Vinton town

VA Washington County

VA Weber City town

VA Williamsburg city

VA York County

VT Burlington city

VT Chittenden County

VT Colchester town

VT Essex Junction village

VT Essex town

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VT Shelburne town

VT South Burlington city

VT Williston town

VT Winooski city

WA Algona city

WA Auburn city

WA Beaux Arts Village town

WA Bellevue city

WA Bellingham city

WA Benton County

WA Bonney Lake city

WA Bothell city

WA Bremerton city

WA Brier city

WA Clyde Hill town

WA Cowlitz County

WA Des Moines city

WA DuPont city

WA Edmonds city

WA Everett city

WA Fife city

WA Fircrest town

WA Franklin County

WA Gig Harbor city

WA Hunts Point town

WA Issaquah city

WA Kelso city

WA Kennewick city

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WA Kent city

WA Kirkland city

WA Kitsap County

WA Lacey city

WA Lake Forest Park city

WA Longview city

WA Lynnwood city

WA Marysville city

WA Medina city

WA Mercer Island city

WA Mill Creek city

WA Millwood town

WA Milton city

WA Mountlake Terrace city

WA Mukilteo city

WA Normandy Park city

WA Olympia city

WA Pacific city

WA Pasco city

WA Port Orchard city

WA Puyallup city

WA Redmond city

WA Renton city

WA Richland city

WA Ruston town

WA Selah city

WA Steilacoom town

WA Sumner city

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WA Thurston County

WA Tukwila city

WA Tumwater city

WA Union Gap city

WA Vancouver city

WA West Richland city

WA Whatcom County

WA Woodway city

WA Yakima city

WA Yakima County

WA Yarrow Point town

WI Algoma town ***68834**

WI Allouez village

WI Altoona city

WI Appleton city

WI Ashwaubenon village

WI Bayside village

WI Bellevue town

WI Beloit city

WI Beloit town

WI Big Bend village

WI Black Wolf town

WI Blooming Grove town

WI Brookfield city

WI Brookfield town

WI Brown County

WI Brown Deer village

WI Brunswick town

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WI Buchanan town

WI Burke town

WI Butler village

WI Caledonia town

WI Calumet County

WI Campbell town

WI Cedarburg city

WI Cedarburg town

WI Chippewa County

WI Chippewa Falls city

WI Clayton town

WI Combined Locks village

WI Cudahy city

WI Dane County

WI De Pere city

WI De Pere town

WI Delafield town

WI Douglas County

WI Dunn town

WI Eagle Point town

WI Eau Claire city

WI Eau Claire County

WI Elm Grove village

WI Elmwood Park village

WI Fitchburg city

WI Fox Point village

WI Franklin city

WI Germantown town

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WI Germantown village

WI Glendale city

WI Grafton town

WI Grafton village

WI Grand Chute town

WI Green Bay city

WI Greendale village

WI Greenfield city

WI Greenville town

WI Hales Corners village

WI Hallie town

WI Harmony town

WI Harrison town

WI Hobart town

WI Holmen village

WI Howard village

WI Janesville city

WI Janesville town

WI Kaukauna city

WI Kenosha city

WI Kenosha County

WI Kimberly village

WI Kohler village

WI La Crosse city

WI La Crosse County

WI La Prairie town

WI Lafayette town

WI Lannon village

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WI Lima town

WI Lisbon town

WI Little Chute village

WI Madison town

WI Maple Bluff village

WI Marathon County

WI McFarland village

WI Medary town

WI Menasha city

WI Menasha town

WI Menomonee Falls village

WI Mequon city

WI Middleton city

WI Middleton town

WI Monona city

WI Mount Pleasant town

WI Muskego city

WI Neenah city

WI Neenah town

WI Nekimi town

WI New Berlin city

WI North Bay village

WI Norway town

WI Oak Creek city

WI Onalaska city

WI Onalaska town

WI Oshkosh city

WI Oshkosh town

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WI Outagamie County

WI Ozaukee County

WI Pewaukee town

WI Pewaukee village

WI Pleasant Prairie town

WI Pleasant Prairie village

WI Racine city

WI Racine County

WI Rib Mountain town

WI River Hills village

WI Rock County

WI Rock town

WI Rothschild village

WI Salem town

WI Schofield city

WI Scott town

WI Sheboygan city

WI Sheboygan County

WI Sheboygan Falls city

WI Sheboygan Falls town

WI Sheboygan town

WI Shelby town

WI Shorewood Hills village

WI Shorewood village

WI Somers town

WI South Milwaukee city

WI St. Francis city

WI Stettin town

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WI Sturtevant village

WI Superior city

WI Superior village

WI Sussex village

WI Thiensville village

WI Turtle town

WI Union town

WI Vandenbroek town

WI Vernon town

WI Washington County

WI Washington town

WI Waukesha city

WI Waukesha County

WI Waukesha town

WI Wausau city

WI Wauwatosa city

WI West Allis city

WI West Milwaukee village

WI Weston town

WI Westport town

WI Wheaton town

WI Whitefish Bay village

WI Wilson town

WI Wind Point village

WI Winnebago County

WV Bancroft town

WV Barboursville village

WV Belle town

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WV Benwood city

WV Berkeley County

WV Bethlehem village

WV Brooke County

WV Cabell County

WV Cedar Grove town

WV Ceredo city

WV Charleston city

WV Chesapeake town

WV Clearview village

WV Dunbar city

WV East Bank town

WV Follansbee city

WV Glasgow town

WV Glen Dale city

WV Hancock County

WV Huntington city

WV Hurricane city

WV Kanawha County

WV Kenova city

WV Marmet city

WV Marshall County

WV McMechen city

WV Mineral County

WV Moundsville city

WV Nitro city

WV North Hills town

WV Ohio County

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WV Parkersburg city

WV Poca town

WV Putnam County

WV Ridgeley town

WV South Charleston city

WV St. Albans city

WV Triadelphia town

WV Vienna city

WV Wayne County

WV Weirton city

WV Wheeling city

WV Wood County

WY Casper city

WY Cheyenne city

WY Evansville town

WY Laramie County

WY Mills town

WY Natrona County

***68835 Appendix 7 of Preamble—Governmental Entities (Located Outside of an Urbanized Area) That Must Be Examined By the NPDES Permitting Authority for Potential Designation Under §123.35(b)(2)**

(All listed entities have a population of at least 10,000 and a population density of at least 1,000. A listed entity would only be potentially designated if it operates a small MS4. See §122.26(b)(16) for the definition of a small MS4.)

(This list does not include all operators of small MS4s that may be designated by the NPDES permitting authority. Operators of small MS4s in areas with populations below 10,000 and densities below 1,000 may also be designated but examination of them is not required. Also, entities such as military bases, large hospitals, prison complexes, universities, sewer districts, and highway departments that operate a small MS4 in an area listed here, or in an area otherwise designated by the NPDES permitting authority, may be designated and become subject to permitting regulations.) (Source: 1990 Census of Population and Housing, U.S. Bureau of the Census. This list is subject to change with the Decennial Census)

AL Daphne city

AL Jacksonville city

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AL Selma city

AR Arkadelphia city

AR Benton city

AR Blytheville city

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For the reasons set forth in the preamble, chapter I of title 40 of the Code of Federal Regulations is amended as follows:

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PART 9—OMB APPROVALS UNDER THE PAPERWORK REDUCTION ACT

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 et seq., 136-136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601-2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 et seq., 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-1, 300j-2, 300j-3, 300j-4, 300j-9, 1857 et seq., 6901-6992k, 7401-7671q, 7542, 9601-9657, 11023, 11048.

40 CFR § 9.1

2. In §9.1 the table is amended by adding entries in numerical order under the indicated heading to read as follows:

40 CFR § 9.1

§9.1 OMB approvals under the Paperwork Reduction Act.

* * * * *

40 CFR citation	OMB control No.
* * * * * * *	
EPA Administered Permit Programs: The National Pollutant Discharge Elimination System	
* * * * * * *	
122.26(g)	2040-0211
* * * * * * *	
State Permit Requirements	
* * * * * * *	
123.35(b)	2040-0211
* * * * * * *	

***68838 PART 122—EPA ADMINISTERED PERMIT PROGRAMS: THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM**

1. The authority citation for part 122 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 et seq.

40 CFR § 122.21

2. Revise §122.21(c)(1) to read as follows:

40 CFR § 122.21

§122.21 Application for a permit (applicable to State programs, see §123.25).

* * * * *

(c) Time to apply. (1) Any person proposing a new discharge, shall submit an application at least 180 days before the date on which the discharge is to commence, unless permission for a later date has been granted by the Director. Facilities proposing a new discharge of storm water associated with industrial activity shall submit an application 180 days before that facility commences industrial activity which may result in a discharge of storm water associated with that industrial

activity. Facilities described under §122.26(b)(14)(x) or (b)(15)(i) shall submit applications at least 90 days before the date on which construction is to commence. Different submittal dates may be required under the terms of applicable general permits. Persons proposing a new discharge are encouraged to submit their applications well in advance of the 90 or 180 day requirements to avoid delay. See also paragraph (k) of this section and §122.26(c)(1)(i)(G) and (c)(1)(ii).
* * * * *40 CFR § 122.26
3. Amend §122.26 as follows:

a. Revise paragraphs (a)(9), (b)(4)(i), (b)(7)(i), (b)(14) introductory text, (b)(14)(x), (b)(14)(xi);

b. Redesignate paragraph (b)(15) as paragraph (b)(20) and add new paragraphs (b)(15) through (b)(19);

c. Revise the heading for paragraph (c), the first sentence of paragraph (c)(1) introductory text, the first sentence of paragraph (c)(1)(ii) introductory text, paragraphs (e) heading and introductory text, (e)(1), (e)(5) introductory text, and (e)(5)(i);

d. Add paragraphs (e)(8) and (e)(9); and

e. Revise paragraphs (f)(4), (f)(5), and (g).

The additions and revisions read as follows:
40 CFR § 122.26

§122.26 Storm water discharges (applicable to State NPDES programs, see § 123.25).
(a) * * *

(9)(i) On and after October 1, 1994, for discharges composed entirely of storm water, that are not required by paragraph (a)(1) of this section to obtain a permit, operators shall be required to obtain a NPDES permit only if:

(A) The discharge is from a small MS4 required to be regulated pursuant to § 122.32;

(B) The discharge is a storm water discharge associated with small construction activity pursuant to paragraph (b)(15) of this section;

(C) The Director, or in States with approved NPDES programs either the Director or the EPA Regional Administrator, determines that storm water controls are needed for the discharge based on wasteload allocations that are part of "total maximum daily loads" (TMDLs) that address the pollutant(s) of concern; or

(D) The Director, or in States with approved NPDES programs either the Director or the EPA Regional Administrator, determines that the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

(ii) Operators of small MS4s designated pursuant to paragraphs (a)(9)(i)(A), (a)(9)(i)(C), and (a)(9)(i)(D) of this section shall seek coverage under an NPDES permit in accordance with §§122.33 through 122.35. Operators of non-municipal sources designated pursuant to paragraphs (a)(9)(i)(B), (a)(9)(i)(C), and (a)(9)(i)(D) of this section shall seek coverage under an NPDES permit in accordance with paragraph (c)(1) of this section.

(iii) Operators of storm water discharges designated pursuant to paragraphs (a)(9)(i)(C) and (a)(9)(i)(D) of this section shall apply to the Director for a permit within 180 days of receipt of notice, unless permission for a later date is granted by the Director (see §124.52(c) of this chapter).

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(b) * * *

(4) * * *

(i) Located in an incorporated place with a population of 250,000 or more as determined by the 1990 Decennial Census by the Bureau of the Census (Appendix F of this part); or

* * * * *

(7) * * *

(i) Located in an incorporated place with a population of 100,000 or more but less than 250,000, as determined by the 1990 Decennial Census by the Bureau of the Census (Appendix G of this part); or

* * * * *

(14) Storm water discharge associated with industrial activity means the discharge from any conveyance that is used for collecting and conveying storm ***68839** water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under this part 122. For the categories of industries identified in this section, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at part 401 of this chapter); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in paragraphs (b)(14)(i) through (xi) of this section) include those facilities designated under the provisions of paragraph (a)(1)(v) of this section. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of paragraph (b)(14):

* * * * *

(x) Construction activity including clearing, grading and excavation, except operations that result in the disturbance of less than five acres of total land area. Construction activity also includes the disturbance of less than five acres of total land area that is a part of a larger common plan of development or sale if the larger common plan will ultimately disturb five acres or more;

(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 36, 37 (except 373), 38, 39, and 4221-25;

(15) Storm water discharge associated with small construction activity means the discharge of storm water from:

(i) Construction activities including clearing, grading, and excavating that result in land disturbance of equal to or greater than one acre and less than five acres. Small construction activity also includes the disturbance of less than one acre of total land area that is part of a larger common plan of development or sale if the larger common plan will ultimately disturb equal to or greater than one and less than five acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. The Director may waive the otherwise applicable requirements in a general permit for a storm water discharge from construction activities that disturb less than five acres where:

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(A) The value of the rainfall erosivity factor ("R" in the Revised Universal Soil Loss Equation) is less than five during the period of construction activity. The rainfall erosivity factor is determined in accordance with Chapter 2 of Agriculture Handbook Number 703, Predicting Soil Erosion by Water: A Guide to Conservation Planning With the Revised Universal Soil Loss Equation (RUSLE), pages 21-64, dated January 1997. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C 552(a) and 1 CFR part 51. Copies may be obtained from EPA's Water Resource Center, Mail Code RC4100, 401 M St. S.W., Washington, DC 20460. A copy is also available for inspection at the U.S. EPA Water Docket , 401 M Street S.W., Washington, DC. 20460, or the Office of the Federal Register, 800 N. Capitol Street N.W. Suite 700, Washington, DC. An operator must certify to the Director that the construction activity will take place during a period when the value of the rainfall erosivity factor is less than five; or

(B) Storm water controls are not needed based on a "total maximum daily load" (TMDL) approved or established by EPA that addresses the pollutant(s) of concern or, for non-impaired waters that do not require TMDLs, an equivalent analysis that determines allocations for small construction sites for the pollutant(s) of concern or that determines that such allocations are not needed to protect water quality based on consideration of existing in-stream concentrations, expected growth in pollutant contributions from all sources, and a margin of safety. For the purpose of this paragraph, the pollutant(s) of concern include sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation) and any other pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the construction activity. The operator must certify to the Director that the construction activity will take place, and storm water discharges will occur, within the drainage area addressed by the TMDL or equivalent analysis.

(ii) Any other construction activity designated by the Director, or in States with approved NPDES programs either the Director or the EPA Regional Administrator, based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the United States.

Exhibit 1 to §122.26(b)(15).—Summary of Coverage of "Storm Water Discharges Associated with Small Construction Activity" Under the NPDES Storm Water Program

Automatic Designation: Required Nationwide Coverage	- Construction activities that result in a land disturbance of equal to or greater than one acre and less than five acres. - Construction activities disturbing less than one acre if part of a larger common plan of development or sale with a planned disturbance of equal to or greater than one acre and less than five acres. (see §122.26(b)(15)(i).)
Potential Designation: Optional Evaluation and Designation by the NPDES Permitting Authority or EPA Regional Administrator.	- Construction activities that result in a land disturbance of less than one acre based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants. (see §122.26(b)(15)(ii).)
Potential Waiver: Waiver from Requirements as Determined by the NPDES Permitting Authority.	Any automatically designated construction activity where the operator certifies: (1) A rainfall erosivity factor of less than five, or (2) That the activity will occur within an area where controls are not needed based on a TMDL or, for non-impaired waters that do not require a TMDL, an equivalent analysis for the pollutant(s) of concern. (see §122.26(b)(15)(i).)

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***68840** (16) Small municipal separate storm sewer system means all separate storm sewers that are:

(i) Owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States.

(ii) Not defined as "large" or "medium" municipal separate storm sewer systems pursuant to paragraphs (b)(4) and (b)(7) of this section, or designated under paragraph (a)(1)(v) of this section.

(iii) This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. The term does not include separate storm sewers in very discrete areas, such as individual buildings.

(17) Small MS4 means a small municipal separate storm sewer system.

(18) Municipal separate storm sewer system means all separate storm sewers that are defined as "large" or "medium" or "small" municipal separate storm sewer systems pursuant to paragraphs (b)(4), (b)(7), and (b)(16) of this section, or designated under paragraph (a)(1)(v) of this section.

(19) MS4 means a municipal separate storm sewer system.

* * * * *

(c) Application requirements for storm water discharges associated with industrial activity and storm water discharges associated with small construction activity—(1) Individual application. Dischargers of storm water associated with industrial activity and with small construction activity are required to apply for an individual permit or seek coverage under a promulgated storm water general permit. * * *

* * * * *

(ii) An operator of an existing or new storm water discharge that is associated with industrial activity solely under paragraph (b)(14)(x) of this section or is associated with small construction activity solely under paragraph (b)(15) of this section, is exempt from the requirements of § 122.21(g) and paragraph (c)(1)(i) of this section. * * *

* * * * *

(e) Application deadlines. Any operator of a point source required to obtain a permit under this section that does not have an effective NPDES permit authorizing discharges from its storm water outfalls shall submit an application in accordance with the following deadlines:

(1) Storm water discharges associated with industrial activity. (i) Except as provided in paragraph (e)(1)(ii) of this section, for any storm water discharge associated with industrial activity identified in paragraphs (b)(14)(i) through (xi) of this section, that is not part of a group application as described in paragraph (c)(2) of this section or that is not authorized by a storm water general permit, a permit application made pursuant to paragraph (c) of this section must be submitted to the Director by October 1, 1992;

(ii) For any storm water discharge associated with industrial activity from a facility that is owned or operated by a municipality with a population of less than 100,000 that is not authorized by a general or individual permit, other than an airport, powerplant, or uncontrolled sanitary landfill, the permit application must be submitted to the Director by March 10, 2003.

* * * * *

(5) A permit application shall be submitted to the Director within 180 days of notice, unless permission for a later date is granted by the Director (see § 124.52(c) of this chapter), for:

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(i) A storm water discharge that the Director, or in States with approved NPDES programs, either the Director or the EPA Regional Administrator, determines that the discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States (see paragraphs (a)(1)(v) and (b)(15)(ii) of this section);
* * * * *
(8) For any storm water discharge associated with small construction activity identified in paragraph (b)(15)(i) of this section, see §122.21(c)(1). Discharges from these sources require permit authorization by March 10, 2003, unless designated for coverage before then.

(9) For any discharge from a regulated small MS4, the permit application made under §122.33 must be submitted to the Director by:

(i) March 10, 2003 if designated under §122.32(a)(1) unless your MS4 serves a jurisdiction with a population under 10,000 and the NPDES permitting authority has established a phasing schedule under §123.35(d)(3) (see §122.33(c)(1)); or

(ii) Within 180 days of notice, unless the NPDES permitting authority grants a later date, if designated under §122.32(a)(2) (see §122.33(c)(2)).

(f) * * *

(4) Any person may petition the Director for the designation of a large, medium, or small municipal separate storm sewer system as defined by paragraph (b)(4)(iv), (b)(7)(iv), or (b)(16) of this section.

(5) The Director shall make a final determination on any petition received under this section within 90 days after receiving the petition with the exception of petitions to designate a small MS4 in which case the Director shall make a final determination on the petition within 180 days after its receipt.

(g) Conditional exclusion for "no exposure" of industrial activities and materials to storm water. Discharges composed entirely of storm water are not storm water discharges associated with industrial activity if there is "no exposure" of industrial materials and activities to rain, snow, snowmelt and/or runoff, and the discharger satisfies the conditions in paragraphs (g)(1) through (g)(4) of this section. "No exposure" means that all industrial materials and activities are protected by a storm resistant shelter to prevent exposure to rain, snow, snowmelt, and/or runoff. Industrial materials or activities include, but are not limited to, material handling equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste ***68841** products. Material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product or waste product.

(1) Qualification. To qualify for this exclusion, the operator of the discharge must:

(i) Provide a storm resistant shelter to protect industrial materials and activities from exposure to rain, snow, snow melt, and runoff;

(ii) Complete and sign (according to §122.22) a certification that there are no discharges of storm water contaminated by exposure to industrial materials and activities from the entire facility, except as provided in paragraph (g)(2) of this section;

(iii) Submit the signed certification to the NPDES permitting authority once every five years;

(iv) Allow the Director to inspect the facility to determine compliance with the "no exposure" conditions;

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(v) Allow the Director to make any "no exposure" inspection reports available to the public upon request; and

(vi) For facilities that discharge through an MS4, upon request, submit a copy of the certification of "no exposure" to the MS4 operator, as well as allow inspection and public reporting by the MS4 operator.

(2) Industrial materials and activities not requiring storm resistant shelter. To qualify for this exclusion, storm resistant shelter is not required for:

(i) Drums, barrels, tanks, and similar containers that are tightly sealed, provided those containers are not deteriorated and do not leak ("Sealed" means banded or otherwise secured and without operational taps or valves);

(ii) Adequately maintained vehicles used in material handling; and

(iii) Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt).

(3) Limitations. (i) Storm water discharges from construction activities identified in paragraphs (b)(14)(x) and (b)(15) are not eligible for this conditional exclusion.

(ii) This conditional exclusion from the requirement for an NPDES permit is available on a facility-wide basis only, not for individual outfalls. If a facility has some discharges of storm water that would otherwise be "no exposure" discharges, individual permit requirements should be adjusted accordingly.

(iii) If circumstances change and industrial materials or activities become exposed to rain, snow, snow melt, and/or runoff, the conditions for this exclusion no longer apply. In such cases, the discharge becomes subject to enforcement for un-permitted discharge. Any conditionally exempt discharger who anticipates changes in circumstances should apply for and obtain permit authorization prior to the change of circumstances.

(iv) Notwithstanding the provisions of this paragraph, the NPDES permitting authority retains the authority to require permit authorization (and deny this exclusion) upon making a determination that the discharge causes, has a reasonable potential to cause, or contributes to an instream excursion above an applicable water quality standard, including designated uses.

(4) Certification. The no exposure certification must require the submission of the following information, at a minimum, to aid the NPDES permitting authority in determining if the facility qualifies for the no exposure exclusion:

(i) The legal name, address and phone number of the discharger (see § 122.21(b));

(ii) The facility name and address, the county name and the latitude and longitude where the facility is located;

(iii) The certification must indicate that none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation:

(A) Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed to storm water;

(B) Materials or residuals on the ground or in storm water inlets from spills/leaks;

(C) Materials or products from past industrial activity;

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(D) Material handling equipment (except adequately maintained vehicles);

(E) Materials or products during loading/unloading or transporting activities;

(F) Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

(G) Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

(H) Materials or products handled/stored on roads or railways owned or maintained by the discharger;

(I) Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);

(J) Application or disposal of process wastewater (unless otherwise permitted); and

(K) Particulate matter or visible deposits of residuals from roof stacks/vents not otherwise regulated, i.e., under an air quality control permit, and evident in the storm water outflow;

(iv) All "no exposure" certifications must include the following certification statement, and be signed in accordance with the signatory requirements of § 122.22: "I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of "no exposure" and obtaining an exclusion from NPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities or materials from the industrial facility identified in this document (except as allowed under paragraph (g)(2)) of this section. I understand that I am obligated to submit a no exposure certification form once every five years to the NPDES permitting authority and, if requested, to the operator of the local MS4 into which this facility discharges (where applicable). I understand that I must allow the NPDES permitting authority, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

40 CFR § 122.28

4. Revise §122.28(b)(2)(v) to read as follows:

40 CFR § 122.28

§122.28 General permits (applicable to State NPDES programs, see §123.25).

* * * * *

(b) * * *

(2) * * *

(v) Discharges other than discharges from publicly owned treatment works, combined sewer overflows, municipal ***68842** separate storm sewer systems, primary industrial facilities, and storm water discharges associated with industrial activity, may, at the discretion of the Director, be authorized to discharge under a general permit without submitting a notice of intent where the Director finds that a notice of intent requirement would be inappropriate. In making such a finding, the Director shall consider: the type of discharge; the expected nature of the discharge; the potential for toxic and

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conventional pollutants in the discharges; the expected volume of the discharges; other means of identifying discharges covered by the permit; and the estimated number of discharges to be covered by the permit. The Director shall provide in the public notice of the general permit the reasons for not requiring a notice of intent.

* * * * *

5. Add §§122.30 through 122.37 to subpart B to read as follows:

40 CFR § 122.30

§122.30 What are the objectives of the storm water regulations for small MS4s?

(a) Sections 122.30 through 122.37 are written in a "readable regulation" format that includes both rule requirements and EPA guidance that is not legally binding. EPA has clearly distinguished its recommended guidance from the rule requirements by putting the guidance in a separate paragraph headed by the word "guidance".

(b) Under the statutory mandate in section 402(p)(6) of the Clean Water Act, the purpose of this portion of the storm water program is to designate additional sources that need to be regulated to protect water quality and to establish a comprehensive storm water program to regulate these sources. (Because the storm water program is part of the National Pollutant Discharge Elimination System (NPDES) Program, you should also refer to §122.1 which addresses the broader purpose of the NPDES program.)

(c) Storm water runoff continues to harm the nation's waters. Runoff from lands modified by human activities can harm surface water resources in several ways including by changing natural hydrologic patterns and by elevating pollutant concentrations and loadings. Storm water runoff may contain or mobilize high levels of contaminants, such as sediment, suspended solids, nutrients, heavy metals, pathogens, toxins, oxygen-demanding substances, and floatables.

(d) EPA strongly encourages partnerships and the watershed approach as the management framework for efficiently, effectively, and consistently protecting and restoring aquatic ecosystems and protecting public health.

40 CFR § 122.31

§122.31 As a Tribe, what is my role under the NPDES storm water program?

As a Tribe you may:

(a) Be authorized to operate the NPDES program including the storm water program, after EPA determines that you are eligible for treatment in the same manner as a State under §§123.31 through 123.34 of this chapter. (If you do not have an authorized NPDES program, EPA implements the program for discharges on your reservation as well as other Indian country, generally.);

(b) Be classified as an owner of a regulated small MS4, as defined in §122.32. (Designation of your Tribe as an owner of a small MS4 for purposes of this part is an approach that is consistent with EPA's 1984 Indian Policy of operating on a government-to-government basis with EPA looking to Tribes as the lead governmental authorities to address environmental issues on their reservations as appropriate. If you operate a separate storm sewer system that meets the definition of a regulated small MS4, you are subject to the requirements under §§122.33 through 122.35. If you are not designated as a regulated small MS4, you may ask EPA to designate you as such for the purposes of this part.); or

(c) Be a discharger of storm water associated with industrial activity or small construction activity under §§122.26(b)(14) or (b)(15), in which case you must meet the applicable requirements. Within Indian country, the NPDES permitting authority is generally EPA, unless you are authorized to administer the NPDES program.

40 CFR § 122.32

§122.32 As an operator of a small MS4, am I regulated under the NPDES storm water program?

(a) Unless you qualify for a waiver under paragraph (c) of this section, you are regulated if you operate a small MS4, including but not limited to systems operated by federal, State, Tribal, and local governments, including State departments of transportation; and:

(1) Your small MS4 is located in an urbanized area as determined by the latest Decennial Census by the Bureau of the Census. (If your small MS4 is not located entirely within an urbanized area, only the portion that is within the urbanized area is regulated); or

(2) You are designated by the NPDES permitting authority, including where the designation is pursuant to §§123.35(b)(3) and (b)(4) of this chapter, or is based upon a petition under §122.26(f).

(b) You may be the subject of a petition to the NPDES permitting authority to require an NPDES permit for your discharge of storm water. If the NPDES permitting authority determines that you need a permit, you are required to comply with §§122.33 through 122.35.

(c) The NPDES permitting authority may waive the requirements otherwise applicable to you if you meet the criteria of paragraph (d) or (e) of this section. If you receive a waiver under this section, you may subsequently be required to seek coverage under an NPDES permit in accordance with §122.33(a) if circumstances change. (See also §123.35(b) of this chapter.)

(d) The NPDES permitting authority may waive permit coverage if your MS4 serves a population of less than 1,000 within the urbanized area and you meet the following criteria:

(1) Your system is not contributing substantially to the pollutant loadings of a physically interconnected MS4 that is regulated by the NPDES storm water program (see §123.35(b)(4) of this chapter); and

(2) If you discharge any pollutant(s) that have been identified as a cause of impairment of any water body to which you discharge, storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established "total maximum daily load" (TMDL) that addresses the pollutant(s) of concern.

(e) The NPDES permitting authority may waive permit coverage if your MS4 serves a population under 10,000 and you meet the following criteria:

(1) The permitting authority has evaluated all waters of the U.S., including small streams, tributaries, lakes, and ponds, that receive a discharge from your MS4;

(2) For all such waters, the permitting authority has determined that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern or, if a TMDL has not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern;

(3) For the purpose of this paragraph (e), the pollutant(s) of concern include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from your MS4; and ***68843**

(4) The permitting authority has determined that future discharges from your MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

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40 CFR § 122.33

§122.33 If I am an operator of a regulated small MS4, how do I apply for an NPDES permit and when do I have to apply?
(a) If you operate a regulated small MS4 under §122.32, you must seek coverage under a NPDES permit issued by your NPDES permitting authority. If you are located in an NPDES authorized State, Tribe, or Territory, then that State, Tribe, or Territory is your NPDES permitting authority. Otherwise, your NPDES permitting authority is the EPA Regional Office.

(b) You must seek authorization to discharge under a general or individual NPDES permit, as follows:

(1) If your NPDES permitting authority has issued a general permit applicable to your discharge and you are seeking coverage under the general permit, you must submit a Notice of Intent (NOI) that includes the information on your best management practices and measurable goals required by §122.34(d). You may file your own NOI, or you and other municipalities or governmental entities may jointly submit an NOI. If you want to share responsibilities for meeting the minimum measures with other municipalities or governmental entities, you must submit an NOI that describes which minimum measures you will implement and identify the entities that will implement the other minimum measures within the area served by your MS4. The general permit will explain any other steps necessary to obtain permit authorization.

(2)(i) If you are seeking authorization to discharge under an individual permit and wish to implement a program under §122.34, you must submit an application to your NPDES permitting authority that includes the information required under §§122.21(f) and 122.34(d), an estimate of square mileage served by your small MS4, and any additional information that your NPDES permitting authority requests. A storm sewer map that satisfies the requirement of § 122.34(b)(3)(i) will satisfy the map requirement in §122.21(f)(7).

(ii) If you are seeking authorization to discharge under an individual permit and wish to implement a program that is different from the program under §122.34, you will need to comply with the permit application requirements of §122.26(d). You must submit both Parts of the application requirements in §§122.26(d)(1) and (2) by March 10, 2003. You do not need to submit the information required by §§122.26(d)(1)(ii) and (d)(2) regarding your legal authority, unless you intend for the permit writer to take such information into account when developing your other permit conditions.

(iii) If allowed by your NPDES permitting authority, you and another regulated entity may jointly apply under either paragraph (b)(2)(i) or (b)(2)(ii) of this section to be co-permittees under an individual permit.

(3) If your small MS4 is in the same urbanized area as a medium or large MS4 with an NPDES storm water permit and that other MS4 is willing to have you participate in its storm water program, you and the other MS4 may jointly seek a modification of the other MS4 permit to include you as a limited co-permittee. As a limited co-permittee, you will be responsible for compliance with the permit's conditions applicable to your jurisdiction. If you choose this option you will need to comply with the permit application requirements of §122.26, rather than the requirements of §122.34. You do not need to comply with the specific application requirements of §122.26(d)(1)(iii) and (iv) and (d)(2)(iii) (discharge characterization). You may satisfy the requirements in §122.26 (d)(1)(v) and (d)(2)(iv) (identification of a management program) by referring to the other MS4's storm water management program.

(4) Guidance: In referencing an MS4's storm water management program, you should briefly describe how the existing plan will address discharges from your small MS4 or would need to be supplemented in order to adequately address your discharges. You should also explain your role in coordinating storm water pollutant control activities in your MS4, and detail the resources available to you to accomplish the plan.

(c) If you operate a regulated small MS4:

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(1) Designated under §122.32(a)(1), you must apply for coverage under an NPDES permit, or apply for a modification of an existing NPDES permit under paragraph (b)(3) of this section by March 10, 2003, unless your MS4 serves a jurisdiction with a population under 10,000 and the NPDES permitting authority has established a phasing schedule under §123.35(d)(3) of this chapter.

(2) Designated under §122.32(a)(2), you must apply for coverage under an NPDES permit, or apply for a modification of an existing NPDES permit under paragraph (b)(3) of this section, within 180 days of notice, unless the NPDES permitting authority grants a later date.
40 CFR § 122.34

§122.34 As an operator of a regulated small MS4, what will my NPDES MS4 storm water permit require?
(a) Your NPDES MS4 permit will require at a minimum that you develop, implement, and enforce a storm water management program designed to reduce the discharge of pollutants from your MS4 to the maximum extent practicable (MEP), to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act. Your storm water management program must include the minimum control measures described in paragraph (b) of this section unless you apply for a permit under §122.26(d). For purposes of this section, narrative effluent limitations requiring implementation of best management practices (BMPs) are generally the most appropriate form of effluent limitations when designed to satisfy technology requirements (including reductions of pollutants to the maximum extent practicable) and to protect water quality. Implementation of best management practices consistent with the provisions of the storm water management program required pursuant to this section and the provisions of the permit required pursuant to §122.33 constitutes compliance with the standard of reducing pollutants to the "maximum extent practicable." Your NPDES permitting authority will specify a time period of up to 5 years from the date of permit issuance for you to develop and implement your program.

(b) Minimum control measures—(1) Public education and outreach on storm water impacts. (i) You must implement a public education program to distribute educational materials to the community or conduct equivalent outreach activities about the impacts of storm water discharges on water bodies and the steps that the public can take to reduce pollutants in storm water runoff.

(ii) Guidance: You may use storm water educational materials provided by your State, Tribe, EPA, environmental, public interest or trade organizations, or other MS4s. The public education program should inform individuals and households about the steps they can take to reduce storm water pollution, such as ensuring proper septic system maintenance, ensuring the proper use and disposal of landscape and garden chemicals including fertilizers and pesticides, protecting and restoring riparian vegetation, and properly disposing of used motor oil or ***68844** household hazardous wastes. EPA recommends that the program inform individuals and groups how to become involved in local stream and beach restoration activities as well as activities that are coordinated by youth service and conservation corps or other citizen groups. EPA recommends that the public education program be tailored, using a mix of locally appropriate strategies, to target specific audiences and communities. Examples of strategies include distributing brochures or fact sheets, sponsoring speaking engagements before community groups, providing public service announcements, implementing educational programs targeted at school age children, and conducting community-based projects such as storm drain stenciling, and watershed and beach cleanups. In addition, EPA recommends that some of the materials or outreach programs be directed toward targeted groups of commercial, industrial, and institutional entities likely to have significant storm water impacts. For example, providing information to restaurants on the impact of grease clogging storm drains and to garages on the impact of oil discharges. You are encouraged to tailor your outreach program to address the viewpoints and concerns of all communities, particularly minority and disadvantaged communities, as well as any special concerns relating to children.

(2) Public involvement/participation. (i) You must, at a minimum, comply with State, Tribal and local public notice requirements when implementing a public involvement/ participation program.

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(ii) Guidance: EPA recommends that the public be included in developing, implementing, and reviewing your storm water management program and that the public participation process should make efforts to reach out and engage all economic and ethnic groups. Opportunities for members of the public to participate in program development and implementation include serving as citizen representatives on a local storm water management panel, attending public hearings, working as citizen volunteers to educate other individuals about the program, assisting in program coordination with other pre-existing programs, or participating in volunteer monitoring efforts. (Citizens should obtain approval where necessary for lawful access to monitoring sites.)

(3) Illicit discharge detection and elimination. (i) You must develop, implement and enforce a program to detect and eliminate illicit discharges (as defined at §122.26(b)(2)) into your small MS4.

(ii) You must:

(A) Develop, if not already completed, a storm sewer system map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;

(B) To the extent allowable under State, Tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into your storm sewer system and implement appropriate enforcement procedures and actions;

(C) Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, to your system; and

(D) Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste.

(iii) You need address the following categories of non-storm water discharges or flows (i.e., illicit discharges) only if you identify them as significant contributors of pollutants to your small MS4: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (discharges or flows from fire fighting activities are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to waters of the United States).

(iv) Guidance: EPA recommends that the plan to detect and address illicit discharges include the following four components: procedures for locating priority areas likely to have illicit discharges; procedures for tracing the source of an illicit discharge; procedures for removing the source of the discharge; and procedures for program evaluation and assessment. EPA recommends visually screening outfalls during dry weather and conducting field tests of selected pollutants as part of the procedures for locating priority areas. Illicit discharge education actions may include storm drain stenciling, a program to promote, publicize, and facilitate public reporting of illicit connections or discharges, and distribution of outreach materials.

(4) Construction site storm water runoff control. (i) You must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in your program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. If the NPDES permitting authority waives requirements for storm water

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discharges associated with small construction activity in accordance with § 122.26(b)(15)(i), you are not required to develop, implement, and/or enforce a program to reduce pollutant discharges from such sites.

(ii) Your program must include the development and implementation of, at a minimum:

(A) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law;

(B) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;

(C) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

(D) Procedures for site plan review which incorporate consideration of potential water quality impacts;

(E) Procedures for receipt and consideration of information submitted by the public, and

(F) Procedures for site inspection and enforcement of control measures.

(iii) Guidance: Examples of sanctions to ensure compliance include non-monetary penalties, fines, bonding requirements and/or permit denials for non-compliance. EPA recommends that procedures for site plan review include the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements. Procedures for site inspections and enforcement of control measures could include steps to identify priority sites for inspection and enforcement based on the nature of the construction activity, topography, and the characteristics of soils and receiving ***68845** water quality. You are encouraged to provide appropriate educational and training measures for construction site operators. You may wish to require a storm water pollution prevention plan for construction sites within your jurisdiction that discharge into your system. See § 122.44(s) (NPDES permitting authorities' option to incorporate qualifying State, Tribal and local erosion and sediment control programs into NPDES permits for storm water discharges from construction sites). Also see § 122.35(b) (The NPDES permitting authority may recognize that another government entity, including the permitting authority, may be responsible for implementing one or more of the minimum measures on your behalf.)

(5) Post-construction storm water management in new development and redevelopment.

(i) You must develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your small MS4. Your program must ensure that controls are in place that would prevent or minimize water quality impacts.

(ii) You must:

(A) Develop and implement strategies which include a combination of structural and/or non-structural best management practices (BMPs) appropriate for your community;

(B) Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; and

(C) Ensure adequate long-term operation and maintenance of BMPs.

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(iii) Guidance: If water quality impacts are considered from the beginning stages of a project, new development and potentially redevelopment provide more opportunities for water quality protection. EPA recommends that the BMPs chosen: be appropriate for the local community; minimize water quality impacts; and attempt to maintain pre-development runoff conditions. In choosing appropriate BMPs, EPA encourages you to participate in locally-based watershed planning efforts which attempt to involve a diverse group of stakeholders including interested citizens. When developing a program that is consistent with this measure's intent, EPA recommends that you adopt a planning process that identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality. In addition to assessing these existing documents and programs, you should provide opportunities to the public to participate in the development of the program. Non-structural BMPs are preventative actions that involve management and source controls such as: policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation; policies or ordinances that encourage infill development in higher density urban areas, and areas with existing infrastructure; education programs for developers and the public about project designs that minimize water quality impacts; and measures such as minimization of percent impervious area after development and minimization of directly connected impervious areas. Structural BMPs include: storage practices such as wet ponds and extended-detention outlet structures; filtration practices such as grassed swales, sand filters and filter strips; and infiltration practices such as infiltration basins and infiltration trenches. EPA recommends that you ensure the appropriate implementation of the structural BMPs by considering some or all of the following: pre-construction review of BMP designs; inspections during construction to verify BMPs are built as designed; post-construction inspection and maintenance of BMPs; and penalty provisions for the noncompliance with design, construction or operation and maintenance. Storm water technologies are constantly being improved, and EPA recommends that your requirements be responsive to these changes, developments or improvements in control technologies.

(6) Pollution prevention/good housekeeping for municipal operations. (i) You must develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations. Using training materials that are available from EPA, your State, Tribe, or other organizations, your program must include employee training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

(ii) Guidance: EPA recommends that, at a minimum, you consider the following in developing your program: maintenance activities, maintenance schedules, and long-term inspection procedures for structural and non-structural storm water controls to reduce floatables and other pollutants discharged from your separate storm sewers; controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations and snow disposal areas operated by you, and waste transfer stations; procedures for properly disposing of waste removed from the separate storm sewers and areas listed above (such as dredge spoil, accumulated sediments, floatables, and other debris); and ways to ensure that new flood management projects assess the impacts on water quality and examine existing projects for incorporating additional water quality protection devices or practices. Operation and maintenance should be an integral component of all storm water management programs. This measure is intended to improve the efficiency of these programs and require new programs where necessary. Properly developed and implemented operation and maintenance programs reduce the risk of water quality problems.

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(c) If an existing qualifying local program requires you to implement one or more of the minimum control measures of paragraph (b) of this section, the NPDES permitting authority may include conditions in your NPDES permit that direct you to follow that qualifying program's requirements rather than the requirements of paragraph (b) of this section. A qualifying local program is a local, State or Tribal municipal storm water management program that imposes, at a minimum, the relevant requirements of paragraph (b) of this section.

(d)(1) In your permit application (either a notice of intent for coverage ***68846** under a general permit or an individual permit application), you must identify and submit to your NPDES permitting authority the following information:

(i) The best management practices (BMPs) that you or another entity will implement for each of the storm water minimum control measures at paragraphs (b)(1) through (b)(6) of this section;

(ii) The measurable goals for each of the BMPs including, as appropriate, the months and years in which you will undertake required actions, including interim milestones and the frequency of the action; and

(iii) The person or persons responsible for implementing or coordinating your storm water management program.

(2) If you obtain coverage under a general permit, you are not required to meet any measurable goal(s) identified in your notice of intent in order to demonstrate compliance with the minimum control measures in paragraphs (b)(3) through (b)(6) of this section unless, prior to submitting your NOI, EPA or your State or Tribe has provided or issued a menu of BMPs that addresses each such minimum measure. Even if no regulatory authority issues the menu of BMPs, however, you still must comply with other requirements of the general permit, including good faith implementation of BMPs designed to comply with the minimum measures.

(3) Guidance: Either EPA or your State or Tribal permitting authority will provide a menu of BMPs. You may choose BMPs from the menu or select others that satisfy the minimum control measures.

(e)(1) You must comply with any more stringent effluent limitations in your permit, including permit requirements that modify, or are in addition to, the minimum control measures based on an approved total maximum daily load (TMDL) or equivalent analysis. The permitting authority may include such more stringent limitations based on a TMDL or equivalent analysis that determines such limitations are needed to protect water quality.

(2) Guidance: EPA strongly recommends that until the evaluation of the storm water program in §122.37, no additional requirements beyond the minimum control measures be imposed on regulated small MS4s without the agreement of the operator of the affected small MS4, except where an approved TMDL or equivalent analysis provides adequate information to develop more specific measures to protect water quality.

(f) You must comply with other applicable NPDES permit requirements, standards and conditions established in the individual or general permit, developed consistent with the provisions of §§122.41 through 122.49, as appropriate.

(g) Evaluation and assessment—(1) Evaluation. You must evaluate program compliance, the appropriateness of your identified best management practices, and progress towards achieving your identified measurable goals.

Note to Paragraph (g)(1): The NPDES permitting authority may determine monitoring requirements for you in accordance with State/Tribal monitoring plans appropriate to your watershed. Participation in a group monitoring program is encouraged.

(2) Recordkeeping. You must keep records required by the NPDES permit for at least 3 years. You must submit your records to the NPDES permitting authority only when specifically asked to do so. You must make your records, including

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a description of your storm water management program, available to the public at reasonable times during regular business hours (see §122.7 for confidentiality provision). (You may assess a reasonable charge for copying. You may require a member of the public to provide advance notice.)

(3) Reporting. Unless you are relying on another entity to satisfy your NPDES permit obligations under §122.35(a), you must submit annual reports to the NPDES permitting authority for your first permit term. For subsequent permit terms, you must submit reports in year two and four unless the NPDES permitting authority requires more frequent reports. Your report must include:

(i) The status of compliance with permit conditions, an assessment of the appropriateness of your identified best management practices and progress towards achieving your identified measurable goals for each of the minimum control measures;

(ii) Results of information collected and analyzed, including monitoring data, if any, during the reporting period;

(iii) A summary of the storm water activities you plan to undertake during the next reporting cycle;

(iv) A change in any identified best management practices or measurable goals for any of the minimum control measures; and

(v) Notice that you are relying on another governmental entity to satisfy some of your permit obligations (if applicable).
40 CFR § 122.35

§122.35 As an operator of a regulated small MS4, may I share the responsibility to implement the minimum control measures with other entities?
(a) You may rely on another entity to satisfy your NPDES permit obligations to implement a minimum control measure if:

(1) The other entity, in fact, implements the control measure;

(2) The particular control measure, or component thereof, is at least as stringent as the corresponding NPDES permit requirement; and

(3) The other entity agrees to implement the control measure on your behalf. In the reports you must submit under §122.34(g)(3), you must also specify that you rely on another entity to satisfy some of your permit obligations. If you are relying on another governmental entity regulated under section 122 to satisfy all of your permit obligations, including your obligation to file periodic reports required by §122.34(g)(3), you must note that fact in your NOI, but you are not required to file the periodic reports. You remain responsible for compliance with your permit obligations if the other entity fails to implement the control measure (or component thereof). Therefore, EPA encourages you to enter into a legally binding agreement with that entity if you want to minimize any uncertainty about compliance with your permit.

(b) In some cases, the NPDES permitting authority may recognize, either in your individual NPDES permit or in an NPDES general permit, that another governmental entity is responsible under an NPDES permit for implementing one or more of the minimum control measures for your small MS4 or that the permitting authority itself is responsible. Where the permitting authority does so, you are not required to include such minimum control measure(s) in your storm water management program. (For example, if a State or Tribe is subject to an NPDES permit that requires it to administer a program to control construction site runoff at the State or Tribal level and that program satisfies all of the requirements of §122.34(b)(4), you could avoid responsibility for the construction measure, but would be responsible for the remaining minimum control measures.) Your permit may be reopened and modified to include the requirement to implement a minimum control measure if the entity fails to implement it. ***68847**

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40 CFR § 122.36

§122.36 As an operator of a regulated small MS4, what happens if I don't comply with the application or permit requirements in §§122.33 through 122.35?

NPDES permits are federally enforceable. Violators may be subject to the enforcement actions and penalties described in Clean Water Act sections 309 (b), (c), and (g) and 505, or under applicable State, Tribal, or local law. Compliance with a permit issued pursuant to section 402 of the Clean Water Act is deemed compliance, for purposes of sections 309 and 505, with sections 301, 302, 306, 307, and 403, except any standard imposed under section 307 for toxic pollutants injurious to human health. If you are covered as a co-permittee under an individual permit or under a general permit by means of a joint Notice of Intent you remain subject to the enforcement actions and penalties for the failure to comply with the terms of the permit in your jurisdiction except as set forth in §122.35(b).

40 CFR § 122.37

§122.37 Will the small MS4 storm water program regulations at §§122.32 through 122.36 and §123.35 of this chapter change in the future?

EPA will evaluate the small MS4 regulations at §§122.32 through 122.36 and § 123.35 of this chapter after December 10, 2012 and make any necessary revisions. (EPA intends to conduct an enhanced research effort and compile a comprehensive evaluation of the NPDES MS4 storm water program. EPA will re-evaluate the regulations based on data from the NPDES MS4 storm water program, from research on receiving water impacts from storm water, and the effectiveness of best management practices (BMPs), as well as other relevant information sources.)

40 CFR § 122.44

6. In §122.44, redesignate paragraphs (k)(2) and (k)(3) as paragraphs (k)(3) and (k)(4), remove the comma at the end of newly redesignated paragraph (k)(3) and add a semicolon in its place, and add new paragraphs (k)(2) and (s) to read as follows:

40 CFR § 122.44

§122.44 Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs, see §123.25).

* * * * *

(k) * * *

(2) Authorized under section 402(p) of CWA for the control of storm water discharges;

* * * * *

(s) Qualifying State, Tribal, or local programs. (1) For storm water discharges associated with small construction activity identified in § 122.26(b)(15), the Director may include permit conditions that incorporate qualifying State, Tribal, or local erosion and sediment control program requirements by reference. Where a qualifying State, Tribal, or local program does not include one or more of the elements in this paragraph (s)(1), then the Director must include those elements as conditions in the permit. A qualifying State, Tribal, or local erosion and sediment control program is one that includes:

(i) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices;

(ii) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

(iii) Requirements for construction site operators to develop and implement a storm water pollution prevention plan. (A storm water pollution prevention plan includes site descriptions, descriptions of appropriate control measures, copies of approved State, Tribal or local requirements, maintenance procedures, inspection procedures, and identification of non-storm water discharges); and

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(iv) Requirements to submit a site plan for review that incorporates consideration of potential water quality impacts.

(2) For storm water discharges from construction activity identified in § 122.26(b)(14)(x), the Director may include permit conditions that incorporate qualifying State, Tribal, or local erosion and sediment control program requirements by reference. A qualifying State, Tribal or local erosion and sediment control program is one that includes the elements listed in paragraph (s)(1) of this section and any additional requirements necessary to achieve the applicable technology-based standards of "best available technology" and "best conventional technology" based on the best professional judgment of the permit writer.

40 CFR § 122.62

7. Add §122.62(a)(14) to read as follows:

40 CFR § 122.62

§122.62 Modification or revocation and reissuance of permits (applicable to State programs, see §123.25).

* * * * *

(a) * * *

(14) For a small MS4, to include an effluent limitation requiring implementation of a minimum control measure or measures as specified in § 122.34(b) when:

(i) The permit does not include such measure(s) based upon the determination that another entity was responsible for implementation of the requirement(s); and

(ii) The other entity fails to implement measure(s) that satisfy the requirement(s).

* * * * *

8. Revise Appendices F, G, H, and I to Part 122 to read as follows:

Appendix F to Part 122.—Incorporated Places With Populations Greater Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census

State	Incorporated Place
Alabama	Birmingham.
Arizona	Phoenix.
	Tucson.
California	Long Beach.
	Los Angeles.
	Oakland.
	Sacramento.
	San Diego.
	San Francisco.
	San Jose.
Colorado	Denver.

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District of Columbia	
Florida	Jacksonville.
	Miami.
	Tampa.
Georgia.	Atlanta.
Illinois	Chicago.
Indiana	Indianapolis.
Kansas	Wichita.
Kentucky	Louisville.
Louisiana	New Orleans.
Maryland	Baltimore.
Massachusetts	Boston.
Michigan	Detroit.
Minnesota	Minneapolis.
	St. Paul.
Missouri	Kansas City.
	St. Louis.
Nebraska	Omaha.
New Jersey	Newark.
New Mexico	Albuquerque.
New York	Buffalo.
	Bronx Borough.
	Brooklyn Borough.
	Manhattan Borough.
	Queens Borough.
	Staten Island Borough.
North Carolina	Charlotte.
Ohio	Cincinnati.
	Cleveland.

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	Columbus.
	Toledo.
Oklahoma	Oklahoma City.
	Tulsa.
Oregon	Portland.
Pennsylvania	Philadelphia.
	Pittsburgh.
Tennessee	Memphis.
	Nashville/Davidson.
Texas	Austin.
	Dallas.
	El Paso.
	Fort Worth.
	Houston.
	San Antonio.
Virginia	Norfolk.
	Virginia Beach.
Washington	Seattle.
Wisconsin	Milwaukee.

Appendix G to Part 122.—Incorporated Places With Populations Greater Than 100,000 But Less Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census

State	Incorporated place
Alabama	Huntsville.
	Mobile.
	Montgomery.
Alaska	Anchorage.
Arizona	Mesa.
	Tempe.
Arkansas	Little Rock.

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California	Anaheim.
	Bakersfield.
	Berkeley.
	Chula Vista.
	Concord.
	El Monte.
	Escondido.
	Fremont.
	Fresno.
	Fullerton.
	Garden Grove.
	Glendale.
	Hayward.
	Huntington Beach.
	Inglewood.
	Irvine.
	Modesto.
	Moreno Valley.
	Oceanside.
	Ontario.
	Orange.
Colorado	Aurora.
	Colorado Springs.
	Lakewood.
	Pueblo.
Connecticut	Bridgeport.
	Hartford.
	New Haven.
	Stamford.

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	Waterbury.
Florida	Fort Lauderdale.
	Hialeah.
	Hollywood.
	Orlando.
	St. Petersburg.
	Tallahassee.
Georgia	Columbus.
	Macon.
	Savannah.
Idaho	Boise City.
Illinois	Peoria.
	Rockford.
Indiana	Evansville.
	Fort Wayne.
	Gary.
	South Bend.
Iowa	Cedar Rapids.
	Davenport.
	Des Moines.
Kansas	Kansas City.
	Topeka.
Kentucky	Lexington-Fayette.
Louisiana	Baton Rouge.
	Shreveport.
Massachusetts	Springfield.
	Worcester.
Michigan	Ann Arbor.
	Flint.

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	Grand Rapids.
	Lansing.
	Livonia.
	Sterling Heights.
	Warren.
Mississippi	Jackson.
Missouri	Independence.
	Springfield.
Nebraska	Lincoln.
Nevada	Las Vegas.
	Reno.
New Jersey	Elizabeth.
	Jersey City.
	Paterson.
New York	Albany.
	Rochester.
	Syracuse.
	Yonkers.
North Carolina	Durham.
	Greensboro.
	Raleigh.
	Winston-Salem.
Ohio	Akron.
	Dayton.
	Youngstown.
Oregon	Eugene.
Pennsylvania	Allentown.
	Erie.
Rhode Island	Providence.

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South Carolina	Columbia.
Tennessee	Chattanooga.
	Knoxville.
Texas	Abilene.
	Amarillo.
	Arlington.
	Beaumont.
	Corpus Christi.
	Garland.
	Irving.
	Laredo.
	Lubbock.
	Mesquite.
	Pasadena.
	Plano.
	Waco.
Utah	Salt Lake City.
Virginia	Alexandria.
	Chesapeake.
	Hampton.
	Newport News.
	Portsmouth.
	Richmond.
	Roanoke.
Washington	Spokane.
	Tacoma.
Wisconsin	Madison.

Appendix H to Part 122.—Counties With Unincorporated Urbanized Areas With a Population of 250,000 or More According to the 1990 Decennial Census by the Bureau of the Census

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State	County	Unincorporated urbanized population
California	Los Angeles	886,780
	Sacramento	594,889
	San Diego	250,414
Delaware	New Castle	296,996
Florida	Dade	1,014,504
Georgia	DeKalb	448,686
Hawaii	Honolulu [1]	114,506
Maryland	Anne Arundel	344,654
	Baltimore	627,593
	Montgomery	599,028
	Prince George's	494,369
Texas	Harris	729,206
Utah	Salt Lake	270,989
Virginia	Fairfax	760,730
Washington	King	520,468

Appendix I to Part 122.—Counties With Unincorporated Urbanized Areas Greater Than 100,000 But Less Than 250,000 According to the 1990 Decennial Census by the Bureau of the Census

State	County	Unincorporated urbanized population
Alabama	Jefferson	78,608
Arizona	Pima	162,202
California	Alameda	115,082
	Contra Costa	131,082
	Kern	128,503
	Orange	223,081
	Riverside	166,509
	San Bernardino	162,202
Colorado	Arapahoe	103,248

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Florida	Broward	142,329
	Escambia	167,463
	Hillsborough	398,593
	Lee	102,337
	Manatee	123,828
	Orange	378,611
	Palm Beach	360,553
	Pasco	148,907
	Pinellas	255,772
	Polk	121,528
	Sarasota	172,600
	Seminole	127,873
Georgia	Clayton	133,237
	Cobb	322,595
	Fulton	127,776
	Gwinnett	237,305
	Richmond	126,476
Kentucky	Jefferson	239,430
Louisiana	East Baton Rouge	102,539
	Parish	331,307
	Jefferson Parish	.....
Maryland	Howard	157,972
North Carolina	Cumberland	146,827
Nevada	Clark	327,618
Oregon	Multnomah [1]	52,923
	Washington	116,687
South Carolina	Greenville	147,464
	Richland	130,589
Virginia	Arlington	170,936

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	Chesterfield	174,488
	Henrico	201,367
	Prince William	157,131
Washington	Pierce	258,530
	Snohomish	157,218

***68849 PART 123—STATE PROGRAM REQUIREMENTS**

1. The authority citation for part 123 continues to read as follows:

Authority: The Clean Water Act, 33 U.S.C. 1251 et seq.

40 CFR § 123.25

2. Amend §123.25 by removing the word "and" at the end of paragraph (a)(37), by removing the period at the end of paragraph (a)(38) and adding a semicolon in its place, and by adding paragraphs (a)(39) through (a)(45) to read as follows:

40 CFR § 123.25

§123.25 Requirements for permitting.

(a) * * * ***68850**

(39) §122.30 (What are the objectives of the storm water regulations for small MS4s?);

(40) §122.31 (For Indian Tribes only) (As a Tribe, what is my role under the NPDES storm water program?);

(41) §122.32 (As an operator of a small MS4, am I regulated under the NPDES storm water program?);

(42) §122.33 (If I am an operator of a regulated small MS4, how do I apply for an NPDES permit? When do I have to apply?);

(43) §122.34 (As an operator of a regulated small MS4, what will my NPDES MS4 storm water permit require?);

(44) §122.35 (As an operator of a regulated small MS4, may I share the responsibility to implement the minimum control measures with other entities?); and

(45) §122.36 (As an operator of a regulated small MS4, what happens if I don't comply with the application or permit requirements in §§122.33 through 122.35?).

* * * * *40 CFR § 123.35

3. Add §123.35 to subpart B to read as follows:

40 CFR § 123.35

§123.35 As the NPDES Permitting Authority for regulated small MS4s, what is my role?

(a) You must comply with the requirements for all NPDES permitting authorities under Parts 122, 123, 124, and 125 of this chapter. (This section is meant only to supplement those requirements and discuss specific issues related to the small MS4 storm water program.)

(b) You must develop a process, as well as criteria, to designate small MS4s other than those described in §122.32(a)(1) of this chapter, as regulated small MS4s to be covered under the NPDES storm water discharge control program. This

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process must include the authority to designate a small MS4 waived under paragraph (d) of this section if circumstances change. EPA may make designations under this section if a State or Tribe fails to comply with the requirements listed in this paragraph. In making designations of small MS4s, you must:

(1)(i) Develop criteria to evaluate whether a storm water discharge results in or has the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

(ii) Guidance: For determining other significant water quality impacts, EPA recommends a balanced consideration of the following designation criteria on a watershed or other local basis: discharge to sensitive waters, high growth or growth potential, high population density, contiguity to an urbanized area, significant contributor of pollutants to waters of the United States, and ineffective protection of water quality by other programs;

(2) Apply such criteria, at a minimum, to any small MS4 located outside of an urbanized area serving a jurisdiction with a population density of at least 1,000 people per square mile and a population of at least 10,000;

(3) Designate any small MS4 that meets your criteria by December 9, 2002. You may wait until December 8, 2004 to apply the designation criteria on a watershed basis if you have developed a comprehensive watershed plan. You may apply these criteria to make additional designations at any time, as appropriate; and

(4) Designate any small MS4 that contributes substantially to the pollutant loadings of a physically interconnected municipal separate storm sewer that is regulated by the NPDES storm water program.

(c) You must make a final determination within 180 days from receipt of a petition under §122.26(f) of this chapter (or analogous State or Tribal law). If you do not do so within that time period, EPA may make a determination on the petition.

(d) You must issue permits consistent with §§122.32 through 122.35 of this chapter to all regulated small MS4s. You may waive or phase in the requirements otherwise applicable to regulated small MS4s, as defined in § 122.32(a)(1) of this chapter, under the following circumstances:

(1) You may waive permit coverage for each small MS4s in jurisdictions with a population under 1,000 within the urbanized area where all of the following criteria have been met:

(i) Its discharges are not contributing substantially to the pollutant loadings of a physically interconnected regulated MS4 (see paragraph (b)(4) of this section); and

(ii) If the small MS4 discharges any pollutant(s) that have been identified as a cause of impairment of any water body to which it discharges, storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established "total maximum daily load" (TMDL) that address the pollutant(s) of concern.

(2) You may waive permit coverage for each small MS4 in jurisdictions with a population under 10,000 where all of the following criteria have been met:

(i) You have evaluated all waters of the U.S., including small streams, tributaries, lakes, and ponds, that receive a discharge from the MS4 eligible for such a waiver.

(ii) For all such waters, you have determined that storm water controls are not needed based on wasteload allocations that are part of an EPA approved or established TMDL that addresses the pollutant(s) of concern or, if a TMDL has

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not been developed or approved, an equivalent analysis that determines sources and allocations for the pollutant(s) of concern.

(iii) For the purpose of paragraph (d)(2)(ii) of this section, the pollutant(s) of concern include biochemical oxygen demand (BOD), sediment or a parameter that addresses sediment (such as total suspended solids, turbidity or siltation), pathogens, oil and grease, and any pollutant that has been identified as a cause of impairment of any water body that will receive a discharge from the MS4.

(iv) You have determined that current and future discharges from the MS4 do not have the potential to result in exceedances of water quality standards, including impairment of designated uses, or other significant water quality impacts, including habitat and biological impacts.

(v) Guidance: To help determine other significant water quality impacts, EPA recommends a balanced consideration of the following criteria on a watershed or other local basis: discharge to sensitive waters, high growth or growth potential, high population or commercial density, significant contributor of pollutants to waters of the United States, and ineffective protection of water quality by other programs.

(3) You may phase in permit coverage for small MS4s serving jurisdictions with a population under 10,000 on a schedule consistent with a State watershed permitting approach. Under this approach, you must develop and implement a schedule to phase in permit coverage for approximately 20 percent annually of all small MS4s that qualify for such phased-in coverage. Under this option, all regulated small MS4s are required to have coverage under an NPDES permit by no later than March 8, 2007. Your schedule for phasing in permit coverage for small MS4s must be approved by the Regional Administrator no later than December 10, 2001.

(4) If you choose to phase in permit coverage for small MS4s in jurisdictions with a population under 10,000, in accordance with paragraph (d)(3) of this section, you may also provide waivers in accordance with paragraphs (d)(1) and (d)(2) of this section pursuant to your approved schedule. ***68851**

(5) If you do not have an approved schedule for phasing in permit coverage, you must make a determination whether to issue an NPDES permit or allow a waiver in accordance with paragraph (d)(1) or (d)(2) of this section, for each eligible MS4 by December 9, 2002.

(6) You must periodically review any waivers granted in accordance with paragraph (d)(2) of this section to determine whether any of the information required for granting the waiver has changed. At a minimum, you must conduct such a review once every five years. In addition, you must consider any petition to review any waiver when the petitioner provides evidence that the information required for granting the waiver has substantially changed.

(e) You must specify a time period of up to 5 years from the date of permit issuance for operators of regulated small MS4s to fully develop and implement their storm water program.

(f) You must include the requirements in §§122.33 through 122.35 of this chapter in any permit issued for regulated small MS4s or develop permit limits based on a permit application submitted by a regulated small MS4. (You may include conditions in a regulated small MS4 NPDES permit that direct the MS4 to follow an existing qualifying local program's requirements, as a way of complying with some or all of the requirements in §122.34(b) of this chapter. See §122.34(c) of this chapter. Qualifying local, State or Tribal program requirements must impose, at a minimum, the relevant requirements of §122.34(b) of this chapter.)

(g) If you issue a general permit to authorize storm water discharges from small MS4s, you must make available a menu of BMPs to assist regulated small MS4s in the design and implementation of municipal storm water management programs

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to implement the minimum measures specified in §122.34(b) of this chapter. EPA plans to develop a menu of BMPs that will apply in each State or Tribe that has not developed its own menu. Regardless of whether a menu of BMPs has been developed by EPA, EPA encourages State and Tribal permitting authorities to develop a menu of BMPs that is appropriate for local conditions. EPA also intends to provide guidance on developing BMPs and measurable goals and modify, update, and supplement such guidance based on the assessments of the NPDES MS4 storm water program and research to be conducted over the next thirteen years.

(h)(1) You must incorporate any additional measures necessary to ensure effective implementation of your State or Tribal storm water program for regulated small MS4s.

(2) Guidance: EPA recommends consideration of the following:

(i) You are encouraged to use a general permit for regulated small MS4s;

(ii) To the extent that your State or Tribe administers a dedicated funding source, you should play an active role in providing financial assistance to operators of regulated small MS4s;

(iii) You should support local programs by providing technical and programmatic assistance, conducting research projects, performing watershed monitoring, and providing adequate legal authority at the local level;

(iv) You are encouraged to coordinate and utilize the data collected under several programs including water quality management programs, TMDL programs, and water quality monitoring programs;

(v) Where appropriate, you may recognize existing responsibilities among governmental entities for the control measures in an NPDES small MS4 permit (see §122.35(b) of this chapter); and

(vi) You are encouraged to provide a brief (e.g., two page) reporting format to facilitate compiling and analyzing data from submitted reports under § 122.34(g)(3) of this chapter. EPA intends to develop a model form for this purpose.

PART 124—PROCEDURES FOR DECISIONMAKING

1. The authority citation for part 124 continues to read as follows:

Authority: Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq.; Safe Drinking Water Act, 42 U.S.C. 300(f) et seq.; Clean Water Act, 33 U.S.C. 1251 et seq.; Clean Air Act, 42 U.S.C. 7401 et seq.

40 CFR § 124.52

2. Revise §124.52(c) to read as follows:

40 CFR § 124.52

§124.52 Permits required on a case-by-case basis.

* * * * *

(c) Prior to a case-by-case determination that an individual permit is required for a storm water discharge under this section (see §122.26(a)(1)(v), (c)(1)(v), and (a)(9)(iii) of this chapter), the Regional Administrator may require the discharger to submit a permit application or other information regarding the discharge under section 308 of the CWA. In requiring such information, the Regional Administrator shall notify the discharger in writing and shall send an application form with the notice. The discharger must apply for a permit within 180 days of notice, unless permission for a later date is granted by the Regional Administrator. The question whether the initial designation was proper will remain open for consideration during the public comment period under §124.11 or §124.118 and in any subsequent hearing.

[FR Doc. 99-29181 Filed 12-7-99; 8:45 am]

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BILLING CODE 6560-50-P

Footnotes

1 National level benefits are not inclusive of all categories of benefits that can be expected to result from the regulation.

2 Total may not add due to rounding.

1 To estimate non-local willingness to pay per household, the 33% of willingness is multiplied by the fraction of previously impaired national waters (in each use category) that attain the beneficial use as a result of the Phase II rule. To estimate the aggregate non-local benefits, non-local willingness to pay is multiplied with the total number of households in the US.
+= positive benefits expected but not monetized.

1 Includes water quality benefit of municipal programs, based on 80% effectiveness of municipal programs.

2 Based on research by Carson and Mitchell (1993). Fresh water value only. Does not include commercial fishery, navigation, or diversionary (e.g. municipal drinking water cost savings or risk reductions) benefits. May not fully capture human health risk reduction or ecological values.

3 Based on research by Paterson et al. (1993). Although the survey's description of the benefits of reducing soil erosion from construction sites included reduced dredging, avoided flooding, and water storage capacity benefits, these benefit categories may not be fully incorporated in the WTP values. Small streams may account for over 2% of total benefits.

Notes:

1 Source: U.S. EPA, Office of Wastewater Management. Economic Analysis for the Storm Water Phase II Rule.

2 The total number of potential no exposure respondents was divided by 5 to estimate an annual total. It was assumed that the annual number of respondents for the no exposure certification would be spread over the five year period the exclusion applies.

3 The number of respondents in each category represents only those respondents located within the 44 NPDES-authorized States and Territories. The burden and cost estimates provided in this section are for the NPDES-authorized States in their role as the permitting authority for municipal designations and industrial no exposure.

4 The number of respondents for this activity, 15, represents the number of NPDES-authorized States and Territories that must develop designation criteria and assess small MS4s located outside of an urbanized area for possible Phase II coverage divided by the three year ICR period.

1 County was previously listed in this appendix; however, population dropped to below 250,000 in the 1990 Census.

1 County was previously listed in this appendix; however, population dropped to below 100,000 in the 1990 Census.

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ATTACHMENT
6

West's Annotated California Codes
Water Code
Division 7. Water Quality
Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972

West's Ann.Cal.Water Code D. 7, Ch. 5.5, Refs & Annos
Currentness

Editors' Notes

GENERAL NOTES

2009 Main Volume

<Chapter 5.5 was added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 12, 1972.>

West's Ann. Cal. Water Code D. 7, Ch. 5.5, Refs & Annos, CA WATER D. 7, Ch. 5.5, Refs & Annos
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West's Ann.Cal.Water Code § 13370

§ 13370. Legislative findings and declarations

Currentness

The Legislature finds and declares as follows:

(a) The Federal Water Pollution Control Act (33 U.S.C. Sec. 1251 et seq.), as amended, provides for permit systems to regulate the discharge of pollutants and dredged or fill material to the navigable waters of the United States and to regulate the use and disposal of sewage sludge.

(b) The Federal Water Pollution Control Act, as amended, provides that permits may be issued by states which are authorized to implement the provisions of that act.

(c) It is in the interest of the people of the state, in order to avoid direct regulation by the federal government of persons already subject to regulation under state law pursuant to this division, to enact this chapter in order to authorize the state to implement the provisions of the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto, and federal regulations and guidelines issued pursuant thereto, provided, that the state board shall request federal funding under the Federal Water Pollution Control Act for the purpose of carrying out its responsibilities under this program.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2343, § 1; Stats.1980, c. 676, p. 2028, § 319; Stats.1987, c. 1189, § 1.)

West's Ann. Cal. Water Code § 13370, CA WATER § 13370
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West's Ann.Cal.Water Code § 13370.5

§ 13370.5. Additional findings and declarations; pretreatment program

Currentness

(a) The Legislature finds and declares that, since the Federal Water Pollution Control Act (33 U.S.C. Sec. 1251 et seq.), as amended, and applicable federal regulations (40 C.F.R. § 403 et seq.) provide for a pretreatment program to regulate the discharge of pollutants into publicly owned treatment works and provide that states with approved national pollutant discharge elimination system (NPDES) permit programs shall apply for approval of a state pretreatment program, it is in the interest of the people of the state to enact this section in order to avoid direct regulation by the federal government of publicly owned treatment works already subject to regulation under state law pursuant to this division.

(b) The state board shall develop a state pretreatment program and shall, not later than September 1, 1985, apply to the Environmental Protection Agency for approval of the pretreatment program in accordance with federal requirements.

Credits
(Added by Stats.1984, c. 1542, § 1.)

West's Ann. Cal. Water Code § 13370.5, CA WATER § 13370.5
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KeyCite Red Flag - Severe Negative Treatment
KeyCite Red Flag Negative Treatment§13371. Repealed by Stats.1987, c. 1189, §2

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West's Ann.Cal.Water Code § 13371

§ 13371. Repealed by Stats.1987, c. 1189, § 2

Currentness

West's Ann. Cal. Water Code § 13371, CA WATER § 13371
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West's Ann.Cal.Water Code § 13372

§ 13372. Construction and application of chapter

Effective: January 1, 2004
Currentness

(a) This chapter shall be construed to ensure consistency with the requirements for state programs implementing the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto. To the extent other provisions of this division are consistent with the provisions of this chapter and with the requirements for state programs implementing the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto, those provisions apply to actions and procedures provided for in this chapter. The provisions of this chapter shall prevail over other provisions of this division to the extent of any inconsistency. The provisions of this chapter apply only to actions required under the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto.

(b) The provisions of Section 13376 requiring the filing of a report for the discharge of dredged or fill material and the provisions of this chapter relating to the issuance of dredged or fill material permits by the state board or a regional board shall be applicable only to discharges for which the state has an approved permit program, in accordance with the provisions of the Federal Water Pollution Control Act, as amended, for the discharge of dredged or fill material.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1987, c. 1189, § 3; Stats.2003, c. 683 (A.B.897), § 5.)

Notes of Decisions (1)

West's Ann. Cal. Water Code § 13372, CA WATER § 13372
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West's Ann.Cal.Water Code § 13373

§ 13373. Certain definitions; same as federal act

Currentness

The terms “navigable waters,” “administrator,” “pollutants,” “biological monitoring,” “discharge” and “point sources” as used in this chapter shall have the same meaning as in the Federal Water Pollution Control Act and acts amendatory thereof or supplementary thereto.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1987, c. 1189, § 4.)

Notes of Decisions (2)

West's Ann. Cal. Water Code § 13373, CA WATER § 13373
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West's Ann.Cal.Water Code § 13374

§ 13374. Waste discharge requirements; equivalent to “permits” under federal act

Currentness

The term “waste discharge requirements” as referred to in this division is the equivalent of the term “permits” as used in the Federal Water Pollution Control Act, as amended.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

Notes of Decisions (1)

West's Ann. Cal. Water Code § 13374, CA WATER § 13374
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West's Ann.Cal.Water Code § 13375

§ 13375. Radiological, chemical or biological warfare agents; discharge prohibited

Currentness

The discharge of any radiological, chemical, or biological warfare agent into the waters of the state is hereby prohibited.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

West's Ann. Cal. Water Code § 13375, CA WATER § 13375
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West's Ann.Cal.Water Code § 13376

§ 13376. Discharging pollutants or dredged or fill material or operating treatment works; reports of discharges or proposed discharges; prohibited discharges; exceptions

Effective: January 1, 2011
Currentness

A person who discharges pollutants or proposes to discharge pollutants to the navigable waters of the United States within the jurisdiction of this state or a person who discharges dredged or fill material or proposes to discharge dredged or fill material into the navigable waters of the United States within the jurisdiction of this state shall file a report of the discharge in compliance with the procedures set forth in Section 13260. Unless required by the state board or a regional board, a report need not be filed under this section for discharges that are not subject to the permit application requirements of the Federal Water Pollution Control Act, as amended. [1] A person who proposes to discharge pollutants or dredged or fill material or to operate a publicly owned treatment works or other treatment works treating domestic sewage shall file a report at least 180 days in advance of the date on which it is desired to commence the discharge of pollutants or dredged or fill material or the operation of the treatment works. A person who owns or operates a publicly owned treatment works or other treatment works treating domestic sewage, which treatment works commenced operation before January 1, 1988, and does not discharge to navigable waters of the United States, shall file a report within 45 days of a written request by a regional board or the state board, or within 45 days after the state has an approved permit program for the use and disposal of sewage sludge, whichever occurs earlier. The discharge of pollutants or dredged or fill material or the operation of a publicly owned treatment works or other treatment works treating domestic sewage by any person, except as authorized by waste discharge requirements or dredged or fill material permits, is prohibited. This prohibition does not apply to discharges or operations if a state or federal permit is not required under the Federal Water Pollution Control Act, as amended.

Credits
(Added by Stats.1987, c. 1189, § 6. Amended by Stats.2010, c. 288 (S.B.1169), § 32.)

Notes of Decisions (11)

Footnotes
1 33 U.S.C.A. § 1251 et seq.

West's Ann. Cal. Water Code § 13376, CA WATER § 13376
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KeyCite Yellow Flag - Negative Treatment
Unconstitutional or PreemptedLimited on Preemption Grounds by Karuk Tribe of Northern California v. California Regional Water Quality Control Bd., North Coast Region, Cal.App. 1 Dist., Mar. 30, 2010

West's Annotated California Codes
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Division 7. Water Quality (Refs & Annos)
Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13377

§ 13377. Issuance of waste discharge requirements and dredged or fill material permits

Currentness

Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 618, p. 2068, § 1; Stats.1978, c. 746, p. 2344, § 3.)

Notes of Decisions (6)

West's Ann. Cal. Water Code § 13377, CA WATER § 13377
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West's Ann.Cal.Water Code § 13378

§ 13378. Adoption of waste discharge requirements and dredged or fill material permits; notice and hearing; term

Currentness

Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing. Such requirements or permits shall be adopted for a fixed term not to exceed five years for any proposed discharge, existing discharge, or any material change therein.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 4.)

Notes of Decisions (2)

West's Ann. Cal. Water Code § 13378, CA WATER § 13378
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KeyCite Red Flag - Severe Negative Treatment
KeyCite Red Flag Negative Treatment§13379. Repealed by Stats.1978, c. 618, p. 2069, §2

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West's Ann.Cal.Water Code § 13379

§ 13379. Repealed by Stats.1978, c. 618, p. 2069, § 2

Currentness

West's Ann. Cal. Water Code § 13379, CA WATER § 13379
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West's Ann.Cal.Water Code § 13380

§ 13380. Review of waste discharge requirements and dredged or fill material permits

Currentness

Any waste discharge requirements or dredged or fill material permits adopted under this chapter shall be reviewed at least every five years and, if appropriate, revised.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 5.)

West's Ann. Cal. Water Code § 13380, CA WATER § 13380
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West's Ann.Cal.Water Code § 13381

§ 13381. Termination or modification of waste discharge requirements and dredged or fill material permits

Currentness

Waste discharge requirements or dredged or fill material permits may be terminated or modified for cause, including, but not limited to, all of the following:

(a) Violation of any condition contained in the requirements or permits.

(b) Obtaining the requirements by misrepresentation, or failure to disclose fully all relevant facts.

(c) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 6.)

West's Ann. Cal. Water Code § 13381, CA WATER § 13381
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West's Ann.Cal.Water Code § 13382

§ 13382. Control of disposal of pollutants into wells or surrounding groundwater

Currentness

Waste discharge requirements shall be adopted to control the disposal of pollutants into wells or in areas where pollutants may enter into a well from the surrounding groundwater.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1984, c. 1461, § 1.)

West's Ann. Cal. Water Code § 13382, CA WATER § 13382
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West's Ann.Cal.Water Code § 13382.5

§ 13382.5. Discharge of pollutants from a point source to aquaculture project

Currentness

Waste discharge requirements shall be adopted to permit the discharge of a specific pollutant or pollutants in a controlled manner from a point source to a defined managed aquaculture project if such discharge meets all applicable requirements of the Federal Water Pollution Control Act [1] and acts amendatory thereof and supplementary thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans.

Credits
(Added by Stats.1978, c. 618, p. 2069, § 3.)

Footnotes
1 33 U.S.C.A. § 1251 et seq.

West's Ann. Cal. Water Code § 13382.5, CA WATER § 13382.5
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West's Ann.Cal.Water Code § 13383

§ 13383. Monitoring, inspection, entry, reporting, and recordkeeping requirements; establishment and maintenance; inspections

Effective: January 1, 2004
Currentness

(a) The state board or a regional board may establish monitoring, inspection, entry, reporting, and recordkeeping requirements, as authorized by Section 13160, 13376, or 13377 or by subdivisions (b) and (c) of this section, for any person who discharges, or proposes to discharge, to navigable waters, any person who introduces pollutants into a publicly owned treatment works, any person who owns or operates, or proposes to own or operate, a publicly owned treatment works or other treatment works treating domestic sewage, or any person who uses or disposes, or proposes to use or dispose, of sewage sludge.

(b) The state board or the regional boards may require any person subject to this section to establish and maintain monitoring equipment or methods, including, where appropriate, biological monitoring methods, sample effluent as prescribed, and provide other information as may be reasonably required.

(c) The state board or a regional board may inspect the facilities of any person subject to this section pursuant to the procedure set forth in subdivision (c) of Section 13267.

Credits
(Added by Stats.1987, c. 1189, § 8. Amended by Stats.2003, c. 683 (A.B.897), § 6.)

West's Ann. Cal. Water Code § 13383, CA WATER § 13383
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West's Ann.Cal.Water Code § 13383.5

§ 13383.5. Storm water discharge; monitoring requirements; application to specified municipalities and regulated industries

Effective: January 1, 2002
Currentness

(a) As used in this section, "regulated municipalities and industries" means the municipalities and industries required to obtain a storm water permit under Section 402(p) of the Clean Water Act (33 U.S.C. Sec. 1342(p)) and implementing regulations.

(b) This section only applies to regulated municipalities that were subject to a storm water permit on or before December 31, 2001, and to regulated industries that are subject to the General Permit for Storm Water Discharges Associated with Industrial Activities Excluding Construction Activities.

(c) Before January 1, 2003, the state board shall develop minimum monitoring requirements for each regulated municipality and minimum standard monitoring requirements for regulated industries. This program shall include, but is not limited to, all of the following:

(1) Standardized methods for collection of storm water samples.

(2) Standardized methods for analysis of storm water samples.

(3) A requirement that every sample analysis under this program be completed by a state certified laboratory or by the regulated municipality or industry in the field in accordance with the quality assurance and quality control protocols established pursuant to this section.

(4) A standardized reporting format.

(5) Standard sampling and analysis programs for quality assurance and quality control.

(6) Minimum detection limits.

(7) Annual reporting requirements for regulated municipalities and industries.

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(8) For the purposes of determining constituents to be sampled for, sampling intervals, and sampling frequencies, to be included in a municipal storm water permit monitoring program, the regional board shall consider the following information, as the regional board determines to be applicable:

(A) Discharge characterization monitoring data.

(B) Water quality data collected through the permit monitoring program.

(C) Applicable water quality data collected, analyzed, and reported by federal, state, and local agencies, and other public and private entities.

(D) Any applicable listing under Section 303(d) of the Clean Water Act (33 U.S.C. Sec. 1313).

(E) Applicable water quality objectives and criteria established in accordance with the regional board basin plans, statewide plans, and federal regulations.

(F) Reports and studies regarding source contribution of pollutants in runoff not based on direct water quality measurements.

(d) The requirements prescribed pursuant to this section shall be included in all storm water permits for regulated municipalities and industries that are reissued following development of the requirements described in subdivision (c). Those permits shall include these provisions on or before July 1, 2008. In a year in which the Legislature appropriates sufficient funds for that purpose, the state board shall make available to the public via the Internet a summary of the results obtained from storm water monitoring conducted in accordance with this section.

Credits
(Added by Stats.2001, c. 492 (S.B.72), § 1.)

West's Ann. Cal. Water Code § 13383.5, CA WATER § 13383.5
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Chapter 5.5. Compliance with the Provisions of the Federal Water Pollution Control Act as Amended in 1972 (Refs & Annos)

West's Ann.Cal.Water Code § 13383.6

§ 13383.6. Educational materials on stormwater pollution; permits issued with the requirement; satisfaction

Effective: January 1, 2006
Currentness

On and after January 1, 2007, if a regional board or the state board issues a municipal stormwater permit pursuant to Section 402(p) of the Clean Water Act (33 U.S.C. Sec. 1342(p)) that includes a requirement to provide elementary and secondary public schools with educational materials on stormwater pollution, the permittee may satisfy the requirement, upon approval by the regional board or state board, by contributing an equivalent amount of funds to the Environmental Education Account established pursuant to subdivision (a) of Section 71305 of the Public Resources Code.

Credits
(Added by Stats.2005, c. 581 (A.B.1721), § 7.)

West's Ann. Cal. Water Code § 13383.6, CA WATER § 13383.6
Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Ann.Cal.Water Code § 13383.7

§ 13383.7. Comprehensive guidance document for evaluating and measuring effectiveness of municipal stormwater management programs; quantifiable measures; reference to guidelines in establishing municipal stormwater programs and permits

Effective: January 1, 2008
Currentness

(a) No later than July 1, 2009, and after holding public workshops and soliciting public comments, the state board shall develop a comprehensive guidance document for evaluating and measuring the effectiveness of municipal stormwater management programs undertaken, and permits issued, in accordance with Section 402(p) of the Clean Water Act (33 U.S.C. Sec. 1342(p)) and this division.

(b) For the purpose of implementing subdivision (a), the state board shall promote the use of quantifiable measures for evaluating the effectiveness of municipal stormwater management programs and provide for the evaluation of, at a minimum, all of the following:

(1) Compliance with stormwater permitting requirements, including all of the following:

(A) Inspection programs.

(B) Construction controls.

(C) Elimination of unlawful discharges.

(D) Public education programs.

(E) New development and redevelopment requirements.

(2) Reduction of pollutant loads from pollution sources.

(3) Reduction of pollutants or stream erosion due to stormwater discharge.

(4) Improvements in the quality of receiving water in accordance with water quality standards.

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(c) The state board and the regional boards shall refer to the guidance document developed pursuant to subdivision (a) when establishing requirements in municipal stormwater programs and permits.

Credits

(Added by Stats.2007, c. 610 (A.B.739), § 6.)

West's Ann. Cal. Water Code § 13383.7, CA WATER § 13383.7
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West's Ann.Cal.Water Code § 13383.8

§ 13383.8. Stormwater management task force; report on implementation of priority goals and objectives of Ocean Protection Council's strategic plan

Effective: January 1, 2008
Currentness

(a) The state board shall appoint a stormwater management task force comprised of public agencies, representatives of the regulated community, and nonprofit organizations with expertise in water quality and stormwater management. The task force shall provide advice to the state board on its stormwater management program that may include, but is not limited to, program priorities, funding criteria, project selection, and interagency coordination of state programs that address stormwater management.

(b) The state board shall submit a report, including, but not limited to, stormwater and other polluted runoff control information, to the Ocean Protection Council no later than January 1, 2009, on the way in which the state board is implementing the priority goals and objectives of the council's strategic plan.

Credits
(Added by Stats.2007, c. 610 (A.B.739), § 7.)

West's Ann. Cal. Water Code § 13383.8, CA WATER § 13383.8
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West's Ann.Cal.Water Code § 13384

§ 13384. Applications for requirements and permits; notice to public and affected states; hearing

Currentness

The state board or the regional boards shall ensure that the public, and that any other state, the waters of which may be affected by any discharge of pollutants or dredged or fill material to navigable waters within this state, shall receive notice of each application for requirements or report of waste discharge or application for a dredged or fill material permit or report of dredged or fill material discharge and are provided an opportunity for public hearing before adoption of such requirements or permit.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972. Amended by Stats.1978, c. 746, p. 2344, § 8.)

West's Ann. Cal. Water Code § 13384, CA WATER § 13384
Current with urgency legislation through Chapter 893 of 2016 Reg.Sess., Ch. 8 of 2015-2016 2nd Ex.Sess., and all propositions on 2016 ballot.

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West's Ann.Cal.Water Code § 13385

§ 13385. Violations; civil liability; applicability; compliance projects; annual report

Effective: January 1, 2012
Currentness

(a) A person who violates any of the following shall be liable civilly in accordance with this section:

(1) Section 13375 or 13376.

(2) A waste discharge requirement or dredged or fill material permit issued pursuant to this chapter or any water quality certification issued pursuant to Section 13160.

(3) A requirement established pursuant to Section 13383.

(4) An order or prohibition issued pursuant to Section 13243 or Article 1 (commencing with Section 13300) of Chapter 5, if the activity subject to the order or prohibition is subject to regulation under this chapter.

(5) A requirement of Section 301, 302, 306, 307, 308, 318, 401, or 405 of the federal Clean Water Act (33 U.S.C. Sec. 1311, 1312, 1316, 1317, 1318, 1341, or 1345), as amended.

(6) A requirement imposed in a pretreatment program approved pursuant to waste discharge requirements issued under Section 13377 or approved pursuant to a permit issued by the administrator.

(b)(1) Civil liability may be imposed by the superior court in an amount not to exceed the sum of both of the following:

(A) Twenty-five thousand dollars ($25,000) for each day in which the violation occurs.

(B) Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed twenty-five dollars ($25) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

(2) The Attorney General, upon request of a regional board or the state board, shall petition the superior court to impose the liability.

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(c) Civil liability may be imposed administratively by the state board or a regional board pursuant to Article 2.5 (commencing with Section 13323) of Chapter 5 in an amount not to exceed the sum of both of the following:

(1) Ten thousand dollars ($10,000) for each day in which the violation occurs.

(2) Where there is a discharge, any portion of which is not susceptible to cleanup or is not cleaned up, and the volume discharged but not cleaned up exceeds 1,000 gallons, an additional liability not to exceed ten dollars ($10) multiplied by the number of gallons by which the volume discharged but not cleaned up exceeds 1,000 gallons.

(d) For purposes of subdivisions (b) and (c), "discharge" includes any discharge to navigable waters of the United States, any introduction of pollutants into a publicly owned treatment works, or any use or disposal of sewage sludge.

(e) In determining the amount of any liability imposed under this section, the regional board, the state board, or the superior court, as the case may be, shall take into account the nature, circumstances, extent, and gravity of the violation or violations, whether the discharge is susceptible to cleanup or abatement, the degree of toxicity of the discharge, and, with respect to the violator, the ability to pay, the effect on its ability to continue its business, any voluntary cleanup efforts undertaken, any prior history of violations, the degree of culpability, economic benefit or savings, if any, resulting from the violation, and other matters that justice may require. At a minimum, liability shall be assessed at a level that recovers the economic benefits, if any, derived from the acts that constitute the violation.

(f)(1) Except as provided in paragraph (2), for the purposes of this section, a single operational upset that leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation.

(2)(A) For the purposes of subdivisions (h) and (i), a single operational upset in a wastewater treatment unit that treats wastewater using a biological treatment process shall be treated as a single violation, even if the operational upset results in violations of more than one effluent limitation and the violations continue for a period of more than one day, if all of the following apply:

(i) The discharger demonstrates all of the following:

(I) The upset was not caused by wastewater treatment operator error and was not due to discharger negligence.

(II) But for the operational upset of the biological treatment process, the violations would not have occurred nor would they have continued for more than one day.

(III) The discharger carried out all reasonable and immediately feasible actions to reduce noncompliance with the applicable effluent limitations.

(ii) The discharger is implementing an approved pretreatment program, if so required by federal or state law.

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(B) Subparagraph (A) only applies to violations that occur during a period for which the regional board has determined that violations are unavoidable, but in no case may that period exceed 30 days.

(g) Remedies under this section are in addition to, and do not supersede or limit, any other remedies, civil or criminal, except that no liability shall be recoverable under Section 13261, 13265, 13268, or 13350 for violations for which liability is recovered under this section.

(h)(1) Notwithstanding any other provision of this division, and except as provided in subdivisions (j), (k), and (*l*), a mandatory minimum penalty of three thousand dollars ($3,000) shall be assessed for each serious violation.

(2) For the purposes of this section, a "serious violation" means any waste discharge that violates the effluent limitations contained in the applicable waste discharge requirements for a Group II pollutant, as specified in Appendix A to Section 123.45 of Title 40 of the Code of Federal Regulations, by 20 percent or more or for a Group I pollutant, as specified in Appendix A to Section 123.45 of Title 40 of the Code of Federal Regulations, by 40 percent or more.

(i)(1) Notwithstanding any other provision of this division, and except as provided in subdivisions (j), (k), and (*l*), a mandatory minimum penalty of three thousand dollars ($3,000) shall be assessed for each violation whenever the person does any of the following four or more times in any period of six consecutive months, except that the requirement to assess the mandatory minimum penalty shall not be applicable to the first three violations:

(A) Violates a waste discharge requirement effluent limitation.

(B) Fails to file a report pursuant to Section 13260.

(C) Files an incomplete report pursuant to Section 13260.

(D) Violates a toxicity effluent limitation contained in the applicable waste discharge requirements where the waste discharge requirements do not contain pollutant-specific effluent limitations for toxic pollutants.

(2) For the purposes of this section, a "period of six consecutive months" means the period commencing on the date that one of the violations described in this subdivision occurs and ending 180 days after that date.

(j) Subdivisions (h) and (i) do not apply to any of the following:

(1) A violation caused by one or any combination of the following:

(A) An act of war.

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(B) An unanticipated, grave natural disaster or other natural phenomenon of an exceptional, inevitable, and irresistible character, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(C) An intentional act of a third party, the effects of which could not have been prevented or avoided by the exercise of due care or foresight.

(D)(i) The operation of a new or reconstructed wastewater treatment unit during a defined period of adjusting or testing, not to exceed 90 days for a wastewater treatment unit that relies on a biological treatment process and not to exceed 30 days for any other wastewater treatment unit, if all of the following requirements are met:

(I) The discharger has submitted to the regional board, at least 30 days in advance of the operation, an operations plan that describes the actions the discharger will take during the period of adjusting and testing, including steps to prevent violations and identifies the shortest reasonable time required for the period of adjusting and testing, not to exceed 90 days for a wastewater treatment unit that relies on a biological treatment process and not to exceed 30 days for any other wastewater treatment unit.

(II) The regional board has not objected in writing to the operations plan.

(III) The discharger demonstrates that the violations resulted from the operation of the new or reconstructed wastewater treatment unit and that the violations could not have reasonably been avoided.

(IV) The discharger demonstrates compliance with the operations plan.

(V) In the case of a reconstructed wastewater treatment unit, the unit relies on a biological treatment process that is required to be out of operation for at least 14 days in order to perform the reconstruction, or the unit is required to be out of operation for at least 14 days and, at the time of the reconstruction, the cost of reconstructing the unit exceeds 50 percent of the cost of replacing the wastewater treatment unit.

(ii) For the purposes of this section, "wastewater treatment unit" means a component of a wastewater treatment plant that performs a designated treatment function.

(2)(A) Except as provided in subparagraph (B), a violation of an effluent limitation where the waste discharge is in compliance with either a cease and desist order issued pursuant to Section 13301 or a time schedule order issued pursuant to Section 13300, if all of the following requirements are met:

(i) The cease and desist order or time schedule order is issued after January 1, 1995, but not later than July 1, 2000, specifies the actions that the discharger is required to take in order to correct the violations that would otherwise be subject to subdivisions (h) and (i), and the date by which compliance is required to be achieved and, if the final date by which compliance is required to be achieved is later than one year from the effective date of the cease and desist order or time schedule order, specifies the interim requirements by which progress towards compliance will be measured and the date by which the discharger will be in compliance with each interim requirement.

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(ii) The discharger has prepared and is implementing in a timely and proper manner, or is required by the regional board to prepare and implement, a pollution prevention plan that meets the requirements of Section 13263.3.

(iii) The discharger demonstrates that it has carried out all reasonable and immediately feasible actions to reduce noncompliance with the waste discharge requirements applicable to the waste discharge and the executive officer of the regional board concurs with the demonstration.

(B) Subdivisions (h) and (i) shall become applicable to a waste discharge on the date the waste discharge requirements applicable to the waste discharge are revised and reissued pursuant to Section 13380, unless the regional board does all of the following on or before that date:

(i) Modifies the requirements of the cease and desist order or time schedule order as may be necessary to make it fully consistent with the reissued waste discharge requirements.

(ii) Establishes in the modified cease and desist order or time schedule order a date by which full compliance with the reissued waste discharge requirements shall be achieved. For the purposes of this subdivision, the regional board may not establish this date later than five years from the date the waste discharge requirements were required to be reviewed pursuant to Section 13380. If the reissued waste discharge requirements do not add new effluent limitations or do not include effluent limitations that are more stringent than those in the original waste discharge requirements, the date shall be the same as the final date for compliance in the original cease and desist order or time schedule order or five years from the date that the waste discharge requirements were required to be reviewed pursuant to Section 13380, whichever is earlier.

(iii) Determines that the pollution prevention plan required by clause (ii) of subparagraph (A) is in compliance with the requirements of Section 13263.3 and that the discharger is implementing the pollution prevention plan in a timely and proper manner.

(3) A violation of an effluent limitation where the waste discharge is in compliance with either a cease and desist order issued pursuant to Section 13301 or a time schedule order issued pursuant to Section 13300 or 13308, if all of the following requirements are met:

(A) The cease and desist order or time schedule order is issued on or after July 1, 2000, and specifies the actions that the discharger is required to take in order to correct the violations that would otherwise be subject to subdivisions (h) and (i).

(B) The regional board finds that, for one of the following reasons, the discharger is not able to consistently comply with one or more of the effluent limitations established in the waste discharge requirements applicable to the waste discharge:

(i) The effluent limitation is a new, more stringent, or modified regulatory requirement that has become applicable to the waste discharge after the effective date of the waste discharge requirements and after July 1, 2000, new or modified control measures are necessary in order to comply with the effluent limitation, and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

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(ii) New methods for detecting or measuring a pollutant in the waste discharge demonstrate that new or modified control measures are necessary in order to comply with the effluent limitation and the new or modified control measures cannot be designed, installed, and put into operation within 30 calendar days.

(iii) Unanticipated changes in the quality of the municipal or industrial water supply available to the discharger are the cause of unavoidable changes in the composition of the waste discharge, the changes in the composition of the waste discharge are the cause of the inability to comply with the effluent limitation, no alternative water supply is reasonably available to the discharger, and new or modified measures to control the composition of the waste discharge cannot be designed, installed, and put into operation within 30 calendar days.

(iv) The discharger is a publicly owned treatment works located in Orange County that is unable to meet effluent limitations for biological oxygen demand, suspended solids, or both, because the publicly owned treatment works meets all of the following criteria:

(I) Was previously operating under modified secondary treatment requirements pursuant to Section 301(h) of the Clean Water Act (33 U.S.C. Sec. 1311(h)).

(II) Did vote on July 17, 2002, not to apply for a renewal of the modified secondary treatment requirements.

(III) Is in the process of upgrading its treatment facilities to meet the secondary treatment standards required by Section 301(b)(1)(B) of the Clean Water Act (33 U.S.C. Sec. 1311(b)(1)(B)).

(C)(i) The regional board establishes a time schedule for bringing the waste discharge into compliance with the effluent limitation that is as short as possible, taking into account the technological, operational, and economic factors that affect the design, development, and implementation of the control measures that are necessary to comply with the effluent limitation. Except as provided in clause (ii), for the purposes of this subdivision, the time schedule shall not exceed five years in length.

(ii)(I) For purposes of the upgrade described in subclause (III) of clause (iv) of subparagraph (B), the time schedule shall not exceed 10 years in length.

(II) Following a public hearing, and upon a showing that the discharger is making diligent progress toward bringing the waste discharge into compliance with the effluent limitation, the regional board may extend the time schedule for an additional period not exceeding five years in length, if the discharger demonstrates that the additional time is necessary to comply with the effluent limitation. This subclause does not apply to a time schedule described in subclause (I).

(iii) If the time schedule exceeds one year from the effective date of the order, the schedule shall include interim requirements and the dates for their achievement. The interim requirements shall include both of the following:

(I) Effluent limitations for the pollutant or pollutants of concern.

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(II) Actions and milestones leading to compliance with the effluent limitation.

(D) The discharger has prepared and is implementing in a timely and proper manner, or is required by the regional board to prepare and implement, a pollution prevention plan pursuant to Section 13263.3.

(k)(1) In lieu of assessing all or a portion of the mandatory minimum penalties pursuant to subdivisions (h) and (i) against a publicly owned treatment works serving a small community, the state board or the regional board may elect to require the publicly owned treatment works to spend an equivalent amount towards the completion of a compliance project proposed by the publicly owned treatment works, if the state board or the regional board finds all of the following:

(A) The compliance project is designed to correct the violations within five years.

(B) The compliance project is in accordance with the enforcement policy of the state board, excluding any provision in the policy that is inconsistent with this section.

(C) The publicly owned treatment works has prepared a financing plan to complete the compliance project.

(2) For the purposes of this subdivision, "a publicly owned treatment works serving a small community" means a publicly owned treatment works serving a population of 10,000 persons or fewer or a rural county, with a financial hardship as determined by the state board after considering such factors as median income of the residents, rate of unemployment, or low population density in the service area of the publicly owned treatment works.

(*l*)(1) In lieu of assessing penalties pursuant to subdivision (h) or (i), the state board or the regional board, with the concurrence of the discharger, may direct a portion of the penalty amount to be expended on a supplemental environmental project in accordance with the enforcement policy of the state board. If the penalty amount exceeds fifteen thousand dollars ($15,000), the portion of the penalty amount that may be directed to be expended on a supplemental environmental project may not exceed fifteen thousand dollars ($15,000) plus 50 percent of the penalty amount that exceeds fifteen thousand dollars ($15,000).

(2) For the purposes of this section, a "supplemental environmental project" means an environmentally beneficial project that a person agrees to undertake, with the approval of the regional board, that would not be undertaken in the absence of an enforcement action under this section.

(3) This subdivision applies to the imposition of penalties pursuant to subdivision (h) or (i) on or after January 1, 2003, without regard to the date on which the violation occurs.

(m) The Attorney General, upon request of a regional board or the state board, shall petition the appropriate court to collect any liability or penalty imposed pursuant to this section. Any person who fails to pay on a timely basis any liability or penalty imposed under this section shall be required to pay, in addition to that liability or penalty, interest, attorney's fees, costs for collection proceedings, and a quarterly nonpayment penalty for each quarter during which the

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failure to pay persists. The nonpayment penalty shall be in an amount equal to 20 percent of the aggregate amount of the person's penalty and nonpayment penalties that are unpaid as of the beginning of the quarter.

(n)(1) Subject to paragraph (2), funds collected pursuant to this section shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2)(A) Notwithstanding any other provision of law, moneys collected for a violation of a water quality certification in accordance with paragraph (2) of subdivision (a) or for a violation of Section 401 of the federal Clean Water Act (33 U.S.C. Sec. 1341) in accordance with paragraph (5) of subdivision (a) shall be deposited in the Waste Discharge Permit Fund and separately accounted for in that fund.

(B) The funds described in subparagraph (A) shall be expended by the state board, upon appropriation by the Legislature, to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in cleaning up or abating the effects of the waste on waters of the state or for the purposes authorized in Section 13443.

(*o*) The state board shall continuously report and update information on its Internet Web site, but at a minimum, annually on or before January 1, regarding its enforcement activities. The information shall include all of the following:

(1) A compilation of the number of violations of waste discharge requirements in the previous calendar year, including stormwater enforcement violations.

(2) A record of the formal and informal compliance and enforcement actions taken for each violation, including stormwater enforcement actions.

(3) An analysis of the effectiveness of current enforcement policies, including mandatory minimum penalties.

(p) The amendments made to subdivisions (f), (h), (i), and (j) during the second year of the 2001-02 Regular Session apply only to violations that occur on or after January 1, 2003.

Credits

(Added by Stats.1987, c. 1189, § 10. Amended by Stats.1999, c. 92 (A.B.1104), § 6; Stats.1999, c. 93 (S.B.709), § 6; Stats.2000, c. 807 (S.B.2165), § 2; Stats.2001, c. 869 (A.B.1664), § 7; Stats.2002, c. 995 (A.B.2351), § 1; Stats.2002, c. 1019 (A.B.1969), § 2, eff. Sept. 28, 2002; Stats.2002, c. 1019 (A.B.1969), § 3, eff. Sept. 28, 2002, operative Jan. 1, 2003; Stats.2003, c. 683 (A.B.897), § 7; Stats.2004, c. 644 (A.B.2701), § 41; Stats.2006, c. 404 (S.B.1733), § 3; Stats.2007, c. 130 (A.B.299), § 239; Stats.2010, c. 645 (S.B.1284), § 1; Stats.2011, c. 296 (A.B.1023), § 314.)

Notes of Decisions (9)

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West's Ann.Cal.Water Code § 13385.1

§ 13385.1. Discharge monitoring reports; serious violation; time to file report and penalties for failure to file; deposit and expenditure of penalty funds; "effluent limitation" defined

Effective: January 1, 2011
Currentness

(a)(1) For the purposes of subdivision (h) of Section 13385, a "serious violation" also means a failure to file a discharge monitoring report required pursuant to Section 13383 for each complete period of 30 days following the deadline for submitting the report, if the report is designed to ensure compliance with limitations contained in waste discharge requirements that contain effluent limitations. This paragraph applies only to violations that occur on or after January 1, 2004.

(2)(A) Notwithstanding paragraph (1), a failure to file a discharge monitoring report is not a serious violation for purposes of subdivision (h) of Section 13385 at any time prior to the date a discharge monitoring report is required to be filed or within 30 days after receiving written notice from the state board or a regional board of the need to file a discharge monitoring report, if the discharger submits a written statement to the state board or the regional board that includes both of the following:

(i) A statement that there were no discharges to waters of the United States reportable under the applicable waste discharge requirements during the relevant monitoring period.

(ii) The reason or reasons the required report was not submitted to the regional board by the deadline for filing that report.

(B) Upon the request of the state board or regional board, the discharger may be required to support the statement with additional explanation or evidence.

(C) If, in a statement submitted pursuant to subparagraph (A), the discharger willfully states as true any material fact that he or she knows to be false, that person shall be subject to a civil penalty not exceeding ten thousand dollars ($10,000). Any public prosecutor may bring an action for a civil penalty under this subparagraph in the name of the people of the State of California, and the penalty imposed shall be enforced as a civil judgment.

(D) Notwithstanding subparagraph (A), the failure to file a discharge monitoring report is subject to penalties in accordance with subdivisions (c) and (e) of Section 13385.

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(b)(1) Notwithstanding paragraph (1) of subdivision (a), a mandatory minimum penalty shall continue to apply and shall be assessed pursuant to subdivision (h) of Section 13385, but only for each required report that is not timely filed, and shall not be separately assessed for each 30-day period following the deadline for submitting the report, if both of the following conditions are met:

(A) The discharger did not on any occasion previously receive, from the state board or a regional board, a complaint to impose liability pursuant to subdivision (b) or (c) of Section 13385 arising from a failure to timely file a discharge monitoring report, a notice of violation for failure to timely file a discharge monitoring report, or a notice of the obligation to file a discharge monitoring report required pursuant to Section 13383, in connection with its corresponding waste discharge requirements.

(B) The discharges during the period or periods covered by the report do not violate effluent limitations, as defined in subdivision (d), contained in waste discharge requirements.

(2) Paragraph (1) shall only apply to a discharger who does both of the following:

(A) Files a discharge monitoring report that had not previously been timely filed within 30 days after the discharger receives written notice, including notice transmitted by electronic mail, from the state board or regional board concerning the failure to timely file the report.

(B) Pays all penalties assessed by the state board or regional board in accordance with paragraph (1) within 30 days after an order is issued to pay these penalties pursuant to Section 13385.

(3) Notwithstanding paragraph (1), the failure to file a discharge monitoring report is subject to penalties in accordance with subdivisions (c) and (e) of Section 13385.

(4) This subdivision shall become inoperative on January 1, 2014.

(c)(1) Notwithstanding any other provision of law, moneys collected pursuant to this section for a failure to timely file a report, as described in subdivision (a), shall be deposited in the State Water Pollution Cleanup and Abatement Account.

(2) Notwithstanding Section 13340 of the Government Code, the funds described in paragraph (1) are continuously appropriated, without regard to fiscal years, to the state board for expenditure by the state board to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in responding to significant water pollution problems.

(d) For the purposes of this section, paragraph (2) of subdivision (f) of Section 13385, and subdivisions (h), (i), and (j) of Section 13385 only, "effluent limitation" means a numeric restriction or a numerically expressed narrative restriction, on the quantity, discharge rate, concentration, or toxicity units of a pollutant or pollutants that may be discharged from an authorized location. An effluent limitation may be final or interim, and may be expressed as a prohibition. An

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effluent limitation, for those purposes, does not include a receiving water limitation, a compliance schedule, or a best management practice.

(e) The amendments made to this section by Senate Bill 1284 of the 2009-10 Regular Session of the Legislature shall apply to violations for which an administrative civil liability complaint or a judicial complaint has not been filed before July 1, 2010, without regard to the date on which the violations occurred.

Credits

(Added by Stats.2003, c. 609 (A.B.1541), § 1. Amended by Stats.2005, c. 145 (A.B.495), § 1; Stats.2006, c. 538 (S.B.1852), § 677; Stats.2008, c. 760 (A.B.1338), § 23, eff. Sept. 30, 2008; Stats.2010, c. 645 (S.B.1284), § 2.)

Editors' Notes

APPLICATION

<For application of the amendment by Stats.2010, c. 645 (S.B.1284), see the terms of this section.>

West's Ann. Cal. Water Code § 13385.1, CA WATER § 13385.1
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West's Ann.Cal.Water Code § 13385.2

§ 13385.2. Publicly owned treatment works (POTW) to demonstrate that financing plan is designed to generate sufficient funding to complete compliance program

Effective: September 29, 2006
Currentness

(a) Prior to the state board or regional board making its findings pursuant to subdivision (k) of Section 13385, the publicly owned treatment works shall demonstrate to the satisfaction of the state board or regional board that the financing plan prepared pursuant to subparagraph (C) of paragraph (1) of subdivision (k) of that section is designed to generate sufficient funding to complete the compliance project within the time period specified pursuant to subparagraph (A) of paragraph (1) of subdivision (k) of that section.

(b) This section shall only become operative if Senate Bill 1733 [1] of the 2005-06 Regular Session is enacted and becomes operative.

Credits
(Added by Stats.2006, c. 725 (A.B.1752), § 1, eff. Sept. 29, 2006.)

Editors' Notes

OPERATIVE EFFECT

<For operative effect of this section, see its terms.>

Footnotes
1 Stats.2006, c. 404 (S.B.1733).

West's Ann. Cal. Water Code § 13385.2, CA WATER § 13385.2
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West's Ann.Cal.Water Code § 13385.3

§ 13385.3. Operative effect

Effective: September 29, 2006
Currentness

(a) The amendments made to subdivision (k) of Section 13385 of the Water Code by Senate Bill 1733 [1] of the 2005-06 Regular Session shall become operative on July 1, 2007.

(b) This section shall only become operative if Senate Bill 1733 of the 2005-06 Regular Session is enacted and becomes operative.

Credits
(Added by Stats.2006, c. 725 (A.B.1752), § 2, eff. Sept. 29, 2006.)

Footnotes
1 Stats.2006, c. 404 (S.B.1733).

West's Ann. Cal. Water Code § 13385.3, CA WATER § 13385.3
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West's Ann.Cal.Water Code § 13386

§ 13386. Threatened or continuing violations or failure of discharger to comply with cost or charge; injunctions

Currentness

Upon any threatened or continuing violation of any of the requirements listed in paragraphs (1) to (6), inclusive, of subdivision (a) of Section 13385, or upon the failure of any discharger into a public treatment system to comply with any cost or charge adopted by any public agency under Section 204(b) of the Federal Water Pollution Control Act, as amended, [1] the Attorney General, upon the request of the state board or regional board shall petition the appropriate court for the issuance of a preliminary or permanent injunction, or both, as appropriate, restraining that person or persons from committing or continuing the violation. Subdivision (b) of Section 13331 shall be applicable to proceedings under this section.

Credits

(Added by Stats.1987, c. 1189, § 12. Amended by Stats.1996, c. 659 (A.B.3036), § 27.)

Footnotes

1 33 U.S.C.A. § 1284(b).

West's Ann. Cal. Water Code § 13386, CA WATER § 13386

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West's Ann.Cal.Water Code § 13387

§ 13387. Violations; criminal penalties

Effective: October 1, 2011
Currentness

(a) Any person who knowingly or negligently does any of the following is subject to criminal penalties as provided in subdivisions (b), (c), and (d):

(1) Violates Section 13375 or 13376.

(2) Violates any waste discharge requirements or dredged or fill material permit issued pursuant to this chapter or any water quality certification issued pursuant to Section 13160.

(3) Violates any order or prohibition issued pursuant to Section 13243 or 13301, if the activity subject to the order or prohibition is subject to regulation under this chapter.

(4) Violates any requirement of Section 301, 302, 306, 307, 308, 318, 401, or 405 of the Clean Water Act (33 U.S.C. Sec. 1311, 1312, 1316, 1317, 1318, 1328, 1341, or 1345), as amended.

(5) Introduces into a sewer system or into a publicly owned treatment works any pollutant or hazardous substances that the person knew or reasonably should have known could cause personal injury or property damage.

(6) Introduces any pollutant or hazardous substance into a sewer system or into a publicly owned treatment works, except in accordance with any applicable pretreatment requirements, which causes the treatment works to violate waste discharge requirements.

(b) Any person who negligently commits any of the violations set forth in subdivision (a) shall, upon conviction, be punished by a fine of not less than five thousand dollars ($5,000), nor more than twenty-five thousand dollars ($25,000), for each day in which the violation occurs, by imprisonment for not more than one year in a county jail, or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, subdivision (c), or subdivision (d), punishment shall be by a fine of not more than fifty thousand dollars ($50,000) for each day in which the violation occurs, by imprisonment pursuant to subdivision (h) of Section 1170 of the Penal Code for 16, 20, or 24 months, or by both that fine and imprisonment.

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(c) Any person who knowingly commits any of the violations set forth in subdivision (a) shall, upon conviction, be punished by a fine of not less than five thousand dollars ($5,000), nor more than fifty thousand dollars ($50,000), for each day in which the violation occurs, by imprisonment pursuant to subdivision (h) of Section 1170 of the Penal Code, or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision or subdivision (d), punishment shall be by a fine of not more than one hundred thousand dollars ($100,000) for each day in which the violation occurs, by imprisonment pursuant to subdivision (h) of Section 1170 of the Penal Code for two, four, or six years, or by both that fine and imprisonment.

(d)(1) Any person who knowingly commits any of the violations set forth in subdivision (a), and who knows at the time that the person thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be punished by a fine of not more than two hundred fifty thousand dollars ($250,000), imprisonment pursuant to subdivision (h) of Section 1170 of the Penal Code for 5, 10, or 15 years, or by both that fine and imprisonment. A person that is an organization shall, upon conviction under this subdivision, be subject to a fine of not more than one million dollars ($1,000,000). If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, the punishment shall be by a fine of not more than five hundred thousand dollars ($500,000), by imprisonment pursuant to subdivision (h) of Section 1170 of the Penal Code for 10, 20, or 30 years, or by both that fine and imprisonment. A person that is an organization shall, upon conviction for a violation committed after a first conviction of the person under this subdivision, be subject to a fine of not more than two million dollars ($2,000,000). Any fines imposed pursuant to this subdivision shall be in addition to any fines imposed pursuant to subdivision (c).

(2) In determining whether a defendant who is an individual knew that the defendant's conduct placed another person in imminent danger of death or serious bodily injury, the defendant is responsible only for actual awareness or actual belief that the defendant possessed, and knowledge possessed by a person other than the defendant, but not by the defendant personally, cannot be attributed to the defendant.

(e) Any person who knowingly makes any false statement, representation, or certification in any record, report, plan, notice to comply, or other document filed with a regional board or the state board, or who knowingly falsifies, tampers with, or renders inaccurate any monitoring device or method required under this division shall be punished by a fine of not more than twenty-five thousand dollars ($25,000), by imprisonment pursuant to subdivision (h) of Section 1170 of the Penal Code for 16, 20, or 24 months, or by both that fine and imprisonment. If a conviction of a person is for a violation committed after a first conviction of the person under this subdivision, punishment shall be by a fine of not more than twenty- five thousand dollars ($25,000) per day of violation, by imprisonment pursuant to subdivision (h) of Section 1170 of the Penal Code for two, three, or four years, or by both that fine and imprisonment.

(f) For purposes of this section, a single operational upset which leads to simultaneous violations of more than one pollutant parameter shall be treated as a single violation.

(g) For purposes of this section, “organization,” “serious bodily injury,” “person,” and “hazardous substance” shall have the same meaning as in Section 309(c) of the Clean Water Act (33 U.S.C. Sec. 1319(c)), as amended.

(h)(1) Subject to paragraph (2), funds collected pursuant to this section shall be deposited in the State Water Pollution Cleanup and Abatement Account.

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(2)(A) Notwithstanding any other provision of law, fines collected for a violation of a water quality certification in accordance with paragraph (2) of subdivision (a) or for a violation of Section 401 of the Clean Water Act (33 U.S.C. Sec. 1341) in accordance with paragraph (4) of subdivision (a) shall be deposited in the Water Discharge Permit Fund and separately accounted for in that fund.

(B) The funds described in subparagraph (A) shall be expended by the state board, upon appropriation by the Legislature, to assist regional boards, and other public agencies with authority to clean up waste or abate the effects of the waste, in cleaning up or abating the effects of the waste on waters of the state, or for the purposes authorized in Section 13443.

Credits

(Added by Stats.1987, c. 1189, § 14. Amended by Stats.1996, c. 775 (A.B.2937), § 5; Stats.2001, c. 869 (A.B.1664), § 8; Stats.2003, c. 683 (A.B.897), § 8; Stats.2004, c. 183 (A.B.3082), § 362; Stats.2005, c. 22 (S.B.1108), § 211; Stats.2006, c. 347 (A.B.2367), § 23; Stats.2011, c. 15 (A.B.109), § 616, eff. April 4, 2011, operative Oct. 1, 2011.)

Notes of Decisions (20)

West's Ann. Cal. Water Code § 13387, CA WATER § 13387
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West's Ann.Cal.Water Code § 13388

§ 13388. Board members; disqualification if income from person subject to requirements

Effective: June 27, 2012
Currentness

(a) Notwithstanding any other provision of this division or Section 175, and except as provided in subdivision (b), a person shall not be a member of the state board or a regional board if that person receives, or has received during the previous two years, a significant portion of his or her income directly or indirectly from any person subject to waste discharge requirements or applicants for waste discharge requirements pursuant to this chapter.

(b)(1) A person shall not be disqualified from being a member of a regional board because that person receives, or has received during the previous two years, a significant portion of his or her income directly or indirectly from a person subject to waste discharge requirements, or an applicant for waste discharge requirements, that are issued pursuant to this chapter by the state board or regional board other than the regional board of which that person is a member.

(2) Paragraph (1) shall be implemented only if the United States Environmental Protection Agency either determines that no program approval is necessary for that implementation, or approves of a change in California's National Pollutant Discharge Elimination System program, to allow the state to administer the National Pollutant Discharge Elimination System permit program consistent with paragraph (1).

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972, operative March 1, 1973. Amended by Stats.2012, c. 39 (S.B.1018), § 121, eff. June 27, 2012.)

Notes of Decisions (1)

West's Ann. Cal. Water Code § 13388, CA WATER § 13388
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West's Ann.Cal.Water Code § 13389

§ 13389. Applicability of environmental impact reports

Currentness

Neither the state board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with Section 21100) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto.

Credits
(Added by Stats.1972, c. 1256, p. 2485, § 1, eff. Dec. 19, 1972.)

Notes of Decisions (3)

West's Ann. Cal. Water Code § 13389, CA WATER § 13389
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23 CCR § 2235.2

§ 2235.2. Compliance with Regulations of the U.S. Environmental Protection Agency.

Waste discharge requirements for discharge from point sources to nagivable waters shall be issued and administered in accordance with the currently applicable federal regulations for the National Pollutant Discharge Elimination System (NPDES) program.

Note: Authority cited: Section 1058, Water Code. Reference: Chapter 5.5 (commencing with Section 13370) of Division 7, Water Code.

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§ 2235.3. Additional Requirements.
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23 CCR § 2235.3

§ 2235.3. Additional Requirements.

In addition to the federal regulations, waste discharge requirements prescribed for discharges to navigable water shall be in compliance with applicable state regulations, including, when appropriate, the requirements of Sections 2230(c), 2232 and 2233.

Note: Authority cited: Sections 185 and 1058, Water Code. Reference: Section 13263, Water Code.

HISTORY

1. Amendment filed 4-16-82; effective upon filing pursuant to Government Code Section 11346.2(d) (Register 82, No. 16).

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23 CCR § 2235.3, 23 CA ADC § 2235.3

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ATTACHMENT
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United States Court of Appeals,Ninth Circuit.
ENVIRONMENTAL DEFENSE CENTER, INC., Petitioner,
Natural Resources Defense Council, Inc., Petitioner-Intervenor,
v.
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Respondent.
American Forest & Paper Association; National Association of Home Builders, Petitioners,
v.
United States Environmental Protection Agency, Respondent,
Natural Resources Defense Council, Inc., Applicant-Intervenor.
Texas Cities Coalition on Stormwater; Texas Counties Storm Water Coalition, Petitioners,
v.
United States Environmental Protection Agency, Respondent,
Natural Resources Defense Council, Inc., Respondent-Intervenor.
Nos. 00-70014, 00-70734, 00-70822.

Argued and Submitted Dec. 3, 2001.
Filed Sept. 15, 2003.

Environmental, municipal, and industry groups brought petitions for review of Environmental Protection Agency (EPA) rule mandating that discharges from small municipal storm sewers and construction sites be subject to National Pollutant Discharge Elimination System (NPDES) permitting requirements. On denial of rehearing, the Court of Appeals, James R. Browning, Circuit Judge, held that: (1) EPA had authority to impose rule; (2) rule did not violate the Tenth Amendment; (3) rule improperly failed to provide for review of notices of intent and public participation in NPDES permitting process; (4) EPA's failure to designate industrial sources of storm water pollution for permitting requirements was not arbitrary and capricious; (5) challenge to rule's exclusion of forest roads was not time-barred; (6) forestry trade association lacked standing to challenge rule; (7) EPA properly consulted with state and local officials; (8) sites subject to rule were properly designated; and (9) EPA properly retained authority to designate future sources of storm water pollution for regulation.

Petitions for review granted in part and denied in part.

Tallman, Circuit Judge, filed opinion concurring in part and dissenting in part, and would have granted petition for rehearing.

Opinion, 319 F.3d 398, vacated.

***839** Victoria Clark, Environmental Defense Center, Santa Barbara, CA, for petitioner Environmental Defense Center, Inc.
Andrew G. Frank and Arlene Yang, Paul, Weiss, Rifkind, Wharton & Garrison, New York, NY, and Nancy K. Stoner, Natural Resources Defense Council, Washington, DC, for intervenor National Resources Defense Council, Inc.
R. Timothy McCrum, Ellen B. Steen, and Donald J. Kochan, Crowell & Moring, Washington, DC, for petitioners American Forest & Paper Association and National Association of Home Builders.
Steven P. Quarles and J. Michael Klise, Crowell & Moring, Washington, DC, and William R. Murray, American Forest & Paper Association, Washington, DC, for petitioner American Forest & Paper Association.
Jim Mathews and Clarence Joe Freeland, Mathews & Freeland, Austin, TX, for petitioner Texas Cities Coalition on Stormwater.
Sydney W. Falk, Jr. and William D. Dugat III, Bickerstaff, Heath, Smiley, Pollan, Kever & McDaniel, Austin, TX, for petitioner Texas Counties Storm Water Coalition.
John C. Cruden, Daniel M. Flores and Kent E. Hanson, United States Department of Justice, Washington, DC, and Stephen J. Sweeny, United States Environmental Protection Agency, Washington, DC, for respondent United States Environmental Protection Agency.

On Petition for Review of an Order of the Environmental Protection Agency. EPA No. Clean Water 40 CFR.

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Before BROWNING, REINHARDT, and TALLMAN, Circuit Judges.

Opinion by Judge JAMES R. BROWNING; Partial Concurrence and Partial Dissent by Judge TALLMAN.

ORDER AND OPINION

ORDER

The opinion and dissent filed in this case on January 14, 2003, and published at 319 F.3d 398 are vacated. They are replaced by the Opinion and Dissent filed today.

With the filing of the new Opinion and Dissent, the panel has voted to deny the petitions for rehearing and the petition for rehearing en banc. (Judge Tallman would grant the petition for rehearing filed by ***840** the Environmental Protection Agency.) The full court has been advised of the new Opinion, new Dissent, and petition for rehearing en banc. No judge has requested a vote on the petition for rehearing en banc. Fed. R.App. P. 35.

The petitions for rehearing and the petition for rehearing en banc are DENIED. The clerk is instructed not to accept for filing any new petitions for rehearing or petitions for rehearing en banc in this case.

Each party shall bear its own costs in this appeal.

OPINION

JAMES R. BROWNING, Circuit Judge.
Petitioners challenge a rule issued by the United States Environmental Protection Agency pursuant to the Clean Water Act, 33 U.S.C. §§ 1251-1387, to control pollutants introduced into the nation's waters by storm sewers.

Storm sewers drain rainwater and melted snow from developed areas into water bodies that can handle the excess flow. Draining stormwater picks up a variety of contaminants as it filters through soil and over pavement on its way to sewers. Sewers are also used on occasion as an easy (if illicit) means for the direct discharge of unwanted contaminants. Since storm sewer systems generally channel collected runoff into federally protected water bodies, they are subject to the controls of the Clean Water Act.

In October of 1999, after thirteen years in process, the Environmental Protection Agency ("EPA") promulgated a final administrative rule (the "Phase II Rule"[FN1] or "the Rule") under § 402(p) of the Clean Water Act, 33 U.S.C. § 1342(p), mandating that discharges from small municipal separate storm sewer systems and from construction sites between one and five acres in size be subject to the permitting requirements of the National Pollutant Discharge Elimination System ("NPDES"), 33 U.S.C. §§ 1311(a), 1342. EPA preserved authority to regulate other harmful stormwater discharges in the future.

FN1. The "Phase II Rule" reviewed here is the product of the second stage of EPA's two-phase stormwater rulemaking effort. The "Phase I Rule," governing larger-scale stormwater discharges, was issued in 1990 and reviewed by this court in *Natural Res. Def. Council v. EPA,* 966 F.2d 1292 (9th Cir.1992).

In the three cases consolidated here, petitioners and intervenors challenge the Phase II Rule on twenty-two constitutional, statutory, and procedural grounds. We remand three aspects of the Rule concerning the issuance of notices of intent under the Rule's general permitting scheme, and a fourth aspect concerning the regulation of forest roads. We affirm the Rule against all other challenges.

I.

BACKGROUND

A. The Problem of Stormwater Runoff

Stormwater runoff is one of the most significant sources of water pollution in the nation, at times "comparable to, if not greater than, contamination from industrial and sewage sources."[FN2] Storm sewer waters carry suspended metals, sediments, algae-promoting nutrients (nitrogen and phosphorus), floatable trash, used motor oil, raw sewage, pesticides, and other toxic contaminants into streams, rivers, lakes, ***841** and estuaries across the United

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States.[FN3] In 1985, three-quarters of the States cited urban stormwater runoff as a major cause of waterbody impairment, and forty percent reported construction site runoff as a major cause of impairment.[FN4] Urban runoff has been named as the foremost cause of impairment of surveyed ocean waters.[FN5] Among the sources of stormwater contamination are urban development, industrial facilities, construction sites, and illicit discharges and connections to storm sewer systems.[FN6]

FN2. Richard G. Cohn-Lee and Diane M. Cameron, *Urban Stormwater Runoff Contamination of the Chesapeake Bay: Sources and Mitigation*,THE ENVIRONMENTAL PROFESSIONAL, Vol. 14, p. 10, at 10 (1992); *see also Natural Res. Def. Council*, 966 F.2d at 1295 (citing a study by the Nationwide Urban Runoff Program).

FN3. Regulation for Revision of the Water Pollution Control Program Addressing Storm Water, 64 Fed. Reg. 68,722, 68,724, 68,727 (Dec. 8, 1999) (codified at 40 C.F.R. pts. 9, 122, 123, and 124).

FN4. *Id.* at 68,726.

FN5. *Id.*

FN6. *Id.* at 68,725-31.

B. Stormwater and the Clean Water Act

Congress enacted the Clean Water Act in 1948 to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a) (originally codified as the Federal Water Pollution Control Act, 62 Stat. 1155). The Clean Water Act prohibits the discharge of pollutants from a "point source"[FN7] into the waters of the United States without a permit issued under the terms of the National Pollutant Discharge Elimination System, 33 U.S.C. §§ 1311(a), 1342, which requires dischargers to comply with technology-based pollution limitations (generally according to the "best available technology economically achievable," or "BAT" standard). 33 U.S.C. § 1311(b)(2)(A). NPDES permits are issued by EPA or by States that have been authorized by EPA to act as NPDES permitting authorities. 33 U.S.C. § 1342(a)-(b). The permitting authority must make copies of all NPDES permits and permit applications available to the public, 33 U.S.C. §§ 1342(j), 1342(b)(3); state permitting authorities must provide EPA notice of each permit application, 33 U.S.C. § 1342(b)(4); and a permitting authority must provide an opportunity for a public hearing before issuing any permit, 33 U.S.C. §§ 1342(a)(1), 1342(b)(3); *cf.*33 U.S.C. § 1251(e) (requiring public participation).

FN7. A point source is "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." 33 U.S.C. § 1362(14).

[1][2] Storm sewers are established point sources subject to NPDES permitting requirements. *Natural Res. Def. Council v. Costle*, 568 F.2d 1369, 1379 (D.C.Cir.1977) (holding unlawful EPA's exemption of stormwater discharges from NPDES permitting requirements); *Natural Res. Def. Council v. EPA*, 966 F.2d 1292, 1295 (9th Cir.1992).[FN8] In 1987, to better regulate pollution conveyed by stormwater runoff, Congress enacted Clean Water Act § 402(p), 33 U.S.C. § 1342(p), "Municipal and Industrial Stormwater Discharges." Sections 402(p)(2) and 402(p)(3) mandate NPDES permits for stormwater discharges "associated with industrial activity," discharges from large and medium-sized municipal storm sewer systems, and certain other discharges. Section 402(p)(4) sets out a timetable for promulgation of the first of a ***842** two-phase overall program of stormwater regulation. *Id.* at § 1342(p)(2)-(4); *Natural Res. Def. Council*, 966 F.2d at 1296. In 1990, pursuant to § 402(p)(4), EPA issued the Phase I Rule regulating large discharge sources.[FN9]

FN8. Diffuse runoff, such as rainwater that is not channeled through a point source, is considered nonpoint source pollution and is not subject to federal regulation. *Oregon Natural Desert Ass'n v. Dombeck*, 172 F.3d 1092, 1095 (9th Cir.1998).

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FN9. National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges, 55 Fed. Reg. 47,990 (Nov. 16, 1990) (codified at 40 C.F.R. pt. 122-124). The Phase I rule was challenged in this court in *Natural Res. Def. Council*, 966 F.2d at 1292. We held, *inter alia*, that EPA must impose deadlines for permit approvals, *id.* at 1300, that EPA's decision to regulate construction sites only over five acres in size was arbitrary and capricious, *id.* at 1306, and that EPA did not act capriciously in defining "municipal," *id.* at 1304, or in placing differently-sized municipalities on different permitting schedules, *id.* at 1301.

C. The Phase II Stormwater Rule

In Clean Water Act § 402(p), Congress also directed a second stage of stormwater regulation by ordering EPA to identify and address sources of pollution not covered by the Phase I Rule. Section 402(p)(1) placed a temporary moratorium (expiring in 1994) on the permitting of other stormwater discharges pending the results of studies mandated in § 402(p)(5) to identify the sources and pollutant content of such discharges and to establish procedures and methods to control them as "necessary to mitigate impacts on water quality." 33 U.S.C. § 1342(p)(5). Section 402(p)(6) required that EPA establish "a comprehensive program to regulate" these stormwater discharges "to protect water quality," following the studies mandated in § 402(p)(5) and consultation with state and local officials. *Id.* at § 1342(p)(6).

EPA proposed the Phase II Rule in January of 1998.[FN10] In October, 1999, Congress passed legislation precluding EPA from promulgating the new Rule until EPA submitted an additional report to Congress supporting certain anticipated aspects of the Rule.[FN11] EPA was also required to publish its report in the Federal Register for public comment. Pub. L. No. 106-74, § 431(c), 113 Stat. at 1097. Later that month, EPA submitted the required ("Appropriations Act") study and promulgated the Rule.[FN12]

FN10. Proposed Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 63 Fed. Reg. 1536 (proposed Jan. 9, 1998).

FN11. Pub. L. No. 106-74, § 431(a), 113 Stat. 1047, 1096 (1999) ("Appropriations, 2000-Department of Veterans Affairs and Housing and Urban Development, and Independent Agencies").

FN12. Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges, 64 Fed. Reg. 68,722 (Dec. 8, 1999) (codified at 40 C.F.R. pts. 9, 122, 123, and 124).

Under the Phase II Rule, NPDES permits are required for discharges from small municipal separate storm sewer systems ("small MS4s") and stormwater discharges from construction activity disturbing between one and five acres ("small construction sites"). 40 C.F.R. §§ 122.26(a)(9)(i)(A)-(B). Small MS4s may seek permission to discharge by submitting an individualized set of best-management plans in six specified categories, *id.* at § 122.34, either in the form of an individual permit application, or in the form of a notice of intent to comply with a general permit. *Id.* at § 122.33(b). Small MS4s may also seek permission to discharge through an alternative process, under which a permit may be sought without requiring the operator to regulate third parties, *id.* at §§ 122.33(b)(2)(ii), 122.26(d).[FN13] Small construction sites may ***843** apply for individual NPDES permits or seek coverage under a promulgated general permit. *Id.* at § 122.26(c). EPA also preserved authority to regulate other categories of harmful stormwater discharges on a regional, as-needed basis. *Id.* at § 122.26(a)(9)(i)(C)-(D).

FN13. The Rule also allows a small MS4 to be regulated under an individual NPDES permit covering a nearby large or medium MS4, with provisions adapted to address the small MS4. 40 C.F.R. § 122.33(b)(3).

D. Facial Challenges to the Phase II Rule

The Rule was challenged in the Fifth, Ninth, and D.C. Circuits in three separate actions ultimately consolidated before the Ninth Circuit.

The Texas Cities Coalition on Stormwater and the

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Texas Counties Stormwater Coalition (collectively, "the Municipal Petitioners") assert that EPA lacked authority to require permitting, that its promulgation of the Rule was procedurally defective, that the Rule establishes categories that are arbitrary and capricious, and that the Rule impermissibly requires municipalities to regulate their own citizens in contravention of the Tenth Amendment and to communicate a federally mandated message in contravention of the First Amendment. The Natural Resources Defense Council ("NRDC") intervened on behalf of EPA.

Environmental Defense Center, joined by petitioner-intervenor NRDC ("the Environmental Petitioners"), asserts that the regulations fail to meet minimum Clean Water Act statutory requirements because they constitute a program of impermissible self-regulation, fail to provide required avenues of public participation, and neglect to address stormwater runoff associated with forest roads and other significant sources of runoff pollution.

The American Forest & Paper Association ("AF&PA") and the National Association of Home Builders ("the Industrial Petitioners") assert that promulgation of the Rule was procedurally defective and violated the Regulatory Flexibility Act, that EPA's retention of authority to regulate future sources of runoff pollution is *ultra vires*, and that the decision to regulate discharge from construction sites one to five acres in size is arbitrary and capricious. NRDC again intervened on behalf of EPA.

We have jurisdiction pursuant to section 509(b)(1) of the Clean Water Act, 33 U.S.C. § 1369(b)(1) (assigning review of EPA effluent and permitting regulations to the Federal Courts of Appeals).

II.

DISCUSSION

A. The Permit Requirements

[3] The Municipal Petitioners' primary contention is that the Phase II Rule compels small MS4s to regulate citizens as a condition of receiving a permit to operate, and that EPA lacks both statutory and constitutional authority to impose such a requirement. Because we avoid considering constitutionality if an issue may be resolved on narrower grounds, *Greater New Orleans Broadcasting Ass'n v. United States*, 527 U.S. 173, 184, 119 S.Ct. 1923, 144 L.Ed.2d 161 (1999), we first ask whether the Phase II Rule is supported by statutory authority.

1. Statutory Authority

[4] The Municipal Petitioners assert that the statutory command in Clean Water Act § 402(p)(6) that EPA develop a "comprehensive program to regulate" small MS4s did not authorize a program based on NPDES permits. Petitioners argue that because § 402(p)(6) explicitly indicates elements that the program may ***844** contain (performance standards, guidelines, etc.) without mentioning "permits," Congress must have intended that the program exclude permitting.[FN14]

> FN14. The text of that section reads: "Not later than October 1, 1993, [EPA], in consultation with state and local officials, shall issue regulations (based on the results of the studies conducted under paragraph (5)) which designate stormwater discharges, other than those discharges described in paragraph (2), to be regulated to protect water quality and shall establish a comprehensive program to regulate such designated sources. The program shall, at a minimum, (A) establish priorities, (B) establish requirements for State stormwater management programs, and (C) establish expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate." 33 U.S.C. § 1342(p)(6).

The fact that "permitting" is not included on a statutory list of elements that the program "may" include is not determinative, because the list is manifestly nonexclusive. The only constraints are that the § 402(p)(6) regulations be based on the § 402(p)(5) studies, that they be issued in consultation with state and local officials, and that-"at a minimum"-they establish priorities, requirements for state stormwater management programs, and expeditious deadlines, and constitute a comprehensive program "to protect water quality."

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33 U.S.C. § 1342(p)(6). EPA was free to adopt any regulatory program, including a permitting program, that included these elements. *See Chevron, U.S.A. v. Natural Res. Def. Council*, 467 U.S. 837, 842-43, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984) (deference to an agency's reasonable interpretation is required unless Congress expressed its intent unambiguously). It is more reasonable to interpret congressional silence about permits as an indication of EPA's flexibility not to use them than as an outright prohibition.[FN15]

> FN15. The lesser category of "permits" may also be implied by the inclusion of "performance standards" in the list of possible program features.

The Municipal Petitioners further contend that their interpretation is supported by the structure of § 402(p), which expressly requires permits for large and medium sized MS4s in a separate section, § 402(p)(3)(B).[FN16] However, as EPA counters, the language in § 402(p)(3) requiring permits for municipal storm sewers may be interpreted to apply both to Phase I *and* Phase II MS4s. Moreover, as respondent-intervenor NRDC notes, the mere existence of the § 402(p)(1) permitting moratorium, designed to apply only to Phase II dischargers, necessarily implies that EPA has the authority to require permits from these sources after the 1994 expiration of the moratorium.

> FN16. "Where Congress includes particular language in one section of a statute but omits it in another section of the same Act, it is generally presumed that Congress acts intentionally and purposely in the disparate inclusion or exclusion." *Bates v. United States*, 522 U.S. 23, 29-30, 118 S.Ct. 285, 139 L.Ed.2d 215 (1997).

Since there would have been no need to establish a permitting moratorium for these sources if the sources could *never* be subject to permitting requirements, petitioners' interpretation violates the bedrock principle that statutes not be interpreted to render any provision superfluous. *See Burrey v. Pacific Gas & Elec. Co.*, 159 F.3d 388, 394 (9th Cir.1998). EPA's interpretation of its mandate under § 402(p)(6) was reasonable and EPA acted within its statutory authority in formulating the Phase II Rule as a permitting program.

2. The Tenth Amendment

The Municipal Petitioners contend that the Phase II Rule on its face compels ***845** operators of small MS4s to regulate third parties in contravention of the Tenth Amendment. We conclude that the Rule does not violate the Tenth Amendment, because it directs no unconstitutional coercion.

The Phase II Rule contemplates several avenues through which a small MS4 may obtain permission to discharge. First, if the NPDES Permitting Authority overseeing the small MS4 has issued an applicable general permit, the small MS4 may submit a notice of intent wherein the small MS4 agrees to comply with the terms of the general permit and specifies plans for implementing six "Minimum Measures" designed to protect water quality. 40 C.F.R. §§ 122.33(b)(1), 122.34(d)(1)(i), 122.34(b). Second, the small MS4 may apply for an individual permit under 40 C.F.R. § 122.34, which would again require compliance with the six Minimum Measures. *Id.* at §§ 122.33(b)(2)(i), 122.34(a), 122.34(b). Third, under an "Alternative Permit" option, the small MS4 may apply for an individualized permit under 40 C.F.R. § 122.26(d), the permitting program established by the Phase I Rule for large and medium-sized MS4s. *Id.* at §§ 122.33(b)(2)(ii), 122.26(d).[FN17]

> FN17. The Phase II Rule also allows a small MS4 to be regulated under an NPDES permit covering a nearby large or medium-sized MS4, with provisions adapted to address the small MS4. 40 C.F.R. § 122.33(b)(3).

[5] The Minimum Measures mentioned above require small MS4s to implement programs for: (1) conducting public education and outreach on stormwater impacts, *id.* at § 122.34(b)(1); (2) engaging public participation in the development of stormwater management programs, *id.* at § 122.34(b)(2); (3) detecting and eliminating illicit discharges to the MS4, *id.* at § 122.34(b)(3); (4) reducing pollution to the MS4 from construction activities disturbing one acre or more, *id.* at § 122.34(b)(4); (5) minimizing water quality impacts from development and redevelopment activities that disturb one acre or more, *id.* at § 122.34(b)(5); and

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(6) preventing or reducing pollutant runoff from municipal activities, *id.* at § 122.34(b)(6).[FN18]

FN18. The Municipal Petitioners argue that the Minimum Measures exceed EPA's statutory authority under § 402(p) of the Clean Water Act. We disagree. The list of elements for a regulatory program that appears in § 402(p)(6) is nonexclusive, and EPA's adoption of the Minimum Measures represents a permissible interpretation of its authority under § 402(p)(6). *See Chevron,* 467 U.S. at 843-44, 104 S.Ct. 2778.

The Municipal Petitioners argue that EPA is not entitled to *Chevron* deference, and that the Minimum Measures must be rejected absent a clear statement of congressional intent that EPA enact the Minimum Measures. The Municipal Petitioners argue that this clear statement requirement arises because there are "significant constitutional questions" about the permissibility of the Minimum Measures under the Tenth Amendment, and because the Minimum Measures alter "the federal-state framework by permitting federal encroachment upon a traditional state power." *Solid Waste Agency of N. Cook County v. Army Corps of Eng'rs,* 531 U.S. 159, 173, 121 S.Ct. 675, 148 L.Ed.2d 576 (2001).

As we explain, because the Phase II Rule includes at least one alternative to the Minimum Measures, *i.e.*, the option of seeking a permit under 40 C.F.R. § 122.26(d), the Minimum Measures do not present significant Tenth Amendment problems demanding a clear statement of congressional intent. Nor does the Phase II Rule alter the federal-state balance. To the contrary, the option of seeking a permit under 40 C.F.R. § 122.26(d) maintains precisely the same federal-state balance as existed prior to the Phase II Rule. *See, e.g., Natural Res. Def. Council v. EPA,* 966 F.2d 1292 (9th Cir.1992) (reviewing Phase I Rule); *Natural Res. Def. Council v. Costle,* 568 F.2d 1369, 1379 (D.C.Cir.1977) (denying EPA authority to exempt MS4s from regulation under the Clean Water Act). Furthermore, even if a clear statement of congressional intent were necessary, § 402(p) of the Clean Water Act is replete with clear statements that Congress intended EPA to require MS4s either to obtain NPDES permits or to stop discharging stormwater.

***846** The Municipal Petitioners contend that the measures regulating illicit discharges, small construction sites, and development activities unconstitutionally compel small MS4 operators to regulate third parties, *i.e.*, upstream dischargers. The Illicit Discharge Detection and Elimination measure requires that a permit seeker prohibit non-stormwater discharges to the MS4 and implement appropriate enforcement procedures. 40 C.F.R. § 122.34(b)(3)(ii)(B).[FN19] The Construction Site Stormwater Runoff Control measure requires a permit seeker to implement and enforce a program to reduce stormwater pollutants from small construction sites. *Id.* at §§ 122.34(b)(4)(i)-(ii).[FN20] It mandates erosion and sedimentation controls, site plan reviews that take account of water quality impacts, site inspections, and the consideration of public comment, and requires that construction site operators implement erosion, sedimentation, and waste management best management practices. *Id.* The Post-Construction/New Development measure requires permit seekers to address post-construction runoff from new development and redevelopment projects disturbing one acre or more. *Id.* at § 122.34(b)(5)(ii)(B).[FN21]

FN19. This subsection provides that permit seekers must, "[t]o the extent allowable under State, Tribal, or local law, effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into your storm sewer systems and implement appropriate enforcement procedures and actions...."40 C.F.R. § 122.34(b)(3)(ii)(B).

FN20. This subsection provides that permit seekers "must develop, implement, and enforce a program to reduce pollutants in any storm water runoff to your small MS4 from construction activities that result in a land disturbance of greater than or equal to

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> one acre.... [The] program must include the development and implementation of, at a minimum: (A) An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law; (B) Requirements for construction site operators to implement appropriate erosion and sediment control best management practices; (C) Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality; (D) Procedures for site plan review which incorporate consideration of potential water quality impacts; (E) Procedures for receipt and consideration of information submitted by the public, and (F) Procedures for site inspection and enforcement control measures." 40 C.F.R. §§ 122.34(b)(4)(i)-(ii).
>
> FN21. This subsection provides that permit seekers must "[u]se an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects [disturbing one acre or more] to the extent allowable under State, Tribal or local law." 40 C.F.R. §§ 122.34(b)(5)(ii)(B).

Noting that most MS4s are operated by municipal governments, and that "[t]he drainage of a city in the interest of the public health and welfare is one of the most important purposes for which the police power can be exercised," *New Orleans Gaslight Co. v. Drainage Comm'n,* 197 U.S. 453, 460, 25 S.Ct. 471, 49 L.Ed. 831 (1905), the Municipal Petitioners argue that requiring operators of small MS4s to implement "through ordinance or other regulatory mechanism" the regulations required by the Minimum Measures contravenes the Tenth Amendment. *See, e.g., New York v. United States,* 505 U.S. 144, 188, 112 S.Ct. 2408, 120 L.Ed.2d 120 (1992).

EPA counters that the Phase II Rule does not violate the Tenth Amendment because operators of small MS4s may opt to avoid the Minimum Measures by seeking a permit under the Alternative Permit ***847** option, 40 C.F.R. § 122.33(b)(2)(ii).[FN22]

> FN22. EPA and NRDC also argue that the Minimum Measures are facially constitutional, and that the Phase II Rule presents no Tenth Amendment difficulties because operators of small MS4s may avoid stormwater regulation entirely by electing not to discharge stormwater into federal waters in the first place. In light of our holding with regard to the Alternative Permit option, we do not consider these arguments.

[6][7][8] Under the Tenth Amendment, "the Federal Government may not compel States to implement, by legislation or executive action, federal regulatory programs." *Printz v. United States,* 521 U.S. 898, 925, 117 S.Ct. 2365, 138 L.Ed.2d 914 (1997); *see also New York,* 505 U.S. at 188, 112 S.Ct. 2408. Similarly, the federal government may not force the States to regulate third parties in furtherance of a federal program. *See Reno v. Condon,* 528 U.S. 141, 151, 120 S.Ct. 666, 145 L.Ed.2d 587 (2000) (upholding a federal statutory scheme because it "does not require the States in their sovereign capacity to regulate their own citizens"). These protections extend to municipalities. *See, e.g., Printz* 521 U.S. at 931 n. 15, 117 S.Ct. 2365.

[9][10] However, while the federal government may not *compel* them to do so, it may *encourage* States and municipalities to implement federal regulatory programs. *See New York,* 505 U.S. at 166-68, 112 S.Ct. 2408. For example, the federal government may make certain federal funds available only to those States or municipalities that enact a given regulatory regime. *See, e.g., South Dakota v. Dole,* 483 U.S. 203, 205-08, 107 S.Ct. 2793, 97 L.Ed.2d 171 (1987) (upholding federal statute conditioning state receipt of federal highway funds on state adoption of minimum drinking age of twenty-one). The crucial proscribed element is coercion; the residents of the State or municipality must retain "the ultimate decision" as to whether or not the State or municipality will comply with the federal regulatory program. *New York,* 505 U.S. at 168, 112 S.Ct. 2408. However, as long as "the alternative to implementing a federal regulatory program does not offend the Constitution's guarantees of federalism,

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the fact that the alternative is difficult, expensive or otherwise unappealing is insufficient to establish a Tenth Amendment violation." *City of Abilene v. EPA*, 325 F.3d 657, 662 (5th Cir.2003).

[11] With the Phase II Rule, EPA gave the operators of small MS4s a choice: either implement the regulatory program spelled out by the Minimum Measures described at 40 C.F.R. § 122.34(b), or pursue the Alternative Permit option and seek a permit under the Phase I Rule as described at 40 C.F.R. § 122.26(d). Thus, unless § 122.26(d) itself offends the Constitution's guarantees of federalism, the Phase II Rule does not violate the Tenth Amendment.

Pursuing a permit under the Alternative Permit option does require permit seekers, in their application for a permit to discharge, to propose management programs that address substantive concerns similar to those addressed by the Minimum Measures. *See*40 C.F.R. § 122.26(d). However, § 122.26(d) lists the requirements for an *application* for a permit to discharge, not the requirements of the permit itself. Therefore, nothing in § 122.26(d) requires the operator of an MS4 to implement a federal regulatory program in order to receive a permit to discharge, because nothing in § 122.26(d) specifies the contents of the permit that will result from the application process.

City of Abilene, 325 F.3d 657, provides a helpful illustration. The cities of Abilene and Irving, Texas, have populations between 100,000 and 250,000, and so were ***848** required to apply for permits under the Phase I Rule, 40 C.F.R. § 122.26(d). *City of Abilene*, 325 F.3d at 659-60. Under § 122.26(d) the cities were required to submit proposed stormwater management programs. *Id.* at 660. They negotiated the terms of those programs with EPA, and EPA eventually presented the cities with proposed management permits that contained conditions requiring the implementation of stormwater regulatory programs, and potentially requiring the regulation of third parties. *Id.* But, as the Fifth Circuit noted, this did not mean that the cities had no choice but to implement a federal regulatory program. Instead:

> The Cities filed comments objecting to those conditions, and negotiations continued until the EPA offered the Cities the option of pursuing numeric end-of-pipe permits, which would have required the Cities to satisfy specific effluent limitations rather than implement management programs. The Cities declined this offer, electing to continue negotiations on the management permits.

Id. The Fifth Circuit rejected the cities' contention that the resulting permits violated the Tenth Amendment by requiring the cities to regulate third parties according to federal standards. *Id.* at 661-63. Because the cities chose to pursue the management permits despite the fact that EPA provided them with an option for obtaining permits that would not have involved implementing a management program or regulating third parties, no unconstitutional coercion occurred. *Id.* at 663. The ultimate decision to implement the federal program remained with the cities.

Any operator of a small MS4 that wishes to avoid the Minimum Measures may seek a permit under § 122.26(d), and, as *City of Abilene* demonstrates, nothing in § 122.26(d) will compel the operator of a small MS4 to implement a federal regulatory program or regulate third parties, because § 122.26(d) specifies application requirements, not permit requirements. Therefore, by presenting the option of seeking a permit under § 122.26(d), the Phase II Rule avoids any unconstitutional coercion. The Municipal Petitioners' claim that the Phase II Rule violates the Tenth Amendment therefore fails.

3. The First Amendment and the Minimum Measures

The Municipal Petitioners contend that the Public Education and Illicit Discharge Minimum Measures compel municipalities to deliver EPA's political message in violation of the First Amendment. The Phase II Rule's "Public Education and Outreach" Minimum Measure directs regulated small MS4s to "distribute educational materials to the community ... about the impacts of stormwater discharges on water bodies and the steps the public can take to reduce pollutants in stormwater runoff." 40 C.F.R. § 122.34(b)(1)(i). The "Illicit Discharge Detection and Elimination" measure requires regulated small MS4s to "[i]nform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste." 40

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C.F.R. § 122.34(b)(3)(ii)(D).

[12] The Municipal Petitioners argue that the First Amendment prohibits EPA from compelling small MS4s to communicate messages that they might not otherwise wish to deliver. They further contend that EPA's interpretation of § 402(p) as authorizing these Measures does not warrant *Chevron* deference because it raises serious constitutional issues, but that even if deference were given, the resulting rule is unconstitutional because neither Congress nor EPA may dictate the speech of MS4s. They contend that municipalities are protected by the First Amendment, ***849** *Pacific Gas & Elec. v. Public Utilities Comm'n,* 475 U.S. 1, 8, 106 S.Ct. 903, 89 L.Ed.2d 1 (1986) ("Corporations and other associations, like individuals, contribute to the [discourse] that the First Amendment seeks to foster...."), which applies as much to compelled statements of "fact" as to those of "opinion." *Riley v. Nat'l Fed. of the Blind,* 487 U.S. 781, 797-98, 108 S.Ct. 2667, 101 L.Ed.2d 669 (1988).

We conclude that the purpose of the challenged provisions is legitimate and consistent with the regulatory goals of the overall scheme of the Clean Water Act, *cf. Glickman v. Wileman Bros. & Elliott, Inc.*, 521 U.S. 457, 476, 117 S.Ct. 2130, 138 L.Ed.2d 585 (1997), and does not offend the First Amendment.[FN23] The State may not constitutionally require an individual to disseminate an ideological message, *Wooley v. Maynard,* 430 U.S. 705, 713, 97 S.Ct. 1428, 51 L.Ed.2d 752 (1977), but requiring a provider of storm sewers that discharge into national waters to educate the public about the impacts of stormwater discharge on water bodies and to inform affected parties, including the public, about the hazards of improper waste disposal falls short of compelling such speech.[FN24] These broad requirements do not dictate a specific message. They require appropriate educational and public information activities that need not include any specific speech at all. A regulation is facially unconstitutional only when every possible reading compels it, *Meinhold v. U.S. Dep't of Def.,* 34 F.3d 1469, 1476 (9th Cir.1994),[FN25] but this is clearly not the case here.

FN23. We decline to address two further arguments raised by EPA: first, that municipalities do not receive full First Amendment protections, under *Muir v. Alabama Educational Television Commission,* 688 F.2d 1033, 1038 n. 12 (5th Cir.1982) (*en banc*) ("Government expression, being unprotected by the First Amendment, may be subject to legislative limitation which would be impermissible if sought to be applied to private expression ...."), and *Aldrich v. Knab,* 858 F.Supp. 1480, 1491 (W.D.Wash.1994) (holding that "unlike private broadcasters, the state itself does not enjoy First Amendment rights"), and second, that even if the First Amendment were fully applicable, the Phase II regulations would satisfy them because MS4s may avoid the compulsion to speak by seeking a permit under the Alternative option, 40 C.F.R. § 122.26(d)(2)(iv), rather than under the Minimum Measures.

FN24. As a subsidiary matter, we note that it also falls short of compelling the MS4 to "regulate" third parties in contravention of the Tenth Amendment. Dispensing information to facilitate public awareness about safe disposal of toxic materials constitutes "encouragement," not regulation.

FN25. "When the constitutional validity of a statute or regulation is called into question, it is a cardinal rule that courts must first determine whether a construction is possible by which the constitutional problem may be avoided." *Meinhold,* 34 F.3d at 1476.

As in *Zauderer v. Office of Disciplinary Counsel of the Sup. Ct. of Ohio,* 471 U.S. 626, 105 S.Ct. 2265, 85 L.Ed.2d 652 (1985), where the Supreme Court upheld certain disclosure requirements in attorney advertising, "[t]he interests at stake in this case are not of the same order as those discussed in *Wooley* [invalidating a law requiring that drivers display the motto 'Live Free or Die' on New Hampshire license plates] ... and *Barnette* [forbidding the requirement that public school students salute the flag because the State may not impose on the individual 'a ceremony so touching matters of opinion and political attitude']." *Id.* at 651. EPA has not attempted to "prescribe what shall be orthodox in politics, nationalism, religion, or other matters of opinion or force citizens to confess by word or act their faith

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therein." *West Virginia State Bd. of Ed. v. Barnette*, 319 U.S. 624, 642, 63 S.Ct. 1178, 87 L.Ed. 1628 (1943).

***850** Informing the public about safe toxin disposal is non-ideological; it involves no "compelled recitation of a message" and no "affirmation of belief." *PruneYard Shopping Ctr. v. Robins*, 447 U.S. 74, 88, 100 S.Ct. 2035, 64 L.Ed.2d 741 (1980) (upholding state law protecting petitioning in malls and noting that "*Barnette* is inapposite because it involved the compelled recitation of a message containing an affirmation of belief"). It does not prohibit the MS4 from stating its own views about the proper means of managing toxic materials, or even about the Phase II Rule itself. Nor is the MS4 prevented from identifying its dissemination of public information as required by federal law, or from making available federally produced informational materials on the subject and identifying them as such.

Even if such a loosely defined public information requirement could be read as compelling speech, the regulation resembles another regulation that the Supreme Court has held permissible. In *Glickman*, 521 U.S. 457, 117 S.Ct. 2130, 138 L.Ed.2d 585, the Court upheld a generic advertising assessment promulgated by the Department of Agriculture on behalf of California tree fruit growers because the order was consistent with an overall regulatory program that did not abridge protected speech:

> Three characteristics of the regulatory scheme at issue distinguish it from laws that we have found to abridge the freedom of speech protected by the First Amendment. First, the marketing orders impose no restraint on the freedom of any producer to communicate any message to any audience. Second, they do not compel any person to engage in any actual or symbolic speech. Third, they do not compel the producers to endorse or to finance any political or ideological views. Indeed, since all of the respondents are engaged in the business of marketing California nectarines, plums, and peaches, it is fair to presume that they agree with the central message of the speech that is generated by the generic program.

Id. at 469-70, 117 S.Ct. 2130 (footnotes omitted). Here, as in *Glickman*, the Phase II regulations impose no restraint on the freedom of any MS4 to communicate any message to any audience. They do not compel any specific speech, nor do they compel endorsement of political or ideological views. And since all permittees are engaged in the handling of stormwater runoff that must be conveyed in reasonably unpolluted form to national waters, it is similarly fair to presume that they will agree with the central message of a public safety alert encouraging proper disposal of toxic materials.[FN26] The Phase II regulation departs only from the second element in the *Glickman* analysis, because the public information requirement may compel a ***851** regulated party to engage in some speech at some time; but unlike the offensive messages in *Maynard* and *Barnette* (and even the inoffensive advertising messages at issue in *Glickman*) that speech is not specified by the regulation.[FN27]

> FN26. In its most recent treatment of compelled speech, the Supreme Court held that a generic advertising campaign violated free speech where the message was specific and antagonistic to the preferred advertising message of the plaintiff, and the regulation compelling participation was not part of a broader regulatory apparatus already constraining the plaintiff's autonomy in the relevant arena. *United States Dep't. of Agriculture v. United Foods*, 533 U.S. 405, 410-17, 121 S.Ct. 2334, 150 L.Ed.2d 438 (2001). The court distinguished this advertising program from the one in *Glickman* on the latter point: "[t]he program sustained in *Glickman* differs from the one under review in a most fundamental respect. In *Glickman* the mandated assessments for speech were ancillary to a more comprehensive program restricting market autonomy." *Id.* at 411, 121 S.Ct. 2334. Although the Phase II Rule is not an advertising or marketing regulation, it constitutes a "comprehensive program" restricting the autonomy of MS4s in the relevant arena of controlling toxic discharges to storm sewers that drain to U.S. waters.
>
> FN27. In deciding the similar question of whether a regulation impermissibly compelled speech by requiring

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> manufacturers of mercury-containing products to inform consumers how to dispose safely of the toxic material, the Second Circuit held that "mandated disclosure of accurate, factual, commercial information does not offend the core First Amendment values of promoting efficient exchange of information or protecting individual liberty interests." *Nat'l Elec. Mfrs. Ass'n v. Sorrell*, 272 F.3d 104, 114 (2d Cir.2001). What speech may follow from the Phase II directive will not be "commercial" in the same sense that manufacturer labeling is, but it will be similar in substance to *Sorrell* to the extent that it informs the public how to dispose safely of toxins. We think the policy considerations underlying the commercial speech treatment of labeling requirements, *see, e.g.*, the Federal Cigarette Labeling and Advertising Act, 15 U.S.C. §§ 1333-39, apply similarly in the context of the market-participant municipal storm sewer provider.

The public information requirement does not impermissibly compel speech, and nothing else in the Phase II Rule offends the First Amendment.[FN28] The Rule does not compel a recitation of a specific message, let alone an affirmation of belief. To the extent MS4s are regulated by the public information requirement, the regulation is consistent with the overall regulatory program of the Clean Water Act and the responsibilities of point source dischargers.

> FN28. The Alternative option contains a public education requirement that is similar but even less specific, and therefore even less burdensome, than the requirements in the Minimum Measures. *See* § 122.26(d)(2)(iv)(B)(6) (requiring permit seekers to propose programs to counter illicit discharges, including a "description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials").

4. Notice and Comment on the Alternative Permit Option

The Municipal Petitioners contend that, in adopting the Alternative Permit option, EPA did not comply with the minimum notice and comment procedures required in informal rulemaking by the Administrative Procedures Act ("APA"), 5 U.S.C. § 553. The APA requires an agency to publish notice of a proposed rulemaking that includes "either the terms or substance of the proposed rule or a description of the subjects and issues involved." *Id.* at § 553(b)(3).

[13] We have held that a "final regulation that varies from the proposal, even substantially, will be valid as long as it is 'in character with the original proposal and a logical outgrowth of the notice and comments.' " *Hodge v. Dalton*, 107 F.3d 705, 712 (9th Cir.1997). In determining whether notice was adequate, we consider whether the complaining party should have anticipated that a particular requirement might be imposed. The test is whether a new round of notice and comment would provide the first opportunity for interested parties to offer comments that could persuade the agency to modify its rule. *Am. Water Works Ass'n v. EPA*, 40 F.3d 1266, 1274 (D.C.Cir.1994).

The Municipal Petitioners argue that the Alternative Permit option is not a logical outgrowth of EPA's proposed rule because, although numerous alternatives were discussed in the Preamble to the proposed rule, 63 Fed. Reg. at 1554-1557, the Alternative Permit option eventually adopted was not. EPA counters that the proposed rule included a supplementary alternative permitting system based on concepts similar to those in the Minimum ***852** Measures, including "simplified individual permit application requirements."[FN29] EPA contends that the Alternative Permit option was a logical outgrowth of the comments it received on the proposal expressing concern that the Minimum Measures might violate the Tenth Amendment. 64 Fed. Reg. at 68,765.

> FN29. Municipal Petitioners concede that "simplified individual permit application requirements" were discussed, but they contend that the permit requirements discussed are not sufficiently similar to those promulgated to establish a logical outgrowth.

[14] The Alternative Permit option passes the *Hodge* test. The proposed rule suggested an individualized

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permitting option to be developed in response to comments during the notice and comment period. The Alternative option contains no elements that were not part of the original rule, even if they are configured differently in the final rule. Petitioners had, and took, their opportunity to object to the aspects of the Rule that they did not support in their comments on the Minimum Measures.

B. The General Permit Option and Notices of Intent

The Environmental Petitioners contend that the general permitting scheme of the Phase II Rule allows regulated small MS4s to design stormwater pollution control programs without adequate regulatory and public oversight, and that it contravenes the Clean Water Act because it does not require EPA to review the content of dischargers' notices of intent and does not contain express requirements for public participation in the NPDES permitting process.

In reviewing a federal administrative agency's interpretation of a statute it administers, we first determine whether Congress has expressed its intent unambiguously on the question before the court. *See Chevron*, 467 U.S. 837, 842-44, 104 S.Ct. 2778, 81 L.Ed.2d 694 ("If the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress."). "If, instead, Congress has left a gap for the administrative agency to fill, we proceed to step two. At step two, we must uphold the administrative regulation unless it is arbitrary, capricious, or manifestly contrary to the statute." *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1162,*amended by* 197 F.3d 1035 (9th Cir.1999) (citations and internal quotations omitted).

[15] We conclude that the Phase II General Permit option violates the Clean Water Act's requirement that permits for discharges "require controls to reduce the discharge of pollutants to the maximum extent practicable,"33 U.S.C. § 1342(p)(3)(B)(iii). We also conclude that the Phase II General Permit option violates the Clean Water Act because it does not contain express requirements for public participation in the NPDES permitting process. We remand these aspects of the Phase II Rule.[FN30]

FN30. EPA argues that the Environmental Petitioner's challenge is not ripe for review because "the question of whether some general permit somewhere might fail to assure that pollutants are reduced to the maximum extent practicable is not ripe for review." But we are not addressing the merits of any specific permit. Rather, the question before us "is purely one of statutory interpretation that would not benefit from further factual development of the issues presented." *Whitman v. American Trucking*, 531 U.S. 457, 479, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001). Specifically, we are addressing whether EPA, in promulgating the Phase II Rule, has accomplished the substantive controls for municipal stormwater that Congress mandated in § 402(p) of the Clean Water Act. As we held in *Natural Resources Defense Council v. EPA*, 966 F.2d at 1296-97, 1308, this question is ripe for review.

853** ***1. Phase II General Permits and Notices of Intent

Primary responsibility for enforcement of the requirements of the Clean Water Act is vested in the Administrator of the EPA. 33 U.S.C. § 1251(d); *see also*33 U.S.C. § 1361(a) ("The Administrator [of EPA] is authorized to prescribe such regulations as are necessary to carry out his functions under this chapter."). The Clean Water Act renders illegal any discharge of pollutants not specifically authorized by a permit. 33 U.S.C. § 1311(a) ("Except in compliance with this section and [other sections detailing permitting requirements] of this title, the discharge of any pollutant by any person shall be unlawful."). Under the Phase II Rule, dischargers may apply for an individualized permit with the relevant permitting authority, or may file a "Notice of Intent" ("NOI") to seek coverage under a "general permit." 40 C.F.R. § 122.33(b).

A general permit is a tool by which EPA regulates a large number of similar dischargers. Under the traditional general permitting model, each general permit identifies the output limitations and technology-based requirements necessary to adequately protect water quality from a class of dischargers. Those dischargers may then acquire

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permission to discharge under the Clean Water Act by filing NOIs, which embody each discharger's agreement to abide by the terms of the general permit. Because the NOI represents no more than a formal acceptance of terms elaborated elsewhere, EPA's approach does not require that permitting authorities review an NOI before the party who submitted the NOI is allowed to discharge. General permitting has long been recognized as a lawful means of authorizing discharges. *Natural Res. Def. Council v. Costle*, 568 F.2d 1369 (D.C.Cir.1977).

The Phase II general permitting scheme differs from the traditional general permitting model. The Clean Water Act requires EPA to ensure that operators of small MS4s "reduce the discharge of pollutants to the maximum extent practicable." 33 U.S.C. § 1342(p)(3)(B). To ensure that operators of small MS4s achieve this "maximum extent practicable" standard, the Phase II Rule requires that each NOI contain information on an individualized pollution control program that addresses each of the six general criteria specified in the Minimum Measures; thus, according to the Phase II Rule, submitting an NOI and implementing the Minimum Measures it contains "constitutes compliance with the standard of reducing pollutants to the 'maximum extent practicable.' " 40 C.F.R. § 122.34(a).

Because a Phase II NOI establishes what the discharger will do to reduce discharges to the "maximum extent practicable," the Phase II NOI crosses the threshold from being an item of procedural correspondence to being a substantive component of a regulatory regime. The text of the Rule itself acknowledges that a Phase II NOI is a permit application that is, at least in some regards, functionally equivalent to a detailed application for an individualized permit. *See, e.g.*,40 C.F.R. § 122.34(d)(1) ("In your permit application (either a notice of intent for coverage under a general permit or an individual permit application), you must identify and submit to your NPDES permitting authority the following information...."). For this reason, EPA rejected the possibility of providing a "form NOI" to Phase II permittees, explaining that "[w]hat will be required on an MS4's NOI ... is more extensive than what is usually required on ***854** an NOI, so a 'form' NOI for MS4s may be impractical." 64 Fed. Reg. at 68,764.

2. Failure to Regulate

The Environmental Petitioners argue that, by allowing NPDES authorities to grant dischargers permits based on unreviewed NOIs, the Rule creates an impermissible self-regulatory system.[FN31] Petitioners contend the Rule impermissibly fails to require that the permitting authority review an NOI to assure compliance with Clean Water Act standards, including the standard that municipal stormwater pollution be reduced to "the maximum extent practicable." 33 U.S.C. § 1342(p)(3)(B)(iii). *See*40 C.F.R. § 123.35 (setting out requirements for permitting authorities, but not requiring review of NOI); 64 Fed. Reg. at 68,764 ("EPA disagrees that formal approval or disapproval by the permitting authority is needed").

> FN31. Petitioners suggest that EPA should be held to the standard it espoused to procure judicial approval for the Phase I program. In 1991, responding to NRDC's assertion that the Phase I Rule failed to set "hard criteria" for review of MS4 stormwater programs, EPA responded that "inadequate proposals will result in the denial of permit applications." Respondent's Brief at 67, *Natural Res. Def. Council v. EPA*, 966 F.2d 1292 (9th Cir.1992) (Nos. 91-70200, 91-70176, & 90-70671). Petitioners contend that this court relied on that representation in ruling for EPA on that issue. *Natural Res. Def. Council v. EPA*, 966 F.2d at 1308 n. 17 ("Individual NPDES permit writers ... will decide whether application proposals are adequate....").

EPA maintains that the Phase II permit system is fully consistent with the authorizing statute. It contends that § 402(p)(6) granted EPA flexibility in designing the Phase II "comprehensive program," and notes that while the statute does not require general permits, neither does it preclude them. EPA contends that Congress delegated the task of designing the program to EPA, and that EPA reasonably adopted a "flexible version" of the NPDES permit program to suit the unique needs of the Phase II program. It disputes that the general permit program creates "paper tigers," especially since EPA, States, and citizens may initiate enforcement actions. Finally, EPA argues that the

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Rule does not create a self-regulatory program, but that even if it did, nothing in § 402(p)(6) precludes such a program.

Reviewing the Phase II Rule under the first step of *Chevron*, we note that the plain language of § 402(p) of the Clean Water Act, 33 U.S.C. § 1342(p), expresses unambiguously Congress's intent that EPA issue no permits to discharge from municipal storm sewers unless those permits "require controls to reduce the discharge of pollutants to the maximum extent practicable."

Phase II general permits will likely impose requirements that ensure that operators of small MS4s comply with many of the standards of the Clean Water Act. Thus, general permits issued under Phase II will ordinarily contain numerous substantive requirements, just as did the permits issued under Phase I. *See*40 C.F.R. §§ 123.35 & 123.35(a) ("§ 123.35 As the NPDES Permitting Authority for regulated small MS4s, what is my role? (a) You must comply with the requirements for all NPDES permitting authorities under Parts 122, 123, 124 and 125 of this chapter."); *see also*40 C.F.R. § 122.28 (outlining requirements for NPDES authorities issuing general permits). And every operator of a small MS4 who files an NOI under Phase II "must comply with other applicable NPDES permit requirements, standards, and conditions established in ***855** the ... general permit." *See*40 C.F.R. §§ 122.34 & 122.34(f).

[16] However, while each Phase II general permit will likely ensure that operators of small MS4s comply with certain standards of the Clean Water Act, they will not "require controls to reduce the discharge of pollutants to the maximum extent practicable." According to the Phase II Rule, the operator of a small MS4 has complied with the requirement of reducing discharges to the "maximum extent practicable" when it implements its stormwater management program, *i.e.*, when it implements its Minimum Measures. 40 C.F.R. § 122.34(a); *see also*64 Fed. Reg. at 68753 (stating EPA's anticipation that limitations more stringent that the minimum control measures "will be unnecessary"). Nothing in the Phase II regulations requires that NPDES permitting authorities review these Minimum Measures to ensure that the measures that any given operator of a small MS4 has decided to undertake will *in fact* reduce discharges to the maximum extent practicable.[FN32]

> FN32. That the Rule allows a permitting authority to review an NOI is not enough; every permit must comply with the standards articulated by the Clean Water Act, and unless every NOI issued under a general permit is reviewed, there is no way to ensure that such compliance has been achieved.
>
> The regulations do require NPDES permitting authorities to provide operators of small MS4s with "menus" of management practices to assist in implementing their Minimum Measures, *see*40 C.F.R. § 123.35(g), but again, nothing requires that the combination of items that the operator of a small MS4 selects from this "menu" will have the combined effect of reducing discharges to the maximum extent practicable.
>
> Nor is the availability of citizen enforcement actions a substitute for EPA's enforcement responsibility, especially because, as discussed below, the Rule does not require that NOIs be publicly available. Absent review on the front end of permitting, the general permitting regulatory program loses meaning even as a procedural exercise.

*See*40 C.F.R. § 123.35 ("As the NPDES Permitting Authority for regulated small MS4s, what is my role?"). Therefore, under the Phase II Rule, nothing prevents the operator of a small MS4 from misunderstanding or misrepresenting its own stormwater situation and proposing a set of minimum measures for itself that would reduce discharges by far less than the maximum extent practicable.

In fact, under the Phase II Rule, in order to receive the protection of a general permit, the operator of a small MS4 needs to do nothing more than decide for itself what reduction in discharges would be the maximum practical reduction. No one will review that operator's decision to make sure that it was reasonable, or even good faith.[FN33] Therefore, as the Phase II Rule stands, EPA would allow permits to

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issue that would do less than *require* controls to reduce the discharge of pollutants to the maximum extent practicable.[FN34] *See****856** 64 Fed. Reg. at 68753 (explaining that the minimum control measures will protect water quality if they are "properly implemented"). We therefore must reject this aspect of the Phase II Rule as contrary to the clear intent of Congress. *Cf. Natural Res. Def. Council,* 966 F.2d at 1305 (rejecting as arbitrary and capricious a permitting system that allowed regulated industrial stormwater dischargers to "self-report" whether they needed permit coverage).

FN33. EPA identifies no other general permitting program that leaves the choice of substantive pollution control requirements to the regulated entity, and we are not persuaded by the analogy it urges to the traditional model of general permitting (where NOIs routinely are not reviewed), because, as we have noted, the Phase II general permit model is substantially dissimilar.

FN34. In its petition for rehearing, EPA argues for the first time that because the regulations require NPDES Permitting Authorities to include in general permits "any additional measures necessary" to ensure that the maximum extent practicable standard is met, 40 C.F.R. §§ 123.35(h)(1), 123.35(f) (incorporating by reference the "maximum extent practicable" requirement of 40 C.F.R. §§ 122.34(a)), 122.34(f) (requiring small MS4s to comply with additional measures), the Phase II Rule ensures that discharges will be reduced to the maximum extent practicable.

The trouble with EPA's reasoning is that the Phase II Rule defines the "maximum extent practicable" standard in such a way that no "additional measures" will ever be necessary under § 123.35(h)(1). While a Permitting Authority may impose additional measures, nothing compels it to do so because, merely by implementing the best management practices that the operator of a small MS4 has chosen for itself, that small MS4 will already have met the "maximum extent practicable" standard. *See*40 C.F.R. § 122.34(a).

Involving regulated parties in the development of individualized stormwater pollution control programs is a laudable step consistent with the directive to consult with state and local authorities in the development of the § 402(p)(6) comprehensive program. But EPA is still required to ensure that the individual programs adopted are consistent with the law. Our holding should not prevent the Phase II general permitting program from proceeding mostly as planned. Our holding does not preclude regulated parties from designing aspects of their own stormwater management programs, as contemplated under the Phase II Rule. However, stormwater management programs that are designed by regulated parties must, in every instance, be subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable. We therefore remand this aspect of the Rule.

3. Public Participation

The Environmental Petitioners contend that the Phase II Rule fails to provide for public participation as required by the Clean Water Act, because the public receives neither notice nor opportunity for hearing regarding an NOI. The EPA replies on the one hand by arguing that NOIs are not "permits" and therefore are not subject to the public availability and public hearing requirements of the Clean Water Act, and on the other hand by arguing that the combination of the public involvement minimum measure, 40 C.F.R. § 122.34(b)(2), the Federal Freedom of Information Act, 5 U.S.C. § 552, and state freedom of information acts would fulfill any such requirements if NOIs were permits.

Reviewing the Phase II Rule under *Chevron* step one, we conclude that clear Congressional intent requires that NOIs be subject to the Clean Water Act's public availability and public hearings requirements. The Clean Water Act requires that "[a] copy of each permit application and each permit issued under [the NPDES permitting program] shall be available to the public,"33 U.S.C. § 1342(j), and that the public shall have an opportunity for a hearing before an permit application is approved, 33 U.S.C. § 1342(a)(1). Congress identified public participation rights as a

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critical means of advancing the goals of the Clean Water Act in its primary statement of the Act's approach and philosophy. *See*33 U.S.C. § 1251(e); *see also Costle v. Pacific Legal Found.*, 445 U.S. 198, 216, 100 S.Ct. 1095, 63 L.Ed.2d 329 (1980) (noting the "general policy of encouraging public participation is applicable to the administration of the NPDES permit program"). EPA has acknowledged that technical issues relating to the issuance of NPDES permits should be decided in "the most open, accessible forum possible,***857** and at a stage where the [permitting authority] has the greatest flexibility to make appropriate modifications to the permit." 44 Fed. Reg. 32,854, 32,885 (June 7, 1979).

As we noted above, under the Phase II Rule it is the NOIs, and not the general permits, that contain the substantive information about how the operator of a small MS4 will reduce discharges to the maximum extent practicable. Under the Phase II Rule, NOIs are functionally equivalent to the permit applications Congress envisioned when it created the Clean Water Act's public availability and public hearing requirements. Thus, if the Phase II Rule does not make NOIs "available to the public," and does not provide for public hearings on NOIs, the Phase II Rule violates the clear intent of Congress. EPA's first argument-that NOIs are not subject to the public availability and public hearings requirements of the Clean Water Act-therefore fails.

We therefore reject the Phase II Rule as contrary to the clear intent of Congress insofar as it does not provide for public hearings on NOIs as required by 33 U.S.C. § 1342(a)(1). However, Congress has not directly addressed the question of what would constitute an NOI being "available to the public" as required by 33 U.S.C. § 1342(j). Under *Chevron* step two, we must defer to EPA's interpretation of "available to the public" unless it is arbitrary, capricious, or manifestly contrary to the statute.

[17] EPA argues that the NOIs are "available to the public" as a result of the combined effects of the public participation minimum measures, and of federal and state freedom of information acts. This argument is unconvincing. First, the public participation Minimum Measure only requires dischargers to design a program minimally consistent with State, Tribal, and local requirements. 40 C.F.R. § 122.34(b)(2). Second, the federal Freedom of Information Act only applies to documents that are actually in EPA's possession, not to documents that are in the possession of state or tribal NPDES authorities, *see*40 C.F.R. § 2 (providing EPA's policy for releasing documents under the federal Freedom of Information Act), and nothing in the Phase II Rule provides that EPA obtain possession of every NOI that is submitted to a NPDES permitting authority. *See*40 C.F.R. § 123.41(a) (making information provided to state NPDES authorities available to EPA only *upon request*). Thus, under the Phase II Rule, NOIs will only "be available to the public" subject to the vagaries of state and local freedom of information acts. We conclude that EPA's interpretation of 33 U.S.C. § 1342(j), as embodied in the provisions of the Phase II Rule providing for the public availability of NOIs, is manifestly contrary to the Clean Water Act, which contemplates greater scope, greater certainty, and greater uniformity of public availability than the Phase II Rule provides. We therefore reject this aspect of the Phase II Rule.[FN35]

> FN35. EPA argues for the first time in its petition for rehearing that NOIs will be publicly available under 40 C.F.R. § 122.34(g)(2). Addressing operators of regulated small MS4s, this section provides: "You must make your records, including a description of your storm water management program, available to the public at reasonable times during regular business hours." While this section does seem to provide for the public availability of a small MS4's records, we are troubled that nothing in EPA's initial briefs indicated that EPA considered NOIs to be subject to this section. We normally defer to an agency's interpretations of its own regulations, but we may decline to defer to the *post hoc* rationalizations of appellate counsel. *See, e.g., Martin v. Occupational Safety and Health Review Commission,* 499 U.S. 144, 150, 156, 111 S.Ct. 1171, 113 L.Ed.2d 117 (1991). If EPA intends this section to provide for the public availability of NOIs-for example because it intends NOIs to be among the records subject to this section-it may clarify on remand.

***858** In sum, we conclude that EPA's failure to require review of NOIs, which are the functional

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equivalents of permits under the Phase II General Permit option, and EPA's failure to make NOIs available to the public or subject to public hearings contravene the express requirements of the Clean Water Act. We therefore vacate those portions of the Phase II Rule that address these procedural issues relating to the issuance of NOIs under the Small MS4 General Permit option, and remand so that EPA may take appropriate action to comply with the Clean Water Act.

C. Failure to Designate

We reject the Environmental Petitioners' contention that EPA's failure to designate for Phase II regulation serious sources of stormwater pollution, including certain industrial ("Group A") sources and forest roads, was arbitrary and capricious. *See Marsh v. Oregon Natural Res. Council*, 490 U.S. 360, 378, 109 S.Ct. 1851, 104 L.Ed.2d 377 (1989).[FN36]

> FN36. Agency determinations based on the record are reviewed under the "arbitrary and capricious" standard. 5 U.S.C. § 706(2)(A). The standard is narrow and the reviewing court may not substitute its judgment for that of the agency. *Marsh*, 490 U.S. at 378, 109 S.Ct. 1851. However, the agency must articulate a rational connection between the facts found and the conclusions made. *Washington v. Daley*, 173 F.3d 1158, 1169 (9th Cir.1999). The reviewing court must determine whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment. *Marsh*, 490 U.S. at 378, 109 S.Ct. 1851. The court may reverse under the "arbitrary and capricious" standard only if the agency:
>
> > has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.
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> *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43, 103 S.Ct. 2856.

1. "Group A" Facilities

In addition to the small MS4s and construction sites ultimately designated for regulation under the Phase II Rule, EPA evaluated a variety of other point-source discharge categories for potential Phase II regulation. One group of dischargers (referred to as the "Group A" facilities) included sources that "are very similar, or identical" to regulated stormwater discharges associated with industrial activity that were not designated for Phase I regulation for administrative reasons unrelated to their environmental impacts.[FN37] 64 Fed. Reg. at 68,779. EPA estimates that Group A includes approximately 100,000 facilities, including auxiliary facilities and secondary activities ("*e.g.*, maintenance of construction equipment and vehicles, local trucking for an unregulated facility such as a grocery store,"*id.*) and facilities intentionally omitted from Phase I designation ("*e.g.*, publicly owned treatment works with a design flow of less than 1 million gallons per day, landfills that have not received industrial waste,"*id.*).

> FN37. EPA explains that the Group A facilities were not regulated with the other Phase I sources because EPA used Standard Industrial Classification Index (SIC) codes in defining the universe of regulated industrial activities: "By relying on SIC codes, a classification system created to identify industries rather than environmental impacts from these industries [sic] discharges, some types of storm water discharges that might otherwise be considered 'industrial' were not included in the existing NPDES storm water program." 64 Fed. Reg. at 68,779.

***859** The Environmental Petitioners contend that EPA should have designated the Group A facilities for categorical Phase II regulation after finding (1) that stormwater discharges from these facilities are the same as those from the industrial sources regulated under Phase I, and (2) that such discharges may cause "adverse water quality impacts." *Id.* Petitioners argue that these findings, and EPA's failure to provide individualized analysis regarding whether any specific source category within Group A

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requires regulation, render EPA's decision not to regulate any of these sources under the Rule arbitrary and capricious. They maintain that EPA's "line-drawing," which regulates some pollution sources but leaves nearly identical sources unregulated without any persuasive rationale, is necessarily arbitrary and capricious. *See Natural Res. Def. Council,* 966 F.2d at 1306 (EPA's decision not to regulate construction sites smaller than five acres was arbitrary when EPA provided no data to justify the five-acre threshold and admitted that unregulated sites could have significant water quality impacts).

Petitioners argue that § 402(p)(6) at least required EPA to make findings with respect to individual Group A categories, and that data collected from Phase I permit applications could be used to evaluate the pollutant potential of the identical Group A sources. They contend that these findings should have sufficed as a basis for designating at least some Group A sources, and that EPA's conclusion that it lacked adequate nationwide data upon which to designate any of these sources is not supported by the record evidence. Comparing EPA's identification of the serious polluting potential of some of these sources with its statutory mandate under § 402(p)(6) "to protect water quality," they argue that EPA fails even the forgiving standard of arbitrary and capricious review in that it has "offered an explanation for its decision that runs counter to the evidence before [it]" and "is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *See Motor Vehicle Mfrs.,* 463 U.S. at 43, 103 S.Ct. 2856.

EPA maintains that it considered Group A facilities' similarity to already regulated sources as only one of several criteria that it used in designating sources for regulation under Phase II, 64 Fed. Reg. at 68,780, and that sources that appear "similarly situated" under one criterion are not necessarily similarly situated under all. EPA asserts that nothing in § 402(p)(6) implied a responsibility to make individualized findings regarding each Group A subcategory, and it maintains that it simply lacked sufficient data to support nationwide designation of the Group A facilities. EPA notes that, after failing to receive requested comment providing such data, it proposed instead "to protect water quality" by allowing regional regulation of problem Group A facilities under the residual designation authority. EPA contends that agencies must be afforded deference in determining the data necessary to support regulatory decisionmaking and that it reasonably determined the quantum of data it would need to support the designation of additional sources on a nationwide basis. *See Sierra Club v. EPA,* 167 F.3d 658, 662 (D.C.Cir.1999).

[18] We conclude that sufficient evidence supports EPA's decision not to designate Group A sources on a nationwide basis, and instead to establish local and regional designation authority to account for these sources and protect water quality. Although we are troubled by the purely administrative basis for the distinction between facilities regulated under the Phase I Rule and the Group A facilities ***860** that remain unregulated under Phase II,[FN38] EPA's choice of the Phase I standard for designation is not the issue before us. Before us is whether EPA acted arbitrarily in declining to designate the Group A sources on a nationwide basis under the Phase II Rule, and we cannot say that it did.

> FN38. As discussed in footnote 37, Group A facilities were not regulated with other Phase I industrial sources based on a government coding system used to distinguish different types of industry (without reference to their similar environmental impacts). *See*64 Fed. Reg. at 68,779.

EPA has articulated a rational connection between record facts indicating insufficient data to categorically regulate Group A facilities and its corresponding conclusion not to do so, and we defer to that decision. *See Washington v. Daley,* 173 F.3d 1158, 1169 (9th Cir.1999). In the text of the Rule, EPA explains that the process behind its decision not to nationally designate Group A sources for Phase II regulation focused not only on the likelihood of contamination from a source category, but also on the sufficiency of national data about each category and whether pollution concerns were adequately addressed by existing environmental regulations.[FN39] We cannot say that EPA relied on factors Congress had not intended it to consider, that it failed to consider an important aspect of the problem, or that its rationale is implausible. *See Motor Vehicle Mfrs.,* 463 U.S. at 43, 103 S.Ct. 2856. Nor did EPA's decision run counter to the evidence before it. *Id.*

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The Environmental Petitioners allege that its decision not to regulate Group A facilities runs counter to evidence that similar sources are highly polluting, but as EPA considered evidence beyond those similarities that persuaded it not to regulate, we cannot say that EPA's decision is unsupported by the record. Nothing in § 402(p)(6) unambiguously requires EPA to evaluate the Group A source categories individually, and we defer to EPA's interpretation of the statute it is charged with administering. *See Royal Foods Co. v. RJR Holdings,* 252 F.3d 1102, 1106 (9th Cir.2001).

> FN39. "In identifying potential categories of sources for designation in today's notice, EPA considered designation of discharges from Group A and Group B facilities. EPA applied three criteria to each potential category in both groups to determine the need for designation: (1) The likelihood for exposure of pollutant sources included in that category, (2) whether such sources were adequately addressed by other environmental programs, and (3) whether sufficient data were available at this time on which to make a determination of potential adverse water quality impacts for the category of sources. As discussed previously, EPA searched for applicable nationwide data on the water quality impacts of such categories of facilities...."
>
> > "EPA's application of the first criterion showed that a number of Group A and B sources have a high likelihood of exposure of pollutants.... Application of the second criterion showed that some categories were likely to be adequately addressed by other programs."
> >
> > "After application of the third criterion, availability of nationwide data on the various storm water discharge categories, EPA concluded that available data would not support any such nationwide designations. While such data could exist on a regional or local basis, EPA believes that permitting authorities should have flexibility to regulate only those categories of sources contributing to localized water quality impairments.... If sufficient regional or nationwide data become available in the future, the permitting authority could at that time designate a category of sources or individual sources on a case-by-case basis." 64 Fed. Reg. at 68,780.

2. Forest Roads

The Environmental Petitioners also contend that EPA arbitrarily failed to regulate forest roads under the Rule despite clear evidence in the record documenting the need for stormwater pollution control ***861** of drainage from these roads. Petitioners again contend that this agency action is arbitrary, because EPA has offered an explanation for its decision that runs counter to the evidence before it.

Petitioners point to EPA's own conclusion that forest roads "are considered to be the major source of erosion from forested lands, contributing up to 90 percent of the total sediment production from forestry operations."[FN40] They note that both unimproved forest roads and construction sites create large expanses of non-vegetated soil subject to stormwater erosion, and argue that construction site data thus also support regulation of forest roads. Petitioners observe that EPA has cited no contrary evidence indicating that forest roads are not sources of stormwater pollutant discharges to U.S. waters, and they argue that Phase II regulation is necessary "to protect water quality," because proper planning and road design can minimize erosion and prevent stream sedimentation. Petitioners note that this court has previously held that, in the absence of such "supportable facts," EPA is not entitled to the usual assumption that it has "rationally exercised the duties delegated to it by Congress." *Natural Res. Def. Council,* 966 F.2d at 1305.

> FN40. *Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Waters,* EPA guidance paper 840-B-93-001c (Jan. 1993), *available at* http://www.epa.gov/owow/nps/mmgi/index.html (last visited Sept. 18, 2002) ("Coastal Waters").

[19] EPA's response is that we have no jurisdiction to hear this challenge, chiefly because, it believes, the

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challenge is time-barred by Clean Water Act § 509(b)(1), 33 U.S.C. § 1369(b)(1) (providing that "application for review shall be made within 120 days from the date of [agency action]"). EPA promulgated silviculture regulations in 1976 that exclude from NPDES permit requirements certain silvicultural activities that EPA determined constitute non-point source activities, including "surface drainage, or road construction and maintenance from which there is natural runoff." 40 C.F.R. § 122.27(b)(1).[FN41] EPA asserts that the exclusion applies to forest roads in general, not only to "construction" and "maintenance"-an assertion disputed by Petitioners-and that any challenge to the decision not to regulate forest roads should have been brought within 120 days of the promulgation of that rule. *See*33 U.S.C. § 1369(b)(1).

> FN41. The provision provides in full as follows:
>
> > Silvicultural point source means any discernible, confined and discrete conveyance related to rock crushing, gravel washing, log sorting, or log storage facilities which are operated in connection with silvicultural activities and from which pollutants are discharged into waters of the United States. The term does not include non-point source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from which there is natural runoff. However, some of these activities (such as stream crossing for roads) may involve point source discharges of dredged or fill material which may require a CWA section 404 permit (See 33 CFR 209.120 and part 233).
>
> 40 C.F.R. § 122.27(b)(1).

EPA's argument might be more persuasive if Petitioners' contention could be understood essentially as a direct challenge to the 1976 silviculture regulations, but this is not the case. Even were we to assume that EPA exempted forest roads from NPDES permit requirements in 1976 under 40 C.F.R. § 122.27(b)(1), that would not resolve the question whether EPA should have addressed forest roads in its "comprehensive program ... to protect ***862** water quality" under § 402(p)(6), because § 402(p)(6) was not enacted until 1987. Petitioners challenge EPA's decision not to regulate under the new portion of the statute, not the decision not to regulate under other provisions that were in effect earlier.

EPA argues in the alternative that Petitioners should have sought judicial review when EPA considered amending § 122.27(b)(1)-to delete the language that it asserts renders forest roads non-point sources-but then determined not to make the amendment. However, we are aware of no statute or legal doctrine providing that a party's failure to challenge an agency's decision *not* to amend its rules in one proceeding deprives the party of the right to challenge, in a contemporaneous proceeding, the promulgation of an entire new rule which could have, but did not, provide the full relief the party seeks. Assuming that EPA is correct that § 122.27(b)(1) defines forest roads as non-point sources, both the Phase II Rule proceedings and the proceedings in which the proposed amendment to § 122.27(b)(1) was considered and rejected were proper proceedings in which to raise the issue whether discharges from forest roads should be regulated. Petitioners chose to raise the issue in their comments to the proposed Phase II Rule, because they believed that Clean Water Act § 402(p)(6) mandates the regulation of forest roads. They did not lose their right to challenge the final Phase II Rule's failure to regulate forest roads simply because they did not also raise a challenge to EPA's failure to adopt an amendment to § 122.27(b)(1) that the agency initially proposed. (We note, incidentally, that it appears that even a successful challenge to § 122.27(b)(1) would likely not have achieved the objective the Environmental Petitioners sought: it would only have allowed case-by-case coverage for forest roads, and not for overall coverage.)

[20] Finally, EPA suggests that Petitioners' comments during the Phase II rulemaking process were too short to create jurisdiction in this court to hear this challenge. However, EPA exaggerates the slightness of those comments, which comprised two paragraphs, with footnotes, stating objections and providing

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support. We also agree with Petitioners that EPA was aware of the forest road sedimentation problem at the time of the rulemaking.[FN42] Indeed, EPA responded to the comments without disputing that the problem is serious. 3 EPA, *Response to Public Comments* 8 (Oct. 29, 1999). Rather, the agency relied on 40 C.F.R. § 122.27(b)(1), indicating that it was barred from acting under the Phase II Rule by § 122.27(b)(1).

> FN42. Nonpoint Source Pollution: The Nation's Largest Water Quality Problem, EPA841-F-96-004A ("Pointer # 1") ("The latest *National Water Quality Inventory* indicates that agriculture is the leading contributor to water quality impairments, degrading 60 percent of the impaired river miles and half of the impaired lake acreage surveyed by states, territories, and tribes.").

EPA does not seriously address the merits of Petitioners' objections to the Rule in its brief to this court. Instead, EPA relies almost entirely on its assertion that we lack jurisdiction to decide this question. It does, however, strongly imply that its failure to adopt its own proposed amendment in the proceeding pertaining to § 122.27(b)(1) relieves it of its obligation to consider including forest roads in the Phase II Rule proceedings. We reject any such contention. Petitioners' assertion that § 402(p)(6) requires that the Phase II Rule contain provisions regulating forest roads necessitates a response from EPA on the merits.

***863** Having concluded that the objections of the Environmental Petitioners are not time-barred, and that we have jurisdiction to hear them, but that EPA failed to consider those objections on the merits, we remand this issue to the EPA, so that it may consider in an appropriate proceeding Petitioners' contention that § 402(p)(6) requires EPA to regulate forest roads. EPA may then either accept Petitioners' arguments in whole or in part, or reject them on the basis of valid reasons that are adequately set forth to permit judicial review.

D. AF&PA's Standing

The American Forestry & Paper Association (AF&PA), a national trade association representing the forest, pulp, paperboard, and wood products industry, is one of the two Industry Petitioners asserting the remaining claims.[FN43] Before considering these challenges, however, we consider whether AF&PA has standing to raise them.

> FN43. The Municipal Petitioners join in asserting the "regulatory basis" claim at Part II(F)(1).

EPA argues that AF&PA lacks standing because it cannot show that it represents entities that suffer a cognizable injury under the Phase II Rule as promulgated. EPA argues that the interests of AF&PA entities might have supported standing had EPA decided to regulate forest roads as Phase II stormwater dischargers, but since EPA declined to do so, none of AF&PA's members are currently subject to the Rule. AF&PA contends that its members have a cognizable legal interest in the Rule because they risk becoming subject to regulation at any future time under the continuing designation authority.

[21] We agree that AF&PA lacks standing. A claimant meeting Article III standing requirements must show that "(1) it has suffered an 'injury in fact' ...; (2) the injury is fairly traceable to the challenged action of the defendant; and (3) it is likely, as opposed to merely speculative, that the injury will be redressed by a favorable decision." *Friends of the Earth v. Laidlaw Envtl. Servs. (TOC)*, 528 U.S. 167, 180-81, 120 S.Ct. 693, 145 L.Ed.2d 610 (2000). Standing requires an injury that is "actual or imminent, not 'conjectural or hypothetical.' " *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560, 112 S.Ct. 2130, 119 L.Ed.2d 351 (1992). AF&PA's interest in avoiding future regulation of forest roads is not actually or imminently threatened by any potential result in this case. No ripe claim about misuse of the residual authority to regulate forest road discharge, or any other kind of discharge, is before the court. Should members of AF&PA become subject to Phase II regulation through subsequent administrative action, it will have standing to challenge those actions at that time. In the meanwhile, we proceed to the merits of the remaining claims on behalf of AF&PA's co-petitioner, the National Association of Home Builders, which has established its standing to raise them.

E. Consultation with State and Local Officials

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The Industry Petitioners contend that EPA failed to consult with the States on the Phase II Rule as required by § 402(p)(5), which instructs EPA to conduct studies "in consultation with the States," and § 402(p)(6), which instructs the Administrator to issue regulations based on these studies "in consultation with State and local officials." 33 U.S.C. §§ 1342(p)(5)-(6). We conclude that EPA satisfied its statutory duty of consultation. *See Marsh*, 490 U.S. at 378, 109 S.Ct. 1851.

***864** Petitioners concede several instances in which EPA circulated drafts of the Phase II Rule to state and local authorities, but argue that these consultations were meaningless because (1) the reports were circulated too far in advance of the actual rulemaking, (2) the rulemaking wrongfully proceeded based on other sources of input, (3) standard APA notice and comment procedures could not suffice because Congress must have intended something more when it added the consultation requirements to the language of § 402, and (4) consultation at the final stage of rulemaking was inadequate because comment was sought on the final report only after it had been submitted to Congress and the Phase II Rule had been promulgated. Petitioners provide examples of state feedback that allegedly went unheeded by EPA in its promulgation of the final Rule.

EPA maintains that it consulted extensively with States and localities in developing the Phase II Rule, discharging its obligations under §§ 402(p)(5) & (6). EPA contends that the comments Petitioners cite as unheeded by EPA demonstrate that EPA *did* consult with States concerning the Rule, even if some States did not concur in EPA's ultimate conclusion, and that the final rule adopted a good measure of the flexibility sought by state representatives. EPA argues that Industry Petitioners cannot complain that consultation was inadequate simply because it did not result in the adoption of Petitioners' preferred views.

EPA also disputes Petitioners' allegation that while EPA did comply with the terms of the 1999 Appropriations Act (requiring EPA to defend the proposed Phase II Rule before Congress and then publish the final report for public comment), it demonstrated its failure to adequately consult by publishing the report for public comment *after* the Phase II Rule had been formally promulgated, rendering any subsequent public comment meaningless. EPA counters that these actions do not indicate that it failed to satisfy Congress's directive that it consult with state and local officials, because EPA had engaged in extensive consultation before Congress requested the Appropriations Act report, and Congress did not require further consultation when it conditioned promulgation of the Rule only on the submission of this final report. EPA claims that while Congress required it to publish the report after its submission, public comment on the report was not required before promulgation, and that the statutory deadline structure rendered any other interpretation impossible.

[22] We conclude that the overall record indicates EPA met its statutory duty of consultation. A draft of the first report was circulated to States, EPA regional offices, the Association of State and Interstate Water Pollution Control Administrators ("ASIWPCA"), and other stakeholders in November, 1993, and was revised based on comments received. EPA established the Urban Wet Weather Flows Federal Advisory Committee ("FACA Committee"), balancing membership between EPA's various outside stakeholder interests, including representatives from States, municipalities, Tribes, commercial and industrial sectors, agriculture, and environmental and public interest groups. 64 Fed. Reg. 68,724. The 32 members of the Phase II FACA Subcommittee, reflecting the same balance of interests, met fourteen times over three years and state and municipal representatives provided substantial input regarding the draft reports, the ultimate Phase II Rule, and the supporting data.[FN44] *Id.* EPA ***865** instituted the Phase II Subcommittee meetings in addition to the standard APA notice and comment procedures, which EPA also followed.

> FN44. NRDC argues that this claim is not only meritless for the reasons stated by EPA, but also frivolous, since industry petitioner National Association of Home Builders, as a member of the FACA Phase II Subcommittee, participated in and affirmed that such consultation took place.

The fact that the Rule did not conform to Petitioners' hopes and expectations does not bear on whether EPA adequately consulted state and local officials. Although required to consult with States and

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localities, EPA was free to chart the substantive course it saw fit. EPA was not required to consult with States on the Appropriations Act report. Even if EPA should have sought further comment at that late stage, failure to do so does not outweigh the evidence demonstrating extensive consultation and cooperation with local authorities on development of the Rule.

F. Designation of Certain Small MS4s and Construction Sites

The Industry Petitioners contend that, in designating certain small MS4s and construction sites for regulation under the Phase II Rule, EPA failed to adhere to the statutorily required regulatory basis and misinterpreted record evidence. We disagree.

1. Regulatory Basis

The Industry Petitioners and the Municipal Petitioners contend that EPA violated the statutory command to base the Phase II regulations on § 402(p)(5) studies. We review EPA's interpretation of its statutory authority under the *Chevron* standard, 467 U.S. at 842-44, 104 S.Ct. 2778, and affirm.

Petitioners argue that the studies mandated by § 402(p)(5) were intended to provide the sole substantive basis for the "comprehensive program" envisioned in § 402(p)(6), but that EPA also (and thus improperly) based its designation of small MS4s and construction sites on (1) public comment received in the aftermath of judicial invalidation of the scope of construction sites regulated by the Phase I Rule,[FN45] and (2) additional research discussed in the Preamble to the Phase II Rule.[FN46]

> FN45. *See Natural Res. Def. Council*, 966 F.2d at 1306 (remanding EPA's decision to regulate only construction sites disturbing more than five acres, after EPA had initially proposed to regulate all sites disturbing more than one acre).
>
> FN46. The Industry Petitioners contend that EPA lacked authority to issue the Phase II regulation of construction sites based on a process EPA itself characterized as "separate and distinct" from the development of the Report to Congress. 64 Fed. Reg. at 68,732. They add that the Phase II Rule was not "based on" the 1999 Report ultimately requested by Congress in the Appropriations Act, since EPA's report in response was released on the very day that the final Phase II Rule was published.

EPA contends that the statute did not require it to base its designations exclusively on the § 402(p)(5) studies, and that it was in fact required to take account of information from other sources in promulgating the regulations. It argues that it based the Phase II Rule on conclusions reported in the § 402(p)(5) studies, but then appropriately supported these results with data described in the additional study requested by Congress in the Appropriations Act, comments submitted during the statutorily required notice-and-comment process, and other available information. To read the authorizing statute as limiting reliance to the § 402(p)(5) studies, EPA claims, would preclude it from relying on recommendations received through the separate, post-study requirement to "consult with State and local officials" under ***866** § 402(p)(6), and through the notice and comment process mandated by the APA, 5 U.S.C. § 553(b).

Respondent-intervenor NRDC adds that the Phase II Rule is consistent with the § 402(p)(5) studies reported in 1995, and moreover, that the Industry Petitioners lack standing to raise the "regulatory basis" claim because they cannot show the requisite injury. *See Friends of the Earth*, 528 U.S. at 180-81, 120 S.Ct. 693.

a. Standing. Industry Petitioners[FN47] contend that they have suffered injury in fact, because their members are now either automatically regulated by the permitting requirements or subject to future regulation (under the residual authority, discussed below) that otherwise would not have been authorized, and that this is a direct result of EPA's failure to adhere to the framework of the 1995 Report, which allegedly would have precluded these aspects of the Rule. NRDC contends that the Industry Petitioners lack standing because they cannot show that being subject to NPDES permitting is the causal result of the procedural injury they urge, and because they cannot base standing on hypothetical injury that may arise in the future.

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FN47. Since we have already determined that AF & PA lacks standing to raise any of its claims, *see* Section D above, this discussion pertains to the remaining Industry Petitioner, National Association of Home Builders.

NRDC argues that the injuries Petitioners allege are not consistent with the guidelines laid out in *Friends of the Earth*, 528 U.S. at 180-81, 120 S.Ct. 693. It insists that Petitioners' only possible claims of injury from the alleged "regulatory basis" violation are purported harm to members caused by the final Phase II Rule itself or harm to members caused by EPA's alleged failure to provide adequate notice of future regulatory requirements in the 1995 Report. However, NRDC contends that Petitioners have not suffered the requisite injury, because they had actual notice that EPA might regulate small construction sites, 63 Fed. Reg. at 1583, and they can show no chain of causation linking their alleged injury from the Rule itself to the actions challenged here.

NRDC's causation argument is complex. Although the Petitioners purport to challenge EPA's failure to follow all of the 1995 Report's recommendations in the final Phase II Rule, NRDC contends, they are really challenging the subsequent proceedings through which EPA developed the final Rule. Even if there were some unlawful variance between the 1995 report and final rule, NRDC continues, the cause of that variance would have been some failure to abide by rulemaking standards during administrative proceedings that produced the text of the final Rule-not EPA's attention to sources of input other than the 1995 Report. NRDC maintains that these intervening acts of rulemaking (e.g., Phase II Subcommittee activities and the notice-and-comment process) break the requisite chain of causation between EPA's alleged failure to adhere to recommendations in the 1995 report and the flaws Petitioners allege in the Phase II Rule, which NRDC claims would have been due to "purportedly unlawful EPA decisions on the merits during the subsequent administrative proceedings." *See Northside Sanitary Landfill v. Thomas*, 804 F.2d 371, 381-84 (7th Cir.1986) (finding no standing to challenge EPA statements concerning the fate of a hazardous waste facility when subsequent state administrative acts, not EPA comments, would determine the facility's actual fate).

[23] We note that NRDC's standing arguments apply equally to the Municipal Petitioners, who can also assert only the ***867** harms resulting to members from the Rule itself or from a lack of notice, and that we are thus not only considering the standing of the Industry Petitioners but also that of the Municipal Petitioners to raise the "regulatory basis" claim.[FN48] That established, we find standing for both.

FN48. Although the issue of Municipal Petitioners' standing has not been raised by the parties, we are obliged to consider it to determine whether the case-or-controversy requirement of Article III is satisfied. *See, e.g., Boeing Co. v. Van Gemert*, 444 U.S. 472, 488 n. 4, 100 S.Ct. 745, 62 L.Ed.2d 676 (1980); *Juidice v. Vail*, 430 U.S. 327, 331, 97 S.Ct. 1211, 51 L.Ed.2d 376 (1977).

NRDC essentially argues that petitioners lack standing because (1) they cannot show that being subject to NPDES permitting is the causal result of the procedural injury they urge, (2) they cannot claim any actual notice injury from the alleged procedural wrong because notice was actually given, and (3) they cannot claim standing based on hypothetical injury that may (or may not) arise from future regulation under the residual authority. We can readily agree with the latter two contentions. As discussed above, the "actual injury" requirement of Article III standing precludes judicial consideration of exactly the kind of hypothetical harm the Industry Petitioners allege may follow from use of Phase II authority for future designations of regional sources. *Friends of the Earth*, 528 U.S. at 180-81, 120 S.Ct. 693. If future Phase II designations cause identifiable injury to Petitioners, they will then be free to pursue that ripe claim. And because EPA clearly issued notice to all regulated parties that they may be subject to regulation under the proposed rule, 63 Fed. Reg. at 1568 (MS4s) and 1582 (construction), petitioners cannot show injury from lack of actual notice.

However, NRDC's causation argument is less persuasive. NRDC correctly argues that the petitioners cannot establish a definite chain of causation between the EPA's alleged failure to limit their regulatory basis to the § 402(p)(5) studies and the fact that they now must obtain permits. But this will almost always be true of petitions challenging an agency's failure to abide by statutory procedural

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requirements. Because all administrative decisionmaking following an alleged procedural irregularity could always be considered an intervening factor breaking the chain of causation, NRDC's interpretation of the requisite chain of causation would dubiously shield administrative decisions from procedural review.

For this reason, we have held that the failure of an administrative agency to comply with procedural requirements in itself establishes sufficient injury to confer standing, even though the administrative result might have been the same had proper procedure been followed. *City of Davis v. Coleman*, 521 F.2d 661, 671 (9th Cir.1975) (agency's failure to comply with National Environmental Policy Act's procedural requirements constituted injury sufficient to support standing of a geographically related plaintiff regardless of potentially similar regulatory outcome). In *City of Davis*, we noted that the standing inquiry represents "a broad test, but because the nature and scope of environmental consequences are often highly uncertain before study we think it an appropriate test." *Id.* A plaintiff who shows that a causal relation is "probable" has standing, even if the chain cannot be definitively established. *Johnson v. Stuart*, 702 F.2d 193, 195-96 (9th Cir.1983) (school students and their parents had standing to challenge a statute that limited the texts that might be selected for teaching, even ***868** though it could not be shown whether any specific book had been rejected under this statute or for other reasons).

The Supreme Court has also acknowledged that standing may be established by harm resulting indirectly from the challenged acts, *Warth v. Seldin*, 422 U.S. 490, 504-05, 95 S.Ct. 2197, 45 L.Ed.2d 343 (1975), and that causation may be established if the plaintiff shows a good probability that, absent the challenged action, the alleged harm would not have occurred, *Arlington Heights v. Metro. Hous. Dev. Corp.*, 429 U.S. 252, 262-64, 97 S.Ct. 555, 50 L.Ed.2d 450 (1977).

Thus, although the petitioners cannot show with certainty that the alleged "regulatory basis" violation caused them to be wrongfully subjected to Phase II permitting requirements, we hold that they have alleged a procedural injury sufficient to support their standing to bring the claim.

b. Merits. Although we resolve the standing issue in favor of the petitioners, we nevertheless affirm the Rule against their claim that EPA violated procedural constraints implied by the authorizing statute, § 402(p)(6).

Congress intended EPA to use all sources of information in developing a comprehensive program to protect water quality to the maximum extent practicable. The statute unambiguously required EPA to base its regulations both on the § 402(p)(5) studies and on consultation with state and local officials. Congress enacted § 402 with full knowledge that EPA would also be required to take account of public comments during the notice and comment phase of administrative rulemaking prescribed by the APA.[FN49]

> FN49. Even if the statute *were* ambiguous, we would defer to EPA's reasonable interpretation. *Chevron*, 467 U.S. at 843-44, 104 S.Ct. 2778.

2. MS4s in Urbanized Areas

The Municipal Petitioners contend that the designation of small MS4s for Phase II regulation according to Census Bureau defined areas of population density ("urbanized areas") is arbitrary and capricious. They argue that EPA has not established that the Census Bureau's designation of urbanized areas is correlated with actual levels of pollution runoff in stormwater, and that EPA adopted the designations simply for administrative convenience. We affirm, because the record reflects a reasoned basis for EPA's decision. *See Marsh*, 490 U.S. at 378, 109 S.Ct. 1851.

Conceding that the Preamble cites studies purporting to establish "a high correlation between the degree of development/urbanization and adverse impacts on receiving waters due to stormwater,"64 Fed. Reg. at 68,751, the Municipal Petitioners nevertheless contend that the record contains no "demonstrably correlated, *quantified* basis on which EPA may reasonably have concluded that any particular population, or any population density, *per se* establishes that all urban areas having that same characteristic in gross are necessarily appropriate for inclusion as Phase II sources." Pointing to *Leather Industries of America v. EPA*, 40 F.3d 392, 401

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(D.C.Cir.1994) (rejecting as arbitrary EPA's regulation of pollutant levels in the absence of data supporting a relationship between the caps and level of risk), Petitioners argue that EPA simply assumed the relationship Congress contemplated it would establish by the § 402(p)(5) studies.

EPA responds that it extensively documented the relationship between urbanization and harmful water quality impacts from stormwater runoff, pointing to its findings that the degree of surface imperviousness in an area directly corresponds ***869** to the degree of harmful downstream pollution from stormwater runoff, 64 Fed. Reg. at 68,724-27, and that it articulated a rational connection between these record facts and its decision to designate small MS4s serving areas of high population density ("urbanized areas") to protect water quality.

[24] We treat EPA's decision with great deference because we are reviewing the agency's technical analysis and judgments, based on an evaluation of complex scientific data within the agency's technical expertise. *See Baltimore Gas & Elec. Co. v. NRDC,* 462 U.S. 87, 103, 103 S.Ct. 2246, 76 L.Ed.2d 437 (1983); *see also Chem. Mfrs. Ass'n v. EPA*, 919 F.2d 158, 167 (D.C.Cir.1990) ("It is not the role of courts to 'second-guess the scientific judgments of the EPA....' "). We conclude that the record supports EPA's choice.

The statute simply called upon EPA to "designate stormwater discharges," other than those designated in Phase I, "to be regulated to protect water quality." 33 U.S.C. § 1342(p)(6). EPA did so, based on record evidence showing a compelling and widespread correlation between urban stormwater runoff and deleterious impacts on water quality. Petitioners' assertion that EPA failed to establish a "quantified" basis for its designation is inapposite. The statute did not require EPA to establish with pinpoint precision a numeric population threshold within urbanized areas that would justify regulation under Phase II. In areas implicating technical expertise and judgment, courts do not require "perfect stud[ies]" or data. *Sierra Club*, 167 F.3d at 662. EPA satisfied the *Leather Industries* standard by adopting a threshold consistent with the criterion of "protecting water quality," and did not assume, but instead sufficiently documented, the relationship between urbanization and harmful stormwater discharge.

3. Small Construction Sites

Industry and Municipal Petitioners also argue that EPA's decision to regulate under Phase II all construction sites disturbing between one and five acres of land ("small construction sites") is arbitrary and unsupported by the record. We do not agree. *See Marsh*, 490 U.S. at 378, 109 S.Ct. 1851.

a. Record Evidence. Municipal Petitioners claim that EPA arrived at the one-acre standard based not on factual findings in the record but instead as a reaction to the earlier Ninth Circuit remand of the Phase I five-acre designation. They allege that the one-acre standard is no more based on supporting data than the rejected five-acre standard, and is thus quantitatively arbitrary.

Industry Petitioners argue that EPA's findings do not support regulation of *all* small construction sites, but indicate only that small construction sites, taken cumulatively, may cause effects similar to large sites in a given area. They contend that EPA's conclusion that adverse effects are possible under certain circumstances cannot support categorical designation of all small construction sites nationwide, and that the Rule is arbitrary because (1) it is based on an analysis that fails to take account of the frequency of negative impacts, (2) it fails to take account of acknowledged factors that determine whether small construction activities cumulatively cause harm (such as the degree of development in a watershed at any given time), and (3) EPA has acknowledged that the actual water quality impact of construction sites of all sizes varies widely from area to area depending on climatological, geological, geographical,***870** and hydrological influences.[FN50]

FN50. The Industrial Petitioners argue that although the Phase I authorizing statute required EPA to regulate all sources associated with "industrial activity," Congress expressly directed that the Phase II regulatory program be focused on sources that require regulation "to protect water quality." They assert that because EPA's rule ignores the variability of water quality impacts nationwide, the Rule is not appropriately targeted on the protection of

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water quality.

Industry Petitioners further contend that the record does not support the designation of small sites, because almost all of the technical papers EPA relied on focused on larger sites or failed to take account of size,[FN51] and because the lack of an adequate factual basis for nationwide regulation of small sites makes the Phase II Rule arbitrary and capricious. *Am. Petroleum Inst. v. EPA*, 216 F.3d 50, 58 (D.C.Cir.2000) (invalidating a solid waste rule because EPA "failed to provide a rational explanation for its decision" declining to exclude oilbearing waste waters from the statutory definition of solid waste).

> FN51. Petitioners heavily critique two studies relied on by EPA that dealt specifically with the water quality impacts of small construction sites, noting that one concludes it is impossible to generalize about the impacts of small sites, Lee H. MacDonald, *Technical Justification for Regulating Construction Sites 1-5 Acres in Size*, July 22, 1997, and that the other merely concludes that small sites "can have" significant effects if erosion controls are not implemented, David W. Owens, et al., *Soil Erosion from Small Construction Sites.* Petitioners contend that the latter study was managed with no erosion controls, intentionally producing worst-case sediment runoff and unreasonable estimates of actual sediment yields for small sites nationwide. EPA vigorously defends the studies.

EPA maintains that construction sites regulated under the Phase II Rule degrade water quality across the United States and that the administrative record unambiguously documents that harm. EPA disputes Petitioners' assertion that it failed to establish the need to regulate small sites nationwide, but also contends that it is not required to base every administrative decision on a precise quantitative analysis. *See Sierra Club*, 167 F.3d at 662 ("EPA typically has wide latitude in determining the extent of data-gathering necessary to solve a problem.").

EPA also disputes petitioners' assertions that data from studies involving larger construction sites are irrelevant to the Phase II Rule. EPA explains that discharges of sediment due to erosion are the result of the interaction of several factors including soils, slope, precipitation, and vegetation:

> For construction sites that are one acre or more, none of the environmental factors contributing to sediment discharges is dependent on the size of the site disturbed. A one-acre site can have the same combination of soils, slope, degree of disturbance and precipitation as a 100-acre site, and consequently can lose soil at the same rate ... and discharge sediments in the same concentrations ... as a 100-acre site.

EPA contends that it is thus reasonable to extrapolate data about small sites from studies of larger ones-and that such an extrapolation may even be forgiving, since small sites are currently less likely to have effective erosion and sedimentation control plans.[FN52]

> FN52. NRDC adds that notwithstanding the clear interest of the National Association of Home Builders ("NAHB," one of the Industry Petitioners), NAHB's multi-year participation in the FACA Phase II Subcommittee Small Construction and No-Exposure Sites Work Group, and NAHB's own submission of detailed comments on the proposed Rule, NAHB failed to enter into the administrative record any study contradicting the proposition that small construction sites cause water quality problems. NRDC points to the record's showing that NAHB had itself proposed that regulation of construction sites of two acres or greater was appropriate, and contends that this is thus not a dispute over whether small construction sites should be regulated on a nationwide basis, but instead a technical disagreement over whether EPA should establish a one-acre threshold or a different threshold on a similar small scale.

***871** Indeed, EPA argues that although adverse water quality impacts of small construction sites have been widely recognized, effective local erosion and sedimentation control programs have not been adopted in many areas.[FN53] Though not all watersheds are currently adversely effected by small construction sites,[FN54] EPA notes that the Phase II Rule acts "to protect water quality" both remedially and preventively, and argues that it need not quantify

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the cumulative effects of discharges from these sites or identify all watersheds that are currently harmed before acting to limit pollution from small sites.[FN55]

FN53. Whitney Brown and Deborah Caraco, *Controlling Stormwater Runoff Discharges from Small Construction Sites: A National Review*, Task 5 Final Report submitted by the Center for Watershed Protection to the EPA Office of Wastewater Management, March 1997, IP E.R. 633, 643.

FN54. EPA adds that operators of small sites in areas unlikely to suffer adverse impacts may apply for a permit waiver if little or no rainfall is expected during the period of construction (the "rainfall erosivity waiver") or if regulation is unnecessary based on a location-specific evaluation of water quality (the "water quality waiver"). 64 Fed. Reg. at 68,776.

FN55. EPA also implies permission to regulate for potential cumulative impacts of small sites from the past directive of this court. When the Phase I industrial discharge regulations were challenged, we found no record data to support that rule's exemption of construction activities on less than five acres and held that small sites did not categorically qualify for a *de minimis* exemption because "even small construction sites can have a significant impact on local water quality." *Natural Res. Def. Council*, 966 F.2d at 1306.

[25] We reverse under the arbitrary and capricious standard only if the agency has relied on factors Congress did not intend it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision contrary to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise. *Motor Vehicle Mfrs. Ass'n*, 463 U.S. at 43, 103 S.Ct. 2856. Petitioners' contention that EPA relied on factors Congress did not intend it to consider was rejected in our earlier discussion of the regulatory basis challenge. They submit no evidence that EPA failed to consider an important aspect of the problem. We cannot say that EPA's designation of small construction sites is implausible (especially given the support of twenty-some-odd studies of sedimentation from construction sites that EPA reviewed in promulgating the challenged regulations, 64 Fed. Reg. 68,728-31). We could remand this aspect of the Rule only if, as the petitioners urge, EPA's explanation for its decision to regulate small construction sites were contrary to the record evidence, and it is not.

Petitioners' primary contention is that evidence in the record suggests it is not possible to provide an explicit, quantitative link between small construction sites and an adverse effect on water quality. But even if this were so, EPA's decision to regulate preventively small construction sites "to protect water quality" is not inconsistent with the record. Petitioners contend that EPA's reliance on data from studies of large construction sites is insufficient to support EPA's designation of small sites, but EPA has adequately supported its contention that experts can reasonably***872** extrapolate projected water quality impacts from large to small sites. We apply the substantial evidence standard when reviewing the factual findings of an agency, *Dickinson v. Zurko*, 527 U.S. 150, 156-58, 119 S.Ct. 1816, 144 L.Ed.2d 143 (1999),[FN56] and find it satisfied here.

FN56. The "substantial evidence" standard requires a showing of such relevant evidence as a reasonable mind might accept as adequate to support a conclusion. *Edlund v. Massanari*, 253 F.3d 1152, 1156 (9th Cir.2001).

Moreover, EPA is not required to conduct the "perfect study." *Sierra Club*, 167 F.3d at 662. We defer to an agency decision not to invest the resources necessary to conduct the perfect study, and we defer to a decision to use available data unless there is no rational relationship between the means EPA uses to account for any imperfections in its data and the situation to which those means are applied. *Id.; Am. Iron & Steel Inst. v. EPA*, 115 F.3d 979, 1004 (D.C.Cir.1997). The record indicates a reasoned basis for EPA's decision that regulating small construction sites was necessary "to protect water quality" as required by § 402(p)(6).

[26] ***b. Waivers.*** Industry Petitioners further contend that EPA's allowance of regulatory waivers for small construction sites not likely to cause adverse water

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quality impacts inappropriately supplements the permitting regulations.

Petitioners argue that EPA has the burden of establishing a comprehensive program to control sources as necessary to protect water quality, and that shifting the burden to individual contractors, businesses, and homeowners to prove they do not harm water quality falls short of meeting this statutory obligation. Citing *National Mining Association v. Babbitt*, 172 F.3d 906, 910 (D.C.Cir.1999), they argue that EPA's rebuttable regulatory presumption of water quality impact from small construction activity is unreasonable because the agency has established no scientific likelihood that any given small site will affect water quality. EPA defends the waiver approach as fair and efficient, and argues that the Industrial Petitioners are confusing arguments about the limits of presumptions in evidentiary hearings conducted under the APA.[FN57]

> FN57. EPA further argues that even if the waiver provision were properly characterized as an evidentiary presumption, it should be sustained because the record demonstrates that the presumed fact of the water quality impact of small sites is more likely true than not.

EPA is correct; the Phase II Rule creates no presumption applicable to an evidentiary hearing, and a regulation creating exemptions by waiver is reviewed under the familiar arbitrary and capricious standard. The use of waivers to allow permit exemptions for small sites unlikely to cause adverse impacts is reasonable under that standard.

[27] ***c. Consistency.***Industry Petitioners also argue that EPA's decision to regulate all small construction sites under the Phase II Rule is arbitrary and capricious because EPA applied a different standard in regulating small construction projects than it applied to other potential sources of stormwater runoff subject to Phase II regulation.

Petitioners contend that EPA decided not to designate other potential sources identified in the § 402(p)(5) studies because it determined that there are not "sufficient data ... available at this time on which to make a determination of potential adverse water quality impacts for the category of sources." 64 Fed. Reg. at 68,780. Petitioners contend this standard should have been applied to small construction sites as well, but EPA opted to ***873** regulate these sources despite an alleged lack of coherent data on small site impacts as a general category.

EPA counters, once again, that it did have adequate data to regulate small construction sites. It contends that construction sites of all sizes have greater erosion rates than almost any other land use, and thus are not similarly situated to the potential polluters that EPA chose not to regulate at this time.[FN58] These sources include secondary industrial activities (for example, maintenance of construction equipment or local trucking for an unregulated facility such as a grocery store) and other unregulated commercial activities (for example, car and truck rental facilities).64 Fed. Reg. at 68,779. EPA reports that it decided not to categorically regulate these potential sources based both on available data about water quality impacts and on the extent to which potentially adverse water quality impacts are mitigated by existing regulations to which these sources are already subject. *Id.* at 68,780.

> FN58. EPA notes that the Phase II Rule empowers regional permitting authorities to regulate local sources of these types known to be responsible for harmful water quality impacts via the continuing "residual designation" authority (an aspect of the Rule that Petitioners also challenge).

We find no error. *See Marsh*, 490 U.S. at 378, 109 S.Ct. 1851. EPA acted reasonably in designating all small construction sites for Phase II regulation, and Industry Petitioners point to no record evidence that the nature of pollutant contributions from small construction site discharge is sufficiently similar to pollutants from the non-regulated sources to support the analogy they seek to draw. *New Orleans Channel 20 v. FCC*, 830 F.2d 361, 366 (D.C.Cir.1987) (an agency does not act irrationally when it treats parties differently, unless the parties are similarly situated). Sufficient evidence supports EPA's conclusion that small construction sites are not similar enough to these "other sources" to support petitioner's challenge.

G. Continuing ("Residual") Designation Authority

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The Industry Petitioners argue that EPA acted improperly in retaining authority to designate future sources of stormwater pollution for Phase II regulation as needed to protect federal waters. We disagree.

The Phase II Rule preserves authority for EPA and authorized States to designate currently unregulated stormwater dischargers as requiring permits under the Rule if future circumstances indicate that they warrant regulation "to protect water quality" under the terms of § 402(p)(6). 40 C.F.R. § 122.26(a)(9). In the Phase II Preamble, EPA explains this aspect of the Rule:

> Under today's rule, EPA and authorized States continue to exercise the authority to designate remaining unregulated discharges composed entirely of stormwater for regulation on a case-by-case basis.... Individual sources are subject to regulation if EPA or the State, as the case may be, determines that the stormwater discharge from the source contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. This standard is based on the text of section CWA 402(p). In today's rule, EPA believes, as Congress did in drafting section CWA 402(p)(2)(E), that individual instances of stormwater discharge might warrant special regulatory attention, but do not fall neatly into a discrete, predetermined category. Today's rule preserves the regulatory authority***874** to subsequently address a source (or category of sources) of stormwater discharges of concern on a localized or regional basis.

64 Fed. Reg. 68,781. The text of the Rule requires a discharger to obtain a permit if the NPDES permit authority determines that "stormwater controls are needed for the discharge based on wasteload allocations that are part of 'total maximum daily loads' (TMDLs[FN59]) that address the pollutant(s) of concern" or that "the discharge, or category of discharges within a geographic area, contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States."40 C.F.R. §§ 122.26(a)(9)(i)(C)-(D).

> FN59. TMDLs are pollutant loading limits established by NPDES permitting authorities under the Clean Water Act for waters that do not meet a water quality standard due to the presence of a pollutant. *See*33 U.S.C. § 1313(d).

1. Statutory Authority

The Industry Petitioners contend that this "residual" designation authority, which would allow a NPDES permitting authority to require at any future time a permit from any stormwater discharge not already regulated, is *ultra vires.* Although they concede that Congress authorized case-by-case designation in § 402(p)(2)(E),[FN60] they argue that this authority attached only during the permitting moratorium that ended in 1994, prior to the Phase II rulemaking. They object that EPA has impermissibly designated a category of "not yet identified" sources and preserved authority to regulate them on a case-by-case basis indefinitely into the future.[FN61]

> FN60. This section enables a NPDES permitting authority to designate for regulation: "[a] discharge for which the Administrator or the State, as the case may be, determines that the stormwater discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States." 33 U.S.C. § 1342(p)(2)(E).

> FN61. Notably, Industry Petitioner NAHB itself took the position during Phase II Subcommittee proceedings that the power to designate additional sources survived the promulgation of the Phase II Rule. In a 1996 comment letter to EPA, NAHB asserted its understanding that "[t]he permitting authority still reserves the right to designate additional sources if they are shown to be a contributor of water quality impairment." NRDC Supplemental Excerpts of Record at 58.

[28] Petitioners contend that § 402(p)(6)[FN62] cannot rescue the residual authority because it does not authorize case-by-case identification of discharges to be regulated, and that Congress, had it intended otherwise, would have included language in § 402(p)(6) similar to the case-by-case authority explicitly granted in § 402(p)(2)(E).[FN63] They also contend that ***875** continuing authority to designate

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sources based on waste load allocations that are part of TMDLs exceeds the scope of authority in § 402(p)(2), which nowhere mentions TMDLs. Finally, they argue that the categorical designation authorized by § 402(p)(6) is only permissible when based on the § 402(p)(5) studies and carried out in consultation with state and local authorities, but that the Rule allows future designations based on agency discretion unaccompanied by adequate demonstration that the source itself is a significant threat to water quality.

> FN62. The full text of § 402(p)(6), which specifically authorizes the Phase II program, reads: "Not later than October 1, 1993, the Administrator, in consultation with State and local officials, shall issue regulations (based on the results of the studies conducted under paragraph (5)) which designate stormwater discharges, other than those discharges described in paragraph (2), to be regulated to protect water quality and shall establish a comprehensive program to regulate such designated sources. The program shall, at a minimum, (A) establish priorities, (B) establish requirements for State stormwater management programs, and (C) establish expeditious deadlines. The program may include performance standards, guidelines, guidance, and management practices and treatment requirements, as appropriate." 33 U.S.C. § 1342(p)(6).
>
> FN63. Petitioners further argue that even if EPA could preserve the case-by-case authority conferred in § 402(p)(2)(E), that section confers authority only to regulate "a discharge" determined to threaten water quality, not a category of discharges. However, we agree with respondent-intervenor NRDC's argument that § 402(p)(2)(E) does not preclude EPA from designating entire categories of sources. Petitioners' argument follows from its reliance on the fact that § 402(p)(2)(E) refers to "discharge" in the singular rather than the plural to conclude that EPA may only designate sources meeting the § 402(p)(2)(E) description on a case-by-case basis. But all five of the § 402(p)(2)(5) categories refer to "discharge" in the singular, even in reference to discharges clearly intended for categorical regulation, like "a discharge from a municipal separate storm sewer system serving a population of 250,000 or more." 33 U.S.C. § 1342(p)(2)(C). The error in petitioners' interpretation is exposed by 1 U.S.C. § 1, which provides that "[i]n determining the meaning of any Act of Congress, unless the context indicates otherwise-words importing the singular include and apply to several persons, parties, or things."

EPA counters that § 402(p)(6) authorized the designation, made on the basis of statutorily required sources of input and in consultation with the States, of a third class of discharges to be identified on location-specific bases by the NPDES permitting authority. EPA contends that Petitioners mistake the source of its authority for continuing designations as arising only from § 402(p)(2), discounting the full scope of its authority under § 402(p)(6). EPA argues that it permissibly interpreted § 402(p)(6) as allowing the residual designation authority because its language does not expressly preclude it, and because such authority is consistent with (and arguably required by) that section's mandate to establish a "comprehensive program" to protect water quality from adverse stormwater discharges. EPA maintains that the structure of § 402(p) reflects "Congress' intent to assure regulation of all problematic stormwater discharges as expeditiously as reasonably possible-not to limit EPA to a one-time-only opportunity to designate discharges for regulation."

[29] We review EPA's interpretation of the statute it administers with deference, *Royal Foods Co.*, 252 F.3d at 1106, and affirm this aspect of the Phase II Rule as a legitimate exercise of regulatory authority conferred by § 402(p). The residual designation authority is grounded both on § 402(p)(6), which broadly authorizes a comprehensive program to protect water quality, and on § 402(p)(2)(5), which authorizes case-by-case designation of certain polluters and categories of polluters.

While not a blank check, § 402(p)(6) authorizes a comprehensive program that allows regional designation of polluting discharges that compromise water quality locally, even if they have not been established as compromising water quality nationally at the time Phase II was promulgated. In allowing

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continuing designation authority, EPA permissibly designated a third category of dischargers subject to Phase II regulation-those established locally as polluting U.S. waters-following all required studies and consultation with state and local officials. EPA reasonably determined that discharges other than those from small MS4s and construction sites were likely to require regulation "to protect water quality" in satisfaction of the § 402(p)(6) mandate. EPA reasonably determined that, although it lacked sufficient data to support nationwide, categorical***876** designation of these sources, particularized data might support their designations on a more localized basis. EPA reasonably interpreted § 402(p)(6) as authorizing regional designation of sources and regional source categories, based on water quality standards including TMDLs.

Petitioners' § 402(p)(2)(5) argument (that EPA could not draw support for the residual designation authority from § 402(p)(2)(5) because such authority expired in 1994) is contradicted by the plain language of the statute. Respondent-intervenor NRDC correctly notes that § 402(p)(1) sets forth a permitting moratorium for stormwater discharges prior to 1994, and that § 402(p)(2) exempts certain categories of sources from that permitting moratorium, including those to be regulated on a case-by-case basis under § 402(p)(2)(5). Specifically, the statute provides that the 1994 date "shall not apply" to the five categories of discharges listed in § 402(p)(2). The termination of a moratorium that "shall not apply" to the continuing designation authority under § 402(p)(2)(5) cannot rescind EPA's authority to regulate sources in that category. Nothing in § 402(p) suggests that authority to designate these sources ends at any time, and EPA remains free to designate § 402(p)(2)(E) dischargers.

Finally, although Petitioners may be legitimately concerned that a permitting authority may designate a source without adequately establishing its eligibility, this issue must be addressed in the context of an actual case or controversy. Whether a NPDES authority may impose permitting requirements on a discharger without an adequate finding of polluting activity is not yet ripe for judicial review. *Thomas v. Anchorage Equal Rights Comm'n,* 220 F.3d 1134, 1141 (9th Cir.2000) ("A concrete factual situation is necessary to delineate the boundaries of what conduct the government may or may not regulate.").

2. Nondelegation Doctrine

[30] Industry Petitioners contend that EPA's interpretation of § 402(p) to allow the residual designation authority must be rejected because it would render the statute unconstitutional under the nondelegation doctrine. We deny petitioners' claim, both because it is not properly raised and because it rests on an interpretation explicitly overturned by the United States Supreme Court.

Petitioners base their contention on *American Trucking Ass'ns v. EPA,* 175 F.3d 1027, 1034 (D.C.Cir.1999),[FN64] in which the D.C. Circuit remanded a regulation under the nondelegation doctrine because, although EPA had applied reasonable factors in establishing the air quality standards in question, the agency had articulated no "intelligible principle" to channel its application of these factors. *Id.* Petitioners argue that if § 402(p) authorizes a NPDES permitting authority to require Phase II permitting of any stormwater source deemed to be a "significant contributor" of pollutants to U.S. waters, then that grant of authority likewise constitutes an unconstitutional delegation of legislative authority because-as did the *American Trucking* delegation-it "leaves [EPA] free to pick any point" at which a regulatory burden will attach. *Id.* at 1037.

> FN64. This case was reversed in relevant part by the Supreme Court in *Whitman v. Am. Trucking Ass'ns,* 531 U.S. 457, 476, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001).

However, in reversing *American Trucking,* the Supreme Court rejected the notion that an agency has the power to interpret a statute so as to either save it from being, or transform it into, an unconstitutional delegation. ***877***Whitman v. Am. Trucking Ass'ns,* 531 U.S. 457, 473, 121 S.Ct. 903, 149 L.Ed.2d 1 (2001). Whether a statute delegates legislative power "is a question for the courts, and an agency's [interpretation] has no bearing upon the answer." *Id.* Petitioner's argument to the contrary rests on the very reasoning in *American Trucking* that was overturned in *Whitman.* The relevant question is not whether EPA's interpretation is unconstitutional, but whether the statute itself is unconstitutional-a challenge Industry Petitioners do not raise.

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But even if the challenge were properly raised, § 402(p) would, like the Clean Air Act standard-setting provision at issue in *Whitman*, survive constitutional review. The Supreme Court has upheld against nondelegation attacks many similar statutes establishing nonquantitative standards. *Am. Power & Light Co. v. SEC*, 329 U.S. 90, 104, 67 S.Ct. 133, 91 L.Ed. 103 (1946) (upholding statute giving SEC authority to modify corporate structures so that they are not "unduly or unnecessarily complicate[d]" and do not "unfairly or inequitably distribute voting power among security holders"); *Yakus v. United States*, 321 U.S. 414, 419-20, 423-27, 64 S.Ct. 660, 88 L.Ed. 834 (1944) (upholding statute giving agency power to set prices that "will be generally fair and equitable"). In *Yakus*, the Court held that a statutory command to "effectuate the purposes" of the overall statutory scheme withstood scrutiny. *Id.* Section 402(p)(6)'s directive "to protect water quality" summarizes the central purpose of the Clean Water Act, "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters,"33 U.S.C. § 1251(a). It establishes a determinate criterion of the kind the Supreme Court upheld in *Yakus* and *American Power & Light.*

3. Notice and Comment

[31] Industry Petitioners also contend that, to the extent it allows the designation of entire categories of sources, rather than individual sources, the residual designation authority violates the APA, 5 U.S.C. § 553(b)(3), because EPA did not provide public notice that it was considering such a rule. *Ober v. EPA*, 84 F.3d 304, 315 (9th Cir.1996) (invalidating EPA rule where it deviated from proposal); *Shell Oil Co. v. EPA*, 950 F.2d 741, 746-47 (D.C.Cir.1991). Petitioners contend that while the proposed rule would have allowed case-by-case designation where an authority "determines that the discharge contributes to a violation,"63 Fed. Reg. at 1635 (proposing 40 C.F.R. § 122.26(a)(9)(i)(D)), the final rule authorizes case-by-case designation where "the discharge, or category of discharges within a geographic area, contributes to a violation,"40 C.F.R. § 122.26(a)(9)(i)(D).

EPA notes that it had proposed to promulgate continuing designation authority in some form, and points to elements in the proposed rule that explicitly envision the categorical designation of sources at the local/watershed level.[FN65]

> FN65. "[T]oday's proposal would encourage [voluntary] control of stormwater discharges ... unless the discharge (or category of discharges) is individually or locally designated as described in the following section. The necessary data to support designation could be available on a local, regional, or watershed basis and would allow the NPDES permitting authority to designate a category of sources or individual sources on a case-by-case basis. If sufficient nationwide data [becomes] available in the future, EPA could at that time designate additional categories of industrial or commercial sources on a national basis. EPA requests comment on the three-pronged analysis used to assess the need to designate additional industrial or commercial sources and invites suggestions regarding watershed-based designation." 63 Fed. Reg. at 1588.

***878** According to the "logical outgrowth" standard, a final regulation must be "in character with the original proposal and a logical outgrowth of the notice and comments." *Hodge*, 107 F.3d at 712. EPA emphasized that it was considering continuing designations based on watershed data rather than designating these sources on a national basis, and invited comment regarding this proposal. 63 Fed. Reg. at 1536. This supports the necessary relationship between the proposed and final rule.

H. Regulatory Flexibility Act

The Industry Petitioners contend that the Phase II Rule will impose substantial compliance costs on their members and other small entities, but that EPA failed to conduct the analysis required by the Regulatory Flexibility Act ("RFA"), 5 U.S.C. §§ 601-11. They argue that EPA seeks to excuse its noncompliance by falsely certifying that the Rule does not have a significant impact on a substantial number of small entities. 64 Fed. Reg. at 68,800. We are not persuaded.

[32] The RFA requires a federal agency to prepare a regulatory flexibility analysis and an assessment of the economic impact of a proposed rule on small business entities, 5 U.S.C. § 604, unless the agency

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certifies that the proposed rule will not have a "significant economic impact on a substantial number of small entities" and provides a factual basis for that certification, *id.* at § 605; *N. W. Mining Ass'n v. Babbitt*, 5 F.Supp.2d 9, 15-16 (D.D.C.1998).

EPA did certify that the Phase II Rule would not yield "significant impacts," 64 Fed. Reg. at 68,800, but Petitioners contend this certification is erroneous because (1) EPA treats as "not significant" costs that are in fact significant, and (2) EPA failed to account for the entire universe of small entities affected (including small home construction contractors) and all significant costs to those entities. They urge that the failure to consider a significant segment of the affected small entity community requires invalidation of the Rule, citing *North Carolina Fisheries Ass'n v. Daley*, 27 F.Supp.2d 650, 659 (E.D.Va.1998) (certification failed to comply with RFA where agency ignored several categories of affected small entities), and *Northwest Mining*, 5 F.Supp.2d at 15 (RFA was violated where improper definition of small entity excluded analysis of affected entities).

EPA maintains that its certification was appropriate, and, moreover, that it has already voluntarily followed the additional RFA procedures that the Industry Petitioners now request. EPA argues that Petitioners have incorrectly specified the costs that the small entities they represent will bear, referring erroneously to EPA's total annual compliance costs estimates for all entities, rather than to costs estimated for small entities as defined under the RFA. EPA maintains that it did consider economic impacts on small home construction contractors who might be denied discharge permits, and that it evaluated the annual costs of Phase II compliance associated with any land disturbance between one and five acres. 64 Fed. Reg. at 68,800-01.

Respondent-intervenor NRDC contends that Petitioners' reliance on measures of the aggregate impact of the Rule on small entities to determine compliance with the threshold test under the RFA fails as a matter of law because aggregate measures are not consistent with the statutory language setting out that test. NRDC notes that the plain language of § 605(b) sets out a three-component test indicating that EPA need not perform a regulatory flexibility analysis if it finds that the proposed ***879** rule will not have: (1) "a significant economic impact" on (2) "a substantial number" of (3) "small entities." 5 U.S.C. § 605(b). NRDC contends that EPA satisfied the statutory test, and that Petitioners' interpretation, which rewrites the test to omit the "substantial number" component, is erroneous.

[33] We believe NRDC correctly interprets the statute, *Marsh*, 490 U.S. at 378, 109 S.Ct. 1851, and that EPA reasonably certified that the Phase II Rule would not have a significant economic impact in compliance with the Regulatory Flexibility Act. We also conclude that, even if EPA had failed to properly comply with the procedural requirements of the RFA, its actual assessment of the Rule's economic impacts renders any defective compliance harmless error. In granting relief under RFA § 611, a court may order an agency "to take corrective action consistent with" the RFA and APA, including remand to the agency, 5 U.S.C. § 611(a)(4)(A), but EPA has already conducted the economic analyses Petitioners seek when it convened the "Small Business Advocacy Review Panel" before publishing notice of the proposed rule. 64 Fed. Reg. at 68,801. That Panel evaluated the Rule and considered the comments of small entities on a number of issues, consistent with the procedures described in RFA § 603. *Id.* Appendix 5 of EPA's preamble to the proposed rule explained provisions that had been designed to minimize impacts on small entities, based on advice and recommendations from the Panel. 63 Fed. Reg. 1615, 64 Fed. Reg. 68,811. Modifications for small entities included alternative compliance and reporting mechanisms responsive to the resources of small entities, simplified procedures, performance rather than design standards, and waivers.

Any hypothetical noncompliance would thus have been harmless, since the available remedy would simply require performance of the economic assessments that EPA actually made. Like the Notice and Comment process required in administrative rulemaking by the APA, the analyses required by RFA are essentially procedural hurdles; after considering the relevant impacts and alternatives, an administrative agency remains free to regulate as it sees fit. We affirm the Rule against this challenge.[FN66]

FN66. Our consideration of the issue at all may be gratuitous, since petitioners failed to submit timely comment disputing the

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adequacy of EPA's consideration of economic impacts on small businesses proposed at 63 Fed. Reg. at 1605-07. *United States v. L.A. Tucker Truck Lines*, 344 U.S. 33, 37, 73 S.Ct. 67, 97 L.Ed. 54 (1952) ("[C]ourts should not topple over administrative decisions unless the administrative body not only has erred but has erred against objection made at the time appropriate under its practice.").

III.

CONCLUSION

We conclude that the EPA's failure to require review of NOIs, which are the functional equivalents of permits under the Phase II General Permit option, and its failure to make NOIs available to the public or subject to public hearings contravene the express requirements of the Clean Water Act. We therefore remand these aspects of the Small MS4 General Permit option so that EPA may take appropriate action to comply with the Clean Water Act. We also remand so that EPA may consider in an appropriate proceeding the Environmental Petitioners' contention that § 402(p)(6) requires EPA to regulate forest roads. We affirm all other aspects of the Phase II Rule against the statutory, administrative, and constitutional challenges raised in this action.

***880** Petitions for Review GRANTED IN PART and DENIED IN PART.

TALLMAN, Circuit Judge, concurring in part and dissenting in part:

I concur in most of the majority's opinion, but I dissent from Section II.B, which remands the Phase II Rule because its system of general permits is "arbitrary and capricious." I believe EPA's design of a system of general permits supported by notices of intent was a reasonable exercise of EPA's administrative discretion. We must give deference to EPA's interpretation of the laws it is charged with enforcing, so long as EPA's reading of those laws is permissible. Because EPA acted reasonably in designing a National Pollutant Discharge Elimination System ("NPDES") based on general permits and supported by NOIs, I respectfully dissent from the court's decision to remand this portion of the Phase II Rule.

I

As the majority concedes, we evaluate EPA's interpretation of the Clean Water Act with deference. Majority Op. 13796. If Congress's intent is unclear as to whether a system of general permits supplemented by NOIs is allowed, we simply ask "whether EPA's interpretation is permissible." *Ober v. Whitman*, 243 F.3d 1190, 1193 (9th Cir.2001).

II

As an initial matter, then, we must ask if Congress was clear in its intent concerning the propriety of a system of general permits augmented by NOIs.

Five legislative commands guide this inquiry. First, 33 U.S.C. § 1342(p)(6) charges EPA with creating a system to regulate stormwater discharges. Plainly, nothing in this section speaks to whether EPA may utilize a general permit approach in regulating stormwater discharge.

Second, 33 U.S.C. § 1311(a) makes it illegal to discharge pollutants "except as in compliance" with several sections of the Clean Water Act. Again, nothing in this section addresses whether EPA may make use of general permits reinforced by NOIs.

Third, 33 U.S.C. § 1342 in general (as opposed to the limited charge in section 1342(p)(6) discussed above) authorizes EPA to issue NPDES permits, provided that the permits satisfy several conditions. But nothing in section 1342 prohibits the use of a system of general permits.

Fourth, the Clean Water Act mandates that "a copy of each permit application and each permit issued under" the NPDES permitting program be made available to the public for inspection and photocopying. 33 U.S.C. § 1342(j). The Act does not elaborate on this naked requirement. There is no explanation of the manner in which NPDES permits and applications are to be made publicly available. Nor does the Act define what constitutes a "permit" that would trigger these requirements.

And fifth, the Clean Water Act authorizes the issuance of an NPDES "permit" "after opportunity for public hearing." 33 U.S.C. § 1342(a)(1). The Act

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does not provide a definition of "permit," nor does it further detail what triggers the requirement of a public hearing.

In short, the Clean Water Act fails to address the propriety of a general permit system, or whether NOIs ought to be considered "permits." Therefore, we should uphold EPA's creation of a system of general permits buttressed by NOIs so long as it is "permissible." *See* ***881***Chevron, U.S.A., Inc. v. Natural Resources Defense Council*, 467 U.S. 837, 843-44, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). Our duty to defer to EPA in such a situation is based on sound policy. Given the overwhelming challenge and complexity of the programs administered by federal agencies today, it is sensible to trust agencies with the design of those programs so long as the programs are reasonable interpretations of congressional mandates.

The central issues regarding EPA's general permit system are whether the Clean Water Act allows such a system and whether NOIs should be considered "permits." The resolution of these issues requires a complicated weighing of policies (e.g., administrative streamlining vs. robust inquiry) that is precisely what agencies are designed to do and courts are without the resources or expertise to do. "[I]f the statute is silent or ambiguous with respect to the specific issue, the question for the court is whether the agency's answer is based on a permissible construction." *Chevron*, 467 U.S. at 843, 104 S.Ct. 2778.

III

The Phase II Rule promulgates a system of general permits. EPA contemplated that these general permits will be issued on a watershed basis, with individual stormwater dischargers then filing NOIs to operate under general permits. The federal regulations implementing this system repeatedly emphasize that "[t]he use of general permits, instead of individual permits, reduces the administrative burden of permitting authorities, while also limiting the paperwork burden on regulated parties." 64 Fed. Reg. 68,722, 68,737, 68,762 (Dec. 8, 1999).

The use of a general permit system for the administration of the NPDES system has been considered and approved before. In *NRDC v. Costle*, 568 F.2d 1369 (D.C.Cir.1977), the District of Columbia Circuit considered a challenge to EPA's regulations under the Federal Water Pollution Control Act, which was the precursor to the Clean Water Act. In *Costle*, EPA sought approval of its design for the NPDES system. EPA had issued regulations exempting broad categories of point sources from the requirement that an NPDES permit be obtained before discharging into federal waters. Part of EPA's rationale in creating the exempted categories was that otherwise EPA would be overwhelmed by the administrative burden of issuing NPDES permits. *Id.* at 1377-79. The *Costle* court affirmed the lower court's rejection of these exemptions because the legislation in question plainly required that all point sources obtain some kind of NPDES permit. *Id.* But in rejecting EPA's regulations, the *Costle* court discussed the options available to EPA in promulgating an NPDES system that was considerate of the enormous burden such a system could impose on EPA. *Id.* at 1380-81. In particular, the court recommended "the use of area or general permits. *The Act allows such techniques.* Area-wide regulation is one well-established means of coping with administrative exigency." *Id.* at 1381 (emphasis added).

Against this backdrop, EPA's creation of a general permit system was entirely permissible. And if the creation of a general permit system is permissible, then it does not matter whether NOIs are given a public airing.

The majority contends that the general permit system prevents EPA from fulfilling its duty to make sure that municipalities do not discharge pollutants in violation of the Clean Water Act. The majority reasons that by failing to require EPA review of NOIs, the Rule fails to ensure that a regulated MS4's stormwater pollution control program will satisfy the Clean Water Act requirement that the MS4 "reduce***882** discharges to the maximum extent practicable." Majority Op. 855. But the majority's analysis ignores the effects of the general permit. By filing an NOI, a discharger obligates itself to comply with the limitations and controls imposed by the general permit under which it intends to operate. EPA mandates that all permits (including general permits) condition their issuance on satisfaction of pollution limitations imposed by the Clean Water Act. 40 C.F.R. § 122.44. In particular, EPA requires permits to satisfy the restrictions imposed by Clean Water

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Act section 307(a). *Id.* at § 122.44(b)(1). Therefore, the *general permit* imposes the obligations with which the discharger must comply (including applicable Clean Water Act standards), and EPA's decision not to review every NOI is not a failure to insure compliance with the Clean Water Act.

The majority also objects to EPA's general permit system because it fails to allow for sufficient public participation in the NOIs. Majority Op. 856-858. The majority's position fails to give deference to EPA and imposes the majority's own wishes instead. EPA would have been justified in creating a system entirely reliant on general or area permits. Its imposition of NOIs is an indulgence to certain policy prerogatives, namely public involvement and the collection of additional information. But the power to create a general permit system necessarily implies the power to require subordinate steps for NOIs that do not quite reach the level of inquiry associated with actual permits.

IV

We function as an adjudicator of disputes, not as a policy-making body. Where an agency promulgates rules after a deliberative process, it is incumbent upon us to respect the agency's decisions or else risk trivializing the function of that agency. In this case, EPA made a permissible decision to create a general permit program supported by NOIs. Therefore, I respectfully dissent from Section II.B of the majority's opinion.

C.A.9 (Cal.),2003.
Environmental Defense Center, Inc. v. U.S. E.P.A.
344 F.3d 832, 57 ERC 1039, 33 Envtl. L. Rep. 20,269, 03 Cal. Daily Op. Serv. 8398, 2003 Daily Journal D.A.R. 10,479

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ATTACHMENT
10

United States Court of Appeals,District of Columbia Circuit.
NATURAL RESOURCES DEFENSE COUNCIL, INC.[FN*]

FN* For convenience the court will refer to this case hereafter as NRDC v. Costle (Runoff Point Sources).

v.

Douglas M. COSTLE, Administrator, Environmental Protection Agency, et al., National Forest Products Association, Appellant.
NATURAL RESOURCES DEFENSE COUNCIL, INC., etc.

v.

Douglas M. COSTLE, Administrator, Environmental Protection Agency, et al., National Milk Producers Federation, Appellant.
NATURAL RESOURCES DEFENSE COUNCIL, INC., etc.

v.

Douglas M. COSTLE, Administrator, and Environmental Protection Agency, et al., Appellants.
NATURAL RESOURCES DEFENSE COUNCIL, INC.

v.

Douglas M. COSTLE, Administrator, Environmental Protection Agency, Colorado River Water Conservation District, Appellant.
Nos. 75-2056, 75-2066, 75-2067 and 75-2235.

Argued Dec. 3, 1976.
Decided Nov. 16, 1977.

The National Resources Defense Council, Inc. challenged authority of the Environmental Protection Agency Administrator to exempt categories of point sources from permit requirements of the Federal Water Pollution Control Act Amendments of 1972. The United States District Court for the District of Columbia, Thomas A. Flannery, J., 396 F.Supp. 1393, granted summary judgment to the NRDC and the Administrator and others appealed. The Court of Appeals, Leventhal, Circuit Judge, held that: (1) legislative history shows that National Pollution Discharge Elimination System permit is the only means by which discharger may escape total prohibition of discharges from point sources found in FWPCA; (2) national effluent limitations need not be uniform as precondition for NPDES program to include pollution from agricultural, silvicultural, and storm runoff point sources, and while technological or administrative infeasibility of such limitations may warrant adjustments in permit program it does not authorize Administrator to exclude relevant point sources; (3) where numeric effluent limitations are infeasible, permit conditions may proscribe industry practices that aggravate problems of point source pollution as well as require monitoring and reporting of effluent level; and (4) a number of administrative devices, including general or area permits are available to aid EPA in practical administration of NPDES program, and FWPCA, however tight in some respects, leaves some leeway to EPA in interpretation of that statute and affords agency some means to consider matters of feasibility.

Affirmed in accordance with opinion.

MacKinnon, Circuit Judge, filed a concurring opinion.

***1370 **148** *Syllabus by the Court*

The National Resources Defense Council, Inc. (NRDC) challenged the authority of the EPA Administrator to exempt categories of point sources from the permit requirements of s 402 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C. s 1342 (Supp. V 1975). On appeal from a grant of summary judgment to NRDC, held:

1. The legislative history makes clear that Congress intended the National Pollution Discharge Elimination System (NPDES) permit to be the only means by which a discharger may escape the total prohibition of discharges from point sources found in FWPCA s 301(a), 33 U.S.C. s 1311(a) (Supp. V 1975).

2. It is not necessary that national effluent limitations be uniform as a precondition for the NPDES program to include pollution from agricultural, silvicultural, and storm water runoff point sources. The

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technological or administrative infeasibility ***1371 **149** of such limitations may warrant adjustments in the permit program, but it does not authorize the Administrator to exclude the relevant point source from the NPDES program.

3. Where numeric effluent limitations are infeasible, permit conditions may proscribe industry practices that aggravate the problems of point source pollution as well as require monitoring and reporting of effluent levels.

4. A number of administrative devices, including general or area permits, are available to aid EPA in the practical administration of the NPDES program. The FWPCA, however tight in some respects, leaves some leeway to EPA in the interpretation of that statute and, in that regard, affords the agency some means to consider matters of feasibility.

Appeals from the United States District Court for the District of Columbia (D.C. Civil 1629-73).
Irvin B. Nathan, Washington, D. C., with whom Burton J. Mallinger, Washington, D. C., was on the brief, for appellant in No. 75-2056.
Charles W. Bills, Washington, D. C., with whom James R. Murphy, Washington, D. C., was on the brief for appellant in No. 75-2066.
G. William Frick, Atty., Dept. of Justice, Kansas City, Mo., of the bar of the Supreme Court of Missouri, pro hac vice by special leave of court for appellants in No. 75-2067. Peter R. Taft, Asst. Atty. Gen., Robert V. Zener, Gen. Counsel, Environmental Protection Agency, Edmund B. Clark, Lloyd S. Guerci, Larry A. Boggs, Attys., Dept. of Justice and Pamela P. Quinn, Atty., Environmental Protection Agency, Washington, D. C., were on the brief for appellants in No. 75-2067.
Christopher D. Williams, Washington D. C., with whom Kenneth Balcomb and Robert L. McCarty, Washington, D. C., were on the brief for appellant in No. 75-2235.
J. G. Speth, Washington, D. C., for appellee.
Theodore O. Torve, Asst. Atty. Gen., State of Washington, Olympia, Wash., filed a brief on behalf of the State of Washington as amicus curiae urging reversal in No. 75-2056.
Richard E. Schwartz, Jefferson City, Mo., filed a brief on behalf of Iron and Steel Institute, as amicus curiae urging reversal in No. 75-2067.
John L. Hill, Atty. Gen., State of Texas, and David M. Kendall, Jr., First Asst. Atty. Gen., State of Texas, Austin, Tex., filed a brief on behalf of State of Texas as amicus curiae urging reversal in No. 75-2067.

Before BAZELON, Chief Judge, and LEVENTHAL and MacKINNON, Circuit Judges.

Opinion for the Court filed by LEVENTHAL, Circuit Judge.
Concurring Opinion filed by MacKINNON, Circuit Judge.
LEVENTHAL, Circuit Judge:
In 1972 Congress passed the Federal Water Pollution Control Act Amendments (hereafter referred to as the "FWPCA" or the "Act" [FN1]). It was a dramatic response to accelerating environmental degradation of rivers, lakes and streams in this country. The Act's stated goal is to eliminate the discharge of pollutants into the Nation's waters by 1985. This goal is to be achieved through the enforcement of the strict timetables and technology-based effluent limitations established by the Act.

> FN1.33 U.S.C. ss 1251-1376 (Supp. V 1975). Although characterized in the official title as "amendments", the 1972 FWPCA actually substitutes its provisions for those of the pre-1972 Federal Water Pollution Control Act as amended, id. ss 1151-1175 (1970).

The FWPCA sets up a permit program, the National Pollutant Discharge Elimination System (NPDES), as the primary means of enforcing the Act's effluent limitations.[FN2] At issue in this case is the authority***1372 **150** of the Administrator of the Environmental Protection Agency to make exemptions from this permit component of the FWPCA.

> FN2. This case deals with s 402 of the FWPCA, 33 U.S.C. s 1342 (Supp. V 1975), which sets out the permitting authority of the EPA Administrator as well as that of the states under EPA-approved state permit programs. The Secretary of the Army also has a permitting authority in certain circumstances. Under s 404 of the FWPCA, 33 U.S.C. s 1344 (Supp. V 1975), he may issue permits for the discharge of dredged or fill material into navigable waters.

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Section 402 of the FWPCA, 33 U.S.C. s 1342 (Supp. V 1975), provides that under certain circumstances the EPA Administrator "may . . . issue a permit for the discharge of any pollutant" notwithstanding the general proscription of pollutant discharges found in s 301 of the Act.33 U.S.C. s 1311 (Supp. V 1975). The discharge of a pollutant is defined in the FWPCA as "any addition of any pollutant to navigable waters from any point source" or "any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or floating craft."33 U.S.C. s 1362(12) (Supp. V 1975). In 1973 the EPA Administrator issued regulations that exempted certain categories of "point sources" of pollution from the permit requirements of s 402.[FN3] The Administrator's purported authority to make such exemptions turns on the proper interpretation of s 402.

FN3.40 C.F.R. s 125.4 (1975). See 38 Fed.Reg. 18000-04 (1973).

A "point source" is defined in s 502(14) as "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged."[FN4]

FN4.33 U.S.C. s 1362(14) (Supp. V 1975).

The 1973 regulations exempted discharges from a number of classes of point sources from the permit requirements of s 402, including all silvicultural point sources; all confined animal feeding operations below a certain size; all irrigation return flows from areas of less than 3,000 contiguous acres or 3,000 noncontiguous acres that use the same drainage system; all nonfeedlot, nonirrigation agricultural point sources; and separate storm sewers containing only storm runoff uncontaminated by any industrial or commercial activity.[FN5] The EPA's ***1373 **151** rationale for these exemptions is that in order to conserve the Agency's enforcement resources for more significant point sources of pollution, it is necessary to exclude these smaller sources of pollutant discharges from the permit program.

FN5.40 C.F.R. s 125.4 (1975):
The following do not require an NPDES permit:
(f) Uncontrolled discharges composed entirely of storm runoff when these discharges are uncontaminated by any industrial or commercial activity, unless the particular storm runoff discharge has been identified by the Regional Administrator, the State water pollution control agency or an interstate agency as a significant contributor of pollution. (It is anticipated that significant contributors of pollution will be identified in connection with the development of plans pursuant to section 303(e) of the Act. This exclusion applies only to separate storm sewers. Discharges from combined sewers and bypass sewers are not excluded.)
(j) Discharges of pollutants from agricultural and silvicultural activities, including irrigation return flow and runoff from orchards, cultivated crops, pastures, rangelands, and forest lands, except that this exclusion shall not apply to the following:
(1) Discharges from animal confinement facilities, if such facility or facilities contain, or at any time during the previous 12 months contained, for a total of 30 days or more, any of the following types of animals at or in excess of the number listed for each type of animal:
(i) 1,000 slaughter and feeder cattle;
(ii) 700 mature dairy cattle (whether milkers or dry cows);
(iii) 2,500 swine weighing over 55 pounds;
(iv) 10,000 sheep;
(v) 55,000 turkeys;
(vi) If the animal confinement facility has continuous overflow watering, 100,000 laying hens and broilers;
(vii) If the animal confinement facility has liquid manure handling systems, 30,000 laying hens and broilers;
(viii) 5,000 ducks;
(2) Discharges from animal confinement facilities, if such facility or facilities contain, or any time during the previous 12 months contained for a total of 30 days or more, a combination of animals such that the sum of the following numbers is 1,000 or greater: the number of slaughter and feeder cattle multiplied by 1.0, plus the number of mature

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> dairy cattle multiplied by 1.4, plus the number of swine weighing over 55 pounds multiplied by 0.4, plus the number of sheep multiplied by 0.1;
> (3) Discharges from aquatic animal production facilities;
> (4) Discharges of irrigation return flow (such as tailwater, tile drainage, surfaced ground water flow or bypass water), operated by public or private organizations or individuals, if: (1) There is a point source of discharge (e. g., a pipe, ditch, or other defined or discrete conveyance, whether natural or artificial) and; (2) the return flow is from land areas of more than 3,000 contiguous acres, or 3,000 non-contiguous acres which use the same drainage system; and
> (5) Discharges from any agricultural or silvicultural activity which have been identified by the Regional Administrator or the Director of the State water pollution control agency or interstate agency as a significant contributor of pollution.

The National Resources Defense Council, Inc. (NRDC) sought a declaratory judgment that the regulations are unlawful under the FWPCA. Specifically, NRDC contended that the Administrator does not have authority to exempt any class of point source from the permit requirements of s 402. It argued that Congress in enacting ss 301, 402 of the FWPCA intended to prohibit the discharge of pollutants from all point sources unless a permit had been issued to the discharger under s 402 or unless the point source was explicitly exempted from the permit requirements by statute. The District Court granted NRDC's motion for summary judgment. It held that the FWPCA does not authorize the Administrator to exclude any class of point sources from the permit program. NRDC v. Train, 396 F.Supp. 1393 (D.D.C.1975). The EPA has appealed to this court. It is joined on appeal by a number of defendant-intervenors, National Forest Products Association (NFPA), National Milk Producers Federation (NMPF), and the Colorado River Conservation District.[FN6]

> FN6. Briefs as amicus curiae were filed by the American Iron and Steel Institute, the State of Texas, and the State of Washington, Department of Natural Resources.

This case thus presents principally a question of statutory interpretation. EPA also argues that even if Congress intended to include the pertinent categories in the permit program, the regulations exempting them should be upheld on a doctrine of administrative infeasibility, i. e., the regulations should be upheld as a deviation from the literal terms of the FWPCA that is necessary to permit the Agency to realize the principal objectives of the Act.

I. LEGISLATIVE HISTORY

The principal purpose of the FWPCA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."[FN7]The Act's ultimate objective, to eliminate the discharge of pollutants into navigable waters by 1985, is to be achieved by means of two intermediate steps. As of July 1, 1977, all point sources other than publicly owned treatment works were to have achieved effluent limitations that require application of the "best practicable control technology." [FN8]These same point sources must reduce their effluent discharges by July 1, 1983, to meet limitations determined by application of the "best available technology economically achievable" for each category of point source.[FN9]

> FN7.33 U.S.C. s 1251(a) (Supp. V 1975).

> FN8.33 U.S.C. s 1311(b)(1)(A) (Supp. V 1975).

> FN9.Id.s 1311(b)(2)(A).

The technique for enforcing these effluent limitations is straightforward. Section 301(a) of the FWPCA provides:

Except as in compliance with this section and sections 302, 306, 307, 318, 402, and 404 of this Act, the discharge of any pollutant by any person shall be unlawful.[FN10]

> FN10.Id.s 1311(a).

Appellants concede that if the regulations are valid, it must be because they are authorized***1374 **152** by

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s 402; none of the other sections listed in s 301(a) afford grounds for relieving the exempted point sources from the prohibition of s 301. [FN11]

> FN11. Section 302, 33 U.S.C. s 1312 (Supp. V 1975), permits the Administrator to set water quality related effluent limitations or control strategies where technology-based limitations are inadequate. Section 306, 33 U.S.C. s 1316 (Supp. V 1975), instructs the EPA Administrator to promulgate standards of performance for new sources of pollution constructed after those standards are proposed. Section 307, 33 U.S.C. s 1317 (Supp. V 1975), gives the EPA Administrator the authority to issue generally applicable effluent standards with respect to toxic substances and to require pretreatment of some pollutants before their introduction into treatment works. By virtue of s 318, 33 U.S.C. s 1328 (Supp. V 1975), the Administrator may "permit the discharge of a specific pollutant or pollutants under controlled conditions associated with an approved aquaculture project under Federal or State supervision."Section 404, 33 U.S.C. s 1344 (Supp. V 1975), gives the Secretary of the Army authority to issue permits for the discharge of dredged or fill material into the navigable waters at specified disposal sites.

Section 402 provides in relevant part that the Administrator may, after opportunity for public hearing, issue a permit for the discharge of any pollutant, or combination of pollutants, notwithstanding section 301(a), upon condition that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308, and 403 of this Act, or prior to the taking of the necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this Act.

The NPDES permit program established by s 402 is central to the enforcement of the FWPCA. It translates general effluent limitations into the specific obligations of a discharger. As this court noted in NRDC v. Train, 166 U.S.App.D.C. 312, 315, 510 F.2d 692, 695 (1975), the Act "relies primarily on a permit program for the achievement of effluent limitations . . . to attain its goals."The comments in floor debates of Senator Muskie, the leading Congressional sponsor of the Act, makes this clear.[FN12]

> FN12."The Administrator of the Environmental Protection Agency is authorized to regulate discharge of pollutants through the use of an expanded permit program."117 Cong.Rec. 38800 (1971) (Senator Muskie) (emphasis added), reprinted in 2 Environmental Policy Div., Congressional Reference Serv., A Legislative History of the Water Pollution Control Act Amendments of 1972, at 1259 (Senate Public Works Comm. Print 1973) (hereinafter cited as Legislative History).

The appellants argue that s 402 not only gives the Administrator the discretion to grant or refuse a permit, but also gives him the authority to exempt classes of point sources from the permit requirements entirely. They argue that this interpretation is supported by the legislative history of s 402 and the fact that unavailability of this exemption power would place unmanageable administrative burdens on the EPA.

[1] Putting aside for the moment the appellants' administrative infeasibility argument, we agree with the District Court that the legislative history makes clear that Congress intended the NPDES permit to be the only means by which a discharger from a point source may escape the total prohibition of s 301(a). This intention is evident in both Committee Reports. In discussing s 301 the House Report stressed:

Any discharge of a pollutant without a permit issued by the Administrator under section 318, or by the Administrator or the State under section 402 or by the Secretary of the Army under section 404 is unlawful. Any discharge of a pollutant not in compliance with the conditions or limitations of such a permit is also unlawful.[FN13]

> FN13. H.Rep.No.92-911, 92d Cong., 2d Sess. 100 (1972), reprinted in Legislative History at 787.

The Senate Report echoed this interpretation:

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(Section 301) clearly establishes that the discharge of pollutants is unlawful. Unlike its predecessor program which permitted the discharge of certain amounts of pollutants under the conditions described above, this legislation would clearly establish that no one has the right ***1375 **153** to pollute that pollution continues because of technological limits, not because of any inherent rights to use the nation's waterways for the purpose of disposing of wastes.

The program proposed by this Section will be implemented through permits issued in Section 402. The Administrator will have the capability and the mandate to press technology and economics to achieve those levels of effluent reduction which he believes to be practicable in the first instance and attainable in the second.[FN14]

> FN14. S.Rep.No.92-414, 92d Cong., 1st Sess. 42 (1971), reprinted in Legislative History at 1460; U.S.Code Cong. & Admin.News 1972, pp. 3668, 3709.

[2] The EPA argues that since s 402 provides that "the Administrator may . . . issue a permit for the discharge of any pollutant" (emphasis added), he is given the discretion to exempt point sources from the permit requirements altogether. This argument, as to what Congress meant by the word "may" in s 402, is insufficient to rebut the plain language of the statute and the committee reports. We say this with due awareness of the deference normally due "the construction of a new statute by its implementing agency." NRDC v. Train, 166 U.S.App.D.C. at 326, 510 F.2d at 706; see Zuber v. Allen, 396 U.S. 168, 192, 90 S.Ct. 314, 24 L.Ed.2d 345 (1969); Udall v. Tallman, 380 U.S. 1, 16, 85 S.Ct. 792, 13 L.Ed.2d 616 (1965). The use of the word "may" in s 402 means only that the Administrator has discretion either to issue a permit or to leave the discharger subject to the total proscription of s 301. This is the natural reading, and the one that retains the fundamental logic of the statute.

Under the EPA's interpretation the Administrator would have broad discretion to exempt large classes of point sources from any or all requirements of the FWPCA. This is a result that the legislators did not intend. Rather they stressed that the FWPCA was a tough law that relied on explicit mandates to a degree uncommon in legislation of this type. A statement of Senator Jennings Randolph of West Virginia, Chairman of the Senate Committee responsible for the Act, is illustrative.

> I stress very strongly that Congress has become very specific on the steps it wants taken with regard to environmental protection. We have written into law precise standards and definite guidelines on how the environment should be protected. We have done more than just provide broad directives for administrators to follow. . . .
>
> In the past, too many of our environmental laws have contained vague generalities. What we are attempting to do now is provide laws that can be administered with certainty and precision. I think that is what the American people expect that we do.[FN15]
>
> > FN15.117 Cong.Rec. 38805 (1971), reprinted in Legislative History at 1272. See also the comments of Senator Montoya on the original Senate bill.
> > Your committee has placed before you a tough bill. This body and this Nation would not have it be otherwise. Our legislation contains an important principle of psychology: Men seldom draw the best from themselves unless pressed by circumstances and deadlines. This bill contains deadlines and it imposes rather tough standards on industry, municipalities, and all other sources of pollution. Only under such conditions are we likely to press the technological threshold of invention into new and imaginative developments that will allow us to meet the objectives stated in our bill.
> > 117 Cong.Rec. 38808 (1971), reprinted in Legislative History at 1278.

There are innumerable references in the legislative history to the effect that the Act is founded on the "basic premise that a discharge of pollutants without a permit is unlawful and that discharges not in compliance with the limitations and conditions for a permit are unlawful."[FN16]Even when infeasibility arguments were squarely raised, ***1376 **154** the legislature declined to abandon the permit requirement.[FN17] We stand by our previous interpretation of the Act's scheme for the enforcement

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of effluent limitations:

> FN16.118 Cong.Rec. 10215 (1972) (Rep. Clausen), reprinted in Legislative History at 378. See, e. g., H.R.Rep.No.92-911 92d Cong., 2d Sess. 100 (1972), reprinted in Legislative History at 787; S.Rep.No.92-414; 92d Cong., 1st Sess. 42-43 (1971), reprinted in Legislative History at 1460-61; 118 Cong.Rec. 10661 (1972) (Rep. Podell), reprinted in Legislative History at 574.
>
> FN17. The House rejected an amendment designed to avoid the problems of including irrigation return flows in the permit program. Congressman Teno Roncalio of Wyoming offered an amendment on the floor of the House that would have explicitly exempted irrigated agriculture from the NPDES permit program.
> Mr. RONCALIO. . . .
> I offer my amendment so that a serious omission to H.R. 11896 can be corrected before we end up with a law that would be virtually impossible to enforce. My amendment would specifically exempt irrigated agriculture from sections 301(a), 302 and 304 of the Federal Water Pollution Control Act.
> I think my colleagues will agree that the type of salinity problems created by irrigation runoff are simply not as alarming as the more common pollutants discharged by industrial and municipal facilities. Substantial salinity concentrations have little effect on recreational use of water or its suitability for the propagation of fish.
> My amendment is necessary, Mr. Chairman, because at the present time we could not enforce pollution control on irrigation systems. It is virtually impossible to trace pollutants to specific irrigation lands, making these pollutants a nonpoint source in most cases. Second, we do not have the technology to deal with irrigation runoff (as contrasted to industrial pollution) and if we begin making laws to control something that cannot be handled with our given technological knowledge, we will be doing many thousand farmers and ranchers a great disservice. In fact, we will be doing the Federal Government a great disservice if we actually pass a Federal water pollution control bill that cannot be fully enforced.
> 118 Cong.Rec. 10764-65 (1972), reprinted in Legislative History at 651. The amendment was rejected.

After dates set forth in (s 301(b)), a person must obtain a permit and comply with its terms in order to discharge any pollutant. The conditions of the permit must assure that any discharge complies with the applicable requirements of numerous sections including the effluent limitations of section 301(b).
NRDC v. Train, 166 U.S.App.D.C. at 316, 510 F.2d at 696 (emphasis added; footnotes omitted).

We also note that all the Supreme Court decisions referring to s 402 view the permit as the only means by which a point source polluter can avoid the ban on discharges found in s 301. Strictly speaking these expressions may be dicta, for they do not touch directly on the interpretation of s 402. But they are at least a considered reading of what the Act appears to mean.

In Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1, 96 S.Ct. 1938, 48 L.Ed.2d 434 (1976), Justice Marshall characterized the enforcement scheme of the FWPCA as follows:

(E)ffluent limitations are enforced through a permit program. The discharge of “pollutants” into water is unlawful without a permit issued by the Administrator of the EPA or, if a State has developed a program that complies with the FWPCA, by the State. . . .

Id. at 7, 96 S.Ct. at 1941 (footnote omitted).

In EPA v. State Water Resources Control Board, 426 U.S. 200, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976), the issue was whether federal installations were subject to state NPDES programs. Justice White's majority opinion describes NPDES at 205, 96 S.Ct. at 2025 (footnote omitted):

Under NPDES, it is unlawful for any person to discharge a pollutant without obtaining a permit and complying with its terms. An NPDES permit serves to transform generally applicable effluent limitations

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and other standards including those based on water quality into the obligations (including a timetable for compliance) of the individual discharger, and the Amendments provide for direct administrative and judicial enforcement of permits.

In E. I. du Pont de Nemours v. Train, 430 U.S. 112, 97 S.Ct. 965, 51 L.Ed.2d 204 (1977), the Court held that under FWPCA the EPA can set uniform effluent limitations through industry-wide regulations rather than develop them on an individual basis during the permit issuance process. But the Court, per Justice Stevens, clearly indicated***1377 **155** that those limitations were translated into obligations of the discharger through their inclusion in an NPDES permit. Id. at 119-20, 97 S.Ct. 965.

The wording of the statute, legislative history, and precedents are clear: the EPA Administrator does not have authority to exempt categories of point sources from the permit requirements of s 402. Courts may not manufacture for an agency a revisory power inconsistent with the clear intent of the relevant statute. In holding that the FPC does not have authority to exempt the rates of small producers from regulation under the Natural Gas Act, the Supreme Court observed:

It is not the Court's role . . . to overturn congressional assumptions embedded into the framework of regulation established by the Act. This is a proper task for the Legislature where the public interest may be considered from the multifaceted points of view of the representational process.

FPC v. Texaco, Inc., 417 U.S. 380, 400, 94 S.Ct. 2315, 2327, 41 L.Ed.2d 141 (1974).

II. ADMINISTRATIVE INFEASIBILITY

The appellants have stressed in briefs and at oral argument the extraordinary burden on the EPA that will be imposed by the above interpretation of the scope of the NPDES program. The spectre of millions of applications for permits is evoked both as part of appellants' legislative history argument that Congress could not have intended to impose such burdens on the EPA and as an invitation to this court to uphold the regulations as deviations from the literal terms of the FWPCA necessary to permit the agency to realize the general objectives of that act. During oral argument we asked for supplemental briefs so that the appellants could expand on their infeasibility arguments. We consider EPA's infeasibility contentions in turn.

A. Uniform National Effluent Limitations

EPA argues that the regulatory scheme intended under Titles III and IV of the FWPCA requires, first, that the Administrator establish national effluent limitations [FN18] and, second, that these limitations be incorporated in the individual permits of dischargers. EPA argues that the establishment of such limitations is simply not possible with the type of point sources involved in the 1973 regulations, which essentially involve the discharge of runoff i. e., wastewaters generated by rainfall that drain over terrain into navigable waters, picking up pollutants along the way.

> FN18. See FWPCA s 502(11), 33 U.S.C. s 1362(11) (Supp. V 1975):
> The term “effluent limitation” means any restriction established by a State or the Administrator on quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance.

There is an initial question, to what extent point sources are involved in agricultural, silvicultural, and storm sewer runoff. The definition of point source in s 502(14), including the concept of a “discrete conveyance”, suggests that there is room here for some exclusion by interpretation. We discuss this issue subsequently. Meanwhile, we assume that even taking into account what are clearly point sources, there is a problem of infeasibility which the EPA properly opens for discussion.

EPA contends that certain characteristics of runoff pollution make it difficult to promulgate effluent limitations for most of the point sources exempted by the 1973 regulations:

The major characteristic of the pollution problem which is generated by runoff . . . is that the owner of the discharge point . . . has no control over the

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quantity of the flow or the nature and amounts of the pollutants picked up by the runoff. The amount of flow obviously is unpredictable because it results from the duration and intensity of the rainfall event, the topography, the type of ground cover and the saturation point of the land due to any previous ***1378 **156** rainfall. Similar factors affect the types of pollutants which will be picked up by that runoff, including the type of farming practices employed, the rate and type of pesticide and fertilizer application, and the conservation practices employed . . .

An effluent limitation must be a precise number in order for it to be an effective regulatory tool; both the discharger and the regulatory agency need to have an identifiable standard upon which to determine whether the facility is in compliance. That was the principal of the passage of the 1972 Amendments.

Federal Appellants' Memorandum on "Impossibility" at 7-8 (footnote omitted). Implicit in EPA's contentions is the premise that there must be a uniform effluent limitation prior to issuing a permit. That is not our understanding of the law.

In NRDC v. Train, we described the interrelationship of the effluent limitations and the NPDES permit program, 166 U.S.App.D.C. at 327, 510 F.2d at 707 (footnotes omitted):

The Act relies on effluent limitations on individual point sources as the "basis of pollution prevention and elimination." . . . Section 301(b) contains a broad description of phase one and phase two effluent limitations, to be achieved by July 1, 1977 and July 1, 1983, respectively. The limitations established under section 301(b) are to be imposed upon individual point sources through permits issued under the National Pollutant Discharge Elimination System (NPDES) established by section 402. Those permits are to contain schedules which will assure phased compliance with the effluent limitations no later than the final dates set forth in section 301(b). Section 304(b) calls for the publication of regulations containing guidelines for effluent limitations for classes and categories of point sources. These guidelines are intended to assist in the establishment of section 301(b) limitations that will provide uniformity in the permit conditions imposed on similar sources within the same category by diverse state and federal permit authorities.

As noted in NRDC v. Train, the primary purpose of the effluent limitations and guidelines was to provide uniformity among the federal and state jurisdictions enforcing the NPDES program and prevent the "Tragedy of the Commons" [FN19] that might result if jurisdictions can compete for industry and development by providing more liberal limitations than their neighboring states. 166 U.S.App.D.C. at 329, 510 F.2d at 709. The effluent limitations were intended to create floors that had to be respected by state permit programs.

> FN19. As one commentator has recently written:
> The Tragedy of the Commons arises in noncentralized decisionmaking under conditions in which the rational but independent pursuit by each decisionmaker of its own self-interest leads to results that leave all decisionmakers worse off than they would have been had they been able to agree collectively on a different set of policies.
> Stewart, Pyramids of Sacrifice? Problems of Federalism in Mandating State Implementation of National Environmental Policy, 86 Yale L.J. 1196, 1211 (1977). The classic account of the Tragedy of the Commons can be found in Hardin, The Tragedy of the Commons, 162 Science 1243 (1968). Hardin makes the point in the context of sheep-grazing. Put simply, even over-simply, Hardin shows that if no one is authorized to set limits to preserve open pasture land as a whole, allowing sheep to graze on that land may lead to serious overgrazing, as each herdsman thinks only of his own advantage. The solution lies in some mandate, from above or by agreement, with sanctions to compel conformance.

But in NRDC v. Train it was also recognized that permits could be issued before national effluent limitations were promulgated and that permits issued subsequent to promulgation of uniform effluent limitations could be modified to take account of special characteristics of subcategories of point sources.

Prior to the promulgation of effluent limitations under section 301, the director of a state program is

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instructed merely to impose such terms and conditions in each permit as he determines are necessary to carry out the provisions of the Act. Once ***1379 **157** an effluent limitation is established, however, the state director and the regional EPA Administrator are required to apply the specified, uniform effluent limitations, modified only as necessary to take account of fundamentally different factors pertaining to particular point sources within a given class or category. Any variation in the uniform limitations adopted for specific dischargers must be approved by the Administrator.

166 U.S.App.D.C. at 330, 510 F.2d at 710 (footnotes omitted).

Another passage in NRDC v. Train touches on the infeasibility problem. We noted that "(t)he statutory framework is not so tightly drawn as to require guidelines for each and every class and category of point source regardless of the need for uniform guidelines or to mandate that all guidelines be published prior to December 31 (1974) regardless of their quality or the burden that task would place upon the agency." Id. at 320-21, 510 F.2d at 710-11. In that case this court fully appreciated that technological and administrative constraints might prevent the Administrator from developing guidelines and corresponding uniform numeric effluent limitations for certain point sources anytime in the near future. The Administrator was deemed to have the burden of demonstrating that the failure to develop the guidelines on schedule was due to administrative or technological infeasibility. 166 U.S.App.D.C. at 333, 510 F.2d at 713.Yet the underlying teaching was that technological or administrative infeasibility was a reason for adjusting court mandates to the minimum extent necessary to realize the general objectives of the Act.[FN20] It is a number of steps again to suggest that these problems afford the Administrator the authority to exempt categories of point sources from the NPDES program entirely.

> FN20. In NRDC v. Train, this court stated:
> A federal equity court may exercise its discretion to give or withhold its mandate in furtherance of the public interest, including specifically the interest in effectuating the congressional objective incorporated in regulatory legislation. We think the court may forebear the issuance of an order in those cases where it is convinced by the official involved that he has in good faith employed the utmost diligence in discharging his statutory responsibilities. The sound discretion of an equity court does not embrace enforcement through contempt of a party's duty to comply with an order that calls him "to do an impossibility."
> 166 U.S.App.D.C. at 333, 510 F.2d at 713 (footnotes omitted). For reasons stated in this opinion, we conclude that to require the EPA Administrator to include silvicultural, agricultural, and storm sewer point sources in the NPDES program is not to require him "to do an impossibility."

With time, experience, and technological development, more point sources in the categories that EPA has now classed as exempt may be amenable to national effluent limitations achieved through end-of-pipe technology or other means of pollution control. EPA has noted its own success with runoff from mining operations:

EPA has found that in the area of runoff from mining operations, there is sufficient predictability because of a longer history of regulation and the relatively confined nature of the operations that numerical limitations can be established. Thus, consistent with EPA's position stated earlier that it will expand the permit program where its capability of establishing effluent limitations allows, appropriate limitations have been created and the permit program expanded.

Federal Appellants' Memorandum on "Impossibility" at 8.

[3] In sum, we conclude that the existence of uniform national effluent limitations is not a necessary precondition for incorporating into the NPDES program pollution from agricultural, silvicultural, and storm water runoff point sources. The technological or administrative infeasibility of such limitations may result in adjustments in the permit programs, as will be seen, but it does not authorize the Administrator to exclude the relevant point source from the NPDES program.

B. Alternative Permit Conditions under s 402(a)

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EPA contends that even if it is possible to issue permits without national effluent limitations,***1380 **158** the special characteristics of point sources of runoff pollution make it infeasible to develop restrictions on a case-by-case basis. EPA's implicit premise is that whether limitations are promulgated on a class or individual source basis, it is still necessary to articulate any limitation in terms of a numerical effluent standard. That is not our understanding.

[4] Section 402 provides that a permit may be issued upon condition "that such discharge will meet either all applicable requirements under sections 301, 302, 306, 307, 308 and 403 of this Act, or prior to taking of necessary implementing actions relating to all such requirements, such conditions as the Administrator determines are necessary to carry out the provisions of this Act."33 U.S.C. s 1342(a) (Supp. V 1975) (emphasis added). This provision gives EPA considerable flexibility in framing the permit to achieve a desired reduction in pollutant discharges. The permit may proscribe industry practices that aggravate the problem of point source pollution.[FN21]

> FN21. That Congress did not regard numeric effluent limitations as the only permissible limitation on a discharger is supported by s 302(a) of the Act, 33 U.S.C. s 1312(a) (Supp. V 1975):
> Whenever, in the judgment of the Administrator, discharges of pollutants from a point source or group of point sources, with the application of effluent limitations required under (s 301(b) of the Act), would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water, effluent limitations (including alternative effluent control strategies) for such point source or sources shall be established which can reasonably be expected to contribute to the attainment or maintenance of such water quality.
> The emphasis has been added.

EPA's counsel caricatures the matter by stating that recognition of any such authority would give EPA the power "to instruct each individual farmer on his farming practices."Federal Appellants Memorandum on "Impossibility" at 12. Any limitation on a polluter forces him to modify his conduct and operations. For example, an air polluter may have a choice of installing scrubbers, burning different fuels or reducing output. Indeed, the authority to prescribe limits consistent with the best practicable technology may be tantamount to prescribing that technology. Of course, when alternative techniques are available, Congress intended to give the discharger as much flexibility as possible in choosing his mode of compliance. See, e. g., H.Rep.No.92-911, 92d Cong., 2d Sess. 107, reprinted in Legislative History at 794. We only indicate here that when numerical effluent limitations are infeasible, EPA may issue permits with conditions designed to reduce the level of effluent discharges to acceptable levels. This may well mean opting for a gross reduction in pollutant discharge rather than the fine-tuning suggested by numerical limitations. But this ambitious statute is not hospitable to the concept that the appropriate response to a difficult pollution problem is not to try at all.

It may be appropriate in certain circumstances for the EPA to require a permittee simply to monitor and report effluent levels; EPA manifestly has this authority.[FN22] Such permit conditions might be desirable where the full extent of the pollution problem is not known.

> FN22. FWPCA s 402(a)(3), (b)(2)(B), 33 U.S.C. s 1342(a)(3), (b)(2)(B) (Supp. V 1975). EPA concedes that it has this authority. Federal Appellants' Memorandum on "Impossibility" at 14.

C. General Permits

Finally, EPA argues that the number of permits involved in the absence of an exemption authority will simply overwhelm the Agency. Affidavits filed with the District Court indicate, for example, that the number of silviculture point sources may be over 300,000 and that there are approximately 100,000 separate storm sewer point sources.[FN23] We are and must be sensitive to ***1381 **159** EPA's

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concerns of an intolerable permit load. But the District Court and the various parties have suggested devices to mitigate the burden to accommodate within a practical regulatory scheme Congress's clear mandate that all point sources have permits. All that is required is that EPA makes full use of its interpretational authority. The existence of a variety of options belies EPA's infeasibility arguments.

FN23. Affidavit of William H. McCredie, Director, Industrial Forestry, of the NFPA; Affidavit of Walter G. Gilbert, Chief of the Municipal Operations Branch, Municipal Waste Water Systems Div., EPA Office of Air and Water Programs.

[5] Section 402 does not explicitly describe the necessary scope of a NPDES permit. The most significant requirement is that the permit be in compliance with limitation sections of the Act described above. As a result NRDC and the District Court have suggested the use of area or general permits. The Act allows such techniques. Area-wide regulation is one well-established means of coping with administrative exigency. An instance is area pricing for natural gas producers, which the Supreme Court upheld in Permian Basin Area Rate Cases, 390 U.S. 747, 88 S.Ct. 1344, 20 L.Ed.2d 312 (1968).[FN24] A more dramatic example is the administrative search warrant, which may be issued on an area basis despite the normal Fourth Amendment requirement of probable cause for searching specific premises. Camara v. Municipal Court, 387 U.S. 523, 87 S.Ct. 1727, 18 L.Ed.2d 930 (1967).

FN24. In Permian Basin the Supreme Court observed:

The Commission has asserted, and the history of producer regulation has confirmed, that the ultimate achievement of the Commission's regulatory purposes may easily depend upon the contrivance of more expeditious administrative methods. The Commission believes that the elements of such methods may be found in area proceedings.“(C)onsiderations of feasibility and practicality are certainly germane” to the issues before us. . . . We cannot, in these circumstances, conclude that Congress has given authority inadequate to achieve with reasonable effectiveness the purposes for which it has acted.

390 U.S. at 777, 88 S.Ct. at 1365.

In response to the District Court's order, EPA promulgated regulations that make use of the general permit device.42 Fed.Reg. 6846-53 (Feb. 4, 1977). The general permit is addressed to a class of point source dischargers, subject to notice and opportunity for public hearing in the geographical area covered by the permit. Although we do not pass on the validity of the February, 1977, regulations, they serve to dilute an objection of wholesale infeasibility.[FN25]

FN25. It is also of some, albeit limited, significance that the House Committee on Government Operations found EPA's administrative problems with applying the permit program to animal feedlots “grossly exaggerated.” It was of the opinion that the Administrator did not have authority to exempt point sources from the NPDES program. H.Rep.No.93-1012, 93d Cong., 2d Sess. 15-30 (1974).

Our approach is not fairly subject to the criticism that it elevates form over substance that the end result will look very much like EPA's categorical exemption. It is the function of the courts to require agencies to comply with legislative intent when that intent is clear, and to leave it to the legislature to make adjustments when the result is counterproductive.[FN26] At the same time, where intent on an issue is unclear,***1382 **160** we are instructed to afford the administering agency the flexibility necessary to achieve the general objectives of the Act. Weinberger v. Bentex Pharmaceuticals, Inc., 412 U.S. 645, 653, 93 S.Ct. 2448, 37 L.Ed.2d 235 (1973); United States v. Southwestern Cable Co., 392 U.S. 157, 177-78, 88 S.Ct. 1994, 20 L.Ed.2d 1001 (1968); Permian Basin Area Rate Cases, 390 U.S. 747, 780, 88 S.Ct. 1344, 20 L.Ed.2d 312 (1968). These lines of authority conjoin in our approach. We insist, as the Act insists, that a permit is necessary; the Administrator has no authority to exempt point sources from the NPDES program. But we concede necessary flexibility in the shaping of the permits that is not inconsistent with the clear terms of the Act.

FN26. The Supreme Court recently

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reiterated this instruction in Union Electric Co. v. EPA, 427 U.S. 246, 96 S.Ct. 2518, 49 L.Ed.2d 474 (1976). There the Court held that the EPA Administrator could not consider claims of technological or economic infeasibility when approving state implementation plans under the Clean Air Act Amendments of 1970, 42 U.S.C. ss 1857a-1857l (1970). Such claims were held only to be cognizable by the states in the plan design stage or by the Administrator when drawing up compliance orders. Justice Marshall, writing for the Court, emphasized that federal courts are not to ignore clear expressions of Congressional intent in order to accommodate claims of technological or economic infeasibility.

Allowing such claims to be raised by appealing the Administrator's approval of an implementation plan . . . would frustrate congressional intent. It would permit a proposed plan to be struck down as infeasible before it is given a chance to work, even though Congress clearly contemplated that some plans would be infeasible when proposed. And it would permit the Administrator or a federal court to reject a State's legislative choices in regulating air pollution, even though Congress plainly left with the States, so long as the national standards were met, the power to determine which sources would be burdened by regulation and to what extent. Technology forcing is a concept somewhat new to our national experience and it necessarily entails certain risks. But Congress considered those risks in passing the 1970 Amendments and decided that the dangers posed by uncontrolled air pollution made them worth taking. Petitioner's theory would render that considered legislative judgment a nullity, and that is a result we refuse to reach.

427 U.S. at 268-69, 96 S.Ct. at 2531 (footnote omitted). See also Wilderness Society v. Morton, 156 U.S.App.D.C. 121, 171, 479 F.2d 842, 892 (1973), cert. denied, 411 U.S. 917, 93 S.Ct. 1550, 36 L.Ed.2d 309 (quoting United States v. City and County of San Francisco, 310 U.S. 16, 31-32, 60 S.Ct. 749, 84 L.Ed. 1050 (1940): " 'We cannot accept the contention that administrative rulings such as those relied on can thwart the plain purpose of a valid law.' ")

There is also a very practical difference between a general permit and an exemption. An exemption tends to become indefinite: the problem drops out of sight, into a pool of inertia, unlikely to be recalled in the absence of crisis or a strong political protagonist. In contrast, the general or area permit approach forces the Agency to focus on the problems of specific regions and requires that the problems of the region be reconsidered at least every five years, the maximum duration of a permit.[FN27]

FN27.33 U.S.C. s 1342(a)(3), (b)(1)(B) (Supp. V 1975).

D. Other Interpretational Powers

[6] Many of the intervenor-appellants appear to argue that the District Court should be reversed because the categories exempted by EPA are nonpoint sources and are not, in fact, point sources.[FN28]We agree with the District Court "that the power to define point and nonpoint sources is vested in EPA and should be reviewed by the court only after opportunity for full agency review and examination." 396 F.Supp. at 1396. The only issue precisely confronted by all the parties and properly framed for our consideration is whether the Administrator has authority to exempt point sources from the NPDES program. We also think that we should, for similar reasons, not consider at this time the appropriate definition of "discharge of any pollutant" as used in s 402. The American Iron and Steel Institute as amicus curiae has pressed upon us the argument that the term "discharge" as used in s 402 was intended to encompass only "volitional flows" that add pollutants to navigable waters. Most forms of runoff, it is argued, do not involve volitional flows.

FN28. This appears to be the position of the Colorado River Water Conservation District and the NFPA with respect to silvicultural activities, and NMPF, less obviously, with respect to small dairy farms.

We would put in the same category EPA's contention that the exempt categories are best handled under the areawide waste treatment management planning process of s

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208 of the FWPCA, 33 U.S.C. s 1288 (Supp. V 1975). By its terms that section is concerned with areawide waste treatment plans that identify and control "agriculturally and silviculturally related non-point sources of pollution."Id.s 1288(b)(2)(F).

[7] We assume that FWPCA, however tight in some respects, leaves some leeway to EPA in the interpretation of that statute, and in that regard affords the Agency some means to consider matters of feasibility. However, for reasons already noted, we do not consider these particular contentions as to interpretation on the merits.

III. CONCLUSION

[8] As the Supreme Court recently stated in a FWPCA case, "(t)he question . . .is****161 *1383** not what a court thinks is generally appropriate to the regulatory process, it is what Congress intended . . .." E. I. du Pont de Nemours & Co. v. Train, 430 U.S. 112, 138, 97 S.Ct. 965, 980, 51 L.Ed.2d 204 (1977). We find a plain Congressional intent to require permits in any situation of pollution from point sources. We also discern an intent to give EPA flexibility in the structure of the permits, in the form of general or area permits. We are aware that Congress hoped that more of the NPDES permit program would be administered by the states at this point.[FN29] But it also made provision for continuing EPA administration. Imagination conjoined with determination will likely give EPA a capability for practicable administration. If not, the remedy lies with Congress.

FN29. See, e. g., 118 Cong.Rec. 10235 (1972) (Rep. Ichord) reprinted in Legislative History at 428.

So ordered.

MacKINNON, Circuit Judge, concurring:

I concur in the very sound and practical construction set forth in the foregoing opinion. Any person concerned with the actual application and enforcement of laws would necessarily be concerned by the application of the relevant legislation to all point sources in agriculture and particularly to irrigated agriculture. Concern would also lie in the congressional admission that present technology is inadequate to enable our citizens to meet the standards and deadlines the Act imposes; in passing the law, Congress was relying on the future "invention (of) new and imaginative developments that will allow us to meet the objectives of our bill."[FN1]In gambling parlance, Congress in enacting the law was "betting on the come." It is relying on our citizens in the near future to develop the complex technology to meet all the law's standards and objectives on time. The difficulty with that approach is that the hopes of Congress in this respect, like that of any gambler, might not be realized. The agency in this case, however, has shown that it takes a realistic view of both the situation and the task of meeting the difficult requirements and objectives of the Act. I sincerely hope that the ability of the agency to issue section 402 permits including general area permits [FN2] will permit it to meet the present and future compliance problems posed by the Act in a practical way.

FN1. Comments of Senator Montoya, 117 Cong.Rec. 38808 (1971), quoted in court's opinion at 12, reprinted in Legislative History at 1278.

FN2. As an example, an area permit with appropriate conditions and modifications could issue for the agricultural point sources within the Grand River Irrigation District, or the watershed of the Roaring Fork River and tributaries, etc.

C.A.D.C.,1977.
Natural Resources Defense Council, Inc. v. Costle
568 F.2d 1369, 10 ERC 2025, 186 U.S.App.D.C. 147, 8 Envtl. L. Rep. 20,028

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ATTACHMENT
11

KeyCite Yellow Flag - Negative Treatment
Not Followed on State Law Grounds Michigan Farm Bureau v. Dep't of Environmental Quality, Mich.App., March 29, 2011

399 F.3d 486
United States Court of Appeals,
Second Circuit.

WATERKEEPER ALLIANCE, INC., American Farm Bureau Federation, National Chicken Council, National Pork Producers Council, American Littoral Society, Sierra Club, Inc., Natural Resources Defense Council, Inc., Petitioners/Intervenors,
v.
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Michael O. Leavitt, Administrator, United States Environmental Protection Agency Respondents.

Docket Nos. 03–4470 (L), 03–4621(C), 03–4631(C), 03–4641(C), 03–4849(C), 04–40199(C), 03–40229(C).
|
Argued: Dec. 13, 2004.
|
Decided: Feb. 28, 2005.

Synopsis

Background: Various environmental groups and farm groups brought multiple challenges to administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) in order to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO).

Holdings: The Court of Appeals, Katzmann, Circuit Judge, held that:

[1] provision of rule allowing permitting authorities to issue permits without reviewing the terms of nutrient management plans violated statutory provisions of CWA;

[2] permitting scheme established by rule promulgated violated the CWA's public participation requirements;

[3] regulatory exemption for agricultural stormwater discharges did not violate the CWA;

[4] EPA acted reasonably in choosing as best available technology for beef and cattle CAFOs an option requiring that groundwater-related requirements be implemented, as necessary, on a case-by-case basis, rather than uniformly imposed;

[5] EPA acted reasonably in rejecting as best available technology for swine, poultry, and veal CAFOs an option requiring a zero discharge requirement that did not allow overflows from the production area under any circumstances;

[6] EPA's failure to impose best conventional pollutant control technology effluent limitation guidelines specifically designed to reduce pathogens in CAFO's violated the CWA; and

[7] new source performance standards for the production areas of swine, poultry, and veal CAFOs violated the CWA.

So ordered.

West Headnotes (16)

[1] Administrative Law and Procedure
Arbitrary, unreasonable or capricious action; illegality

To determine whether an agency has acted in an arbitrary and capricious fashion, an appellate court must ask whether the agency has examined the relevant data and articulated a satisfactory explanation for its action including a rational connection between the facts found and the choice made.

2 Cases that cite this headnote

[2] Administrative Law and Procedure
Validity

Normally, an appellate court must deem arbitrary and capricious an agency rule where the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect

of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.

2 Cases that cite this headnote

[3] **Environmental Law**
Discharge of pollutants

Provision of administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations allowing permitting authorities to issue permits without reviewing the terms of nutrient management plans violated statutory provisions of CWA requiring permitting authorities to assure compliance with all effluent limitations and standards for land applications of manure, litter, and process waste water, and was otherwise arbitrary and capricious under the Administrative Procedure Act (APA). Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.; 40 C.F.R. § 122.23(d)(2).

4 Cases that cite this headnote

[4] **Environmental Law**
Discharge of pollutants

Provision of administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations allowing permitting authorities to issue permits that did not include the terms of nutrient management plans violated CWA requirement that effluent limitations must be included in the permits, and was otherwise arbitrary and capricious. Federal Water Pollution Control Act Amendments of 1972, §§ 301(a, b), 402(a), as amended, 33 U.S.C.A. §§ 1311(a, b), 1342(a).

11 Cases that cite this headnote

[5] **Environmental Law**
Discharge of pollutants

Environmental Law
Notice and comment

Permitting scheme established by administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations violated the CWA's public participation requirements and was otherwise arbitrary and capricious under the Administrative Procedure Act; although the preamble to the rule indicated that the EPA expected that the permitting authority would make the information available to the public upon request, the rule provided no assurance that the EPA's expectations would be satisfied. 5 U.S.C.A. § 551 et seq.; Federal Water Pollution Control Act Amendments of 1972, §§ 101(e), 402(a, j), as amended, 33 U.S.C.A. §§ 1251(e), 1342(a, j); 40 C.F.R. § 122.42(e)(2)(ii).

4 Cases that cite this headnote

[6] **Environmental Law**
Discharge of pollutants

Permitting scheme established by administrative rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO), requiring that every CAFO owner or operator either apply for a permit, and comply with the effluent limitations contained in the permit, or affirmatively demonstrate that no permit was needed because there was no potential to discharge, exceeded statutory authority granted by the CWA to regulate and control the actual discharge of pollutants; the CWA gave the EPA the authority to regulate only actual discharges,

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not potential discharges and not point sources themselves. Federal Water Pollution Control Act Amendments of 1972, §§ 301(e), 402, 502(12, 14), as amended, 33 U.S.C.A. §§ 1311(e), 1342; 1362(12, 14); 40 C.F.R. §§ 122.23(d), 122.23(f).

24 Cases that cite this headnote

[7] Environmental Law

Discharge of pollutants

Regulatory exemption for agricultural stormwater discharges contained in rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations did not violate the CWA. Federal Water Pollution Control Act Amendments of 1972, § 502, as amended, 33 U.S.C.A. § 1362; 40 C.F.R. § 122.23(e).

1 Cases that cite this headnote

[8] Environmental Law

Substances, Sources, and Activities Regulated

Any discharge from a land area under the control of a concentrated animal feeding operation, regardless of whether the discharge is collected at the land application area itself, is a "point source discharge" subject to regulation under rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.; 40 C.F.R. § 122.23(e).

12 Cases that cite this headnote

[9] Environmental Law

Particular limitations and guidelines

In setting best available technology (BAT) standards for determining effluent limitation guidelines (ELG), for purposes of rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO), the EPA complied with statutory duties, notwithstanding that the rule did not explicitly identify the single, existing best-performing CAFO in each category or subcategory of the rule; the EPA extensively surveyed available technologies, narrowed the list of potential BAT candidates to seven options, and subsequently found, within the bounds of its discretion, that a specific option was the best candidate for BAT, because all the other options considered either did not perform better than that option, were not adequately supported in science, or were not economically achievable. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.

5 Cases that cite this headnote

[10] Environmental Law

Particular limitations and guidelines

Environmental Protection Agency (EPA) acted reasonably in choosing as best available technology for beef and cattle concentrated animal feeding operations (CAFOs) an option requiring that groundwater-related requirements be implemented, as necessary, on a case-by-case basis, rather than uniformly imposed, when promulgating rule under the Clean Water Act (CWA) to regulate the emission of water pollutants by CAFOs; studies showed that variability in topography, climate, distance to surface water, and geologic facts influenced whether and how pollutant discharges at a particular site entered surface water via groundwater, and EPA's final economic analysis showed a nearly six-fold increase in the number of beef, dairy, and heifer CAFOs projected to close were the option requiring uniform, rather than case-by-case implementation, adopted. Federal Water Pollution Control

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Act Amendments of 1972, § 101 et seq., as amended, 33 U.S.C.A. § 1251 et seq.

1 Cases that cite this headnote

[11] Environmental Law

Particular limitations and guidelines

Environmental Protection Agency (EPA) acted reasonably in rejecting as best available technology for swine, poultry, and veal concentrated animal feeding operations an option requiring a zero discharge requirement that did not allow overflows from the production area under any circumstances when promulgating rule under the Clean Water Act (CWA) to regulate the emission of water pollutants by concentrated animal feeding operations (CAFO); after conducting extensive economic analysis, involving numerous economic tests and modeling, the EPA determined that such an option would render 17 percent of swine CAFOs and 11 percent of the CAFOs, on the whole, vulnerable to closure. Federal Water Pollution Control Act Amendments of 1972, § 304(b)(2)(B), as amended, 33 U.S.C.A. § 1314(b)(2)(B).

3 Cases that cite this headnote

[12] Environmental Law

Scope of Inquiry on Review of Administrative Decision

A reviewing court can neither second-guess Environmental Protection Agency's (EPA) analysis nor undertake its own economic study; rather, the court must uphold regulations if EPA has established in the record a reasonable basis for its decision.

Cases that cite this headnote

[13] Environmental Law

Particular limitations and guidelines

Environmental Protection Agency's (EPA) failure to impose best conventional pollutant control technology (BCT) effluent limitation guidelines (ELGs) specifically designed to reduce pathogens in concentrated animal feeding operations, when promulgating rule under the Clean Water Act to regulate the emission of water pollutants by concentrated animal feeding operations violated the Clean Water Act. Federal Water Pollution Control Act Amendments of 1972, § 304(b)(2)(A), as amended, 33 U.S.C.A. § 1314(b)(2)(A).

5 Cases that cite this headnote

[14] Environmental Law

Particular limitations and guidelines

New source performance standards for the production areas of swine, poultry, and veal concentrated animal feeding operations (CAFOs) allowing the CAFOs to comply with total prohibition against production area discharges by designing, operating, and maintaining a facility to contain the runoff from a 100-year, 24-hour rainfall event violated the Clean Water Act; the EPA never modeled the potential overflows and pollutant loads from a system with a 100-year, 24-hour storm event, and while certain studies may have shown that the rule would have substantially prevented production area discharges, substantially preventing discharges was not the same as prohibiting them outright. Federal Water Pollution Control Act Amendments of 1972, § 306, as amended, 33 U.S.C.A. § 1316.

2 Cases that cite this headnote

[15] Environmental Law

Notice and comment

New source performance standards for the production areas of swine, poultry, and veal concentrated animal feeding operations violated the Clean Water Act's public participation requirements, given that the Environmental Protection Agency (EPA) introduced a change to the standard that was not subject to public comment. Federal Water Pollution Control Act Amendments of 1972, § 101(e), as amended, 33 U.S.C.A. § 1251(e).

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Cases that cite this headnote

[16] **Environmental Law**
Particular limitations and guidelines
Environmental Law
Discharge of pollutants

Rule promulgated by the Environmental Protection Agency (EPA) under the Clean Water Act to regulate the emission of water pollutants by concentrated animal feeding operations violated the Clean Water Act and was otherwise arbitrary and capricious under the Administrative Procedure Act (APA), to the extent that the EPA failed to justify the lack of water quality based effluent limitations (WQBELs) for concentrated animal feeding operations discharges other than agricultural stormwater discharges. 5 U.S.C.A. § 551 et seq.; Federal Water Pollution Control Act Amendments of 1972, § 302(a), as amended, 33 U.S.C.A. § 1312(a); 40 C.F.R. § 122.23(e).

7 Cases that cite this headnote

West Codenotes

Held Invalid
40 C.F.R. § 122.23(d), (d)(2), (f) 40 C.F.R. § 122.42(e)(2)(ii)40 C.F.R. § 412.46

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Before: OAKES, KATZMANN, and WESLEY, Circuit Judges.

Opinion

KATZMANN, Circuit Judge.

In this consolidated petition, we review various challenges to a regulation promulgated by the United States Environmental Protection Agency under the Clean Water Act in order to abate and control the emission of water pollutants from concentrated animal feeding operations. While we deny many of the challenges here brought, we find that several aspects of the regulation violate the express terms of the Clean Water Act or are otherwise arbitrary and capricious under the Administrative Procedure Act. Accordingly, we grant the petitions in part and deny the petitions in part.

BACKGROUND

A. *Statutory Background*

The Clean Water Act (the "Act") is a cornerstone of the federal effort to protect the environment. "[D]esigned to 'restore and maintain the chemical, physical, and biological integrity of the Nation's waters,' " *No Spray Coalition, Inc. v. City of* ***491** *New York,* 351 F.3d 602, 604 (2d Cir.2003) (quoting 33 U.S.C. § 1251(a)), the Act is the principal legislative source of the EPA's authority—

and responsibility—to abate and control water pollution. *See* 33 U.S.C. §§ 1311(a), 1342, 1362.

By way of very brief overview, the Act formally prohibits the "discharge of a pollutant" [1] by "any person" [2] from any "point source" [3] to navigable waters except when authorized by a permit issued under the National Pollutant Discharge Elimination System ("NPDES"). *See* 33 U.S.C. §§ 1311(a), 1342. This means, as a practical matter, that the EPA primarily advances the Act's objectives—including the ambitious goal that water pollution be not only reduced, but eliminated, *see* 33 U.S.C. § 1251(a)(1)—through the use of NPDES permits that, while authorizing some water pollution, place important restrictions on the quality and character of that licit pollution.

NPDES permits are issued either by the EPA, itself, or by the states in a federally approved permitting system. *See* 33 U.S.C. § 1342. Regardless of the issuer, every NPDES permit is statutorily required to set forth, at the very least, "effluent limitations," that is, certain "restriction[s] ... on [the] quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources into navigable waters." *S. Florida Water Mgmt. Dist. v. Miccosukee Tribe of Indians,* 541 U.S. 95, 124 S.Ct. 1537, 1541, 158 L.Ed.2d 264 (2004) ("Generally speaking, the NPDES requires dischargers to obtain permits that place limits on the type and quantity of pollutants that can be released into the Nation's waters.").

The specific effluent limitations contained in each individual NPDES permit are dictated by the terms of more general "effluent limitation guidelines" ("ELGs"), which are separately promulgated by the EPA. *Cf. EPA v. California, ex rel. State Water Res. Control Bd.,* 426 U.S. 200, 205, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976) ("An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations ... of the individual discharger."). ELGs, and the effluent limitations established in accordance with them, are technology-based restrictions on water pollution. They are technology-based, because they are established in accordance with various technological standards that the Act statutorily provides and that, pursuant to the Act, vary depending upon the type of pollutant involved, the type of discharge involved, and whether the point source in question is new or already existing. We will discuss these with greater detail below. For now, we note simply that the technology standards for already existing point sources include (1) the best available technology economically achievable, *see* 33 U.S.C. § 1311(b)(2)(A); (2) the best conventional pollutant control technology, *see* 33 U.S.C. § 1314(b)(2)(A); and (3) the best practicable ***492** control technology currently available, *see* 33 U.S.C. § 1314(b)(1)(A). The technology standard for new point sources, which is commonly referred to as a new source performance standard, is based on the best available demonstrated control technology, *see* 33 U.S.C. § 1316.

We also note that where effluent limitations prove insufficient to attain or maintain certain water quality standards, the Act requires NPDES permits to include additional water quality based effluent limitations. *See* 33 U.S.C. §§ 1311(b)(1), 1312(a). Overall, we hope to make clear that the NPDES permit is critical to the successful implementation of the Act because—by setting forth technology-based effluent limitations and, in certain cases, additional water quality based effluent limitations—the NPDES permit "defines, and facilitates compliance with, and enforcement of, a preponderance of a discharger's obligations under the [Act]." *California, ex rel. State Water Res. Control Bd.,* 426 U.S. at 205, 96 S.Ct. 2022.

B. *Regulatory Background*

In the consolidated petition before us, we are asked to review, *inter alia,* the permitting requirements and effluent limitation guidelines promulgated by the EPA in its attempt to regulate the emission of water pollutants from so-called concentrated animal feeding operations ("CAFOs"). Before reviewing these challenges, however, a few introductory words about CAFOs themselves are in order.

CAFOs are the largest of the nation's 238,000 or so "animal feeding operations"—"agriculture enterprises where animals are kept and raised in confinement." National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitation Guidelines and Standards for Concentrated Animal Feeding Operations, 68 Fed.Reg. 7176, 7179 (Feb. 12, 2003) (codified at 40 C.F.R. Parts 9, 122, 123 and 412) [hereinafter "Preamble to the Final Rule"]. [4] Such "agriculture enterprises" are not, however, of a kind the Founding Fathers likely would have envisioned populating America's "yeoman

republic." *See generally,* STANLEY ELKINS AND ERIC MCKITRICK, *Jefferson and the Yeoman Republic,* THE AGE OF FEDERALISM 195–208 (1972). On the contrary, CAFOs are large-scale industrial operations that raise extraordinary numbers of livestock.[5] For example, a "Medium CAFO"[6] raises as many as ***493** 9,999 sheep, 54,999 turkeys, or 124,999 chickens (other than laying hens).[7] "Large CAFOs"[8] raise even more staggering numbers of livestock—sometimes, raising literally millions of animals in one location.

Economically, these CAFOs generate billions of dollars of revenue every year.[9] The EPA has focused on the industry because CAFOs also generate millions of tons of manure every year,[10] and "when improperly managed, [this manure] can ***494** pose substantial risks to the environment and public health." Preamble to the Final Rule at 7179.

Animal waste includes a number of potentially harmful pollutants. According to the EPA, the pollutants associated with CAFO waste principally include: (1) nutrients such as nitrogen and phosphorus; (2) organic matter; (3) solids, including the manure itself and other elements mixed with it such as spilled feed, bedding and litter materials, hair, feathers and animal corpses; (4) pathogens (disease-causing organisms such as bacteria and viruses); (5) salts; (6) trace elements such as arsenic; (7) odorous/volatile compounds such as carbon dioxide, methane, hydrogen sulfide, and ammonia; (8) antibiotics; and (9) pesticides and hormones. *See* National Pollutant Discharge Elimination System Permit Regulation and Effluent Limitations Guidelines and Standards for Concentrated Animal Feeding Operations, 66 Fed.Reg. 2960, 2976–79 (proposed Jan. 12, 2001) [hereinafter "Proposed Rule"]; *see also* Preamble to the Final Rule at 7181.

These pollutants can infiltrate the surface waters in a variety of ways including spills and other dry-weather discharges, overflows from storage "lagoons," and discharge to the air coupled with subsequent redeposition on the landscape. *See* Preamble to the Final Rule at 7181. Perhaps the most common way by which pollutants reach the surface waters is through improper "land application." Land application, the predominant means by which CAFOs dispose of animal waste,[11] is a process by which manure, litter, and other process wastewaters are spread onto fields controlled by CAFOs. As all parties here agree, when properly land-applied, manure, litter, and other process wastewaters can act as a fertilizer, because "land application of CAFO waste fosters the reuse of the nitrogen, phosphorus, and potassium in these wastes for crop growth." EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002). However, when waste is excessively or improperly land-applied, the nutrients contained in the waste become pollutants that can and often do run off into adjacent waterways or leach into soil and ground water. *See id.;* Preamble to the Final Rule at 7180–81.

In light of these environmental threats, the EPA first promulgated regulations for CAFOs in 1974 and 1976 —regulations that, very generally speaking, defined the types of animal feeding operations that qualify as CAFOs, set forth various NPDES permit requirements, and established effluent limitation guidelines for CAFOs. *See* 41 Fed.Reg. 11,458 (Mar. 18, 1976); 39 Fed.Reg. 5704 (Feb. 14, 1974). After having been sued, in 1989, for failing to publish a plan to revise existing effluent limitations for the industry pursuant to 33 U.S.C. § 1314(m),[12] the EPA, on January 12, 2001, proposed to "revise and update" the first set of CAFO regulations. *See* Proposed Rule at 2960. The EPA explained, in proposing its revisions, that the new rule aimed to address not only inadequate compliance with existing policy, but also the "changes that have occurred in the animal production industries." Proposed ***495** Rule at 2972. Specifically, the EPA pointed to the "continued trend toward fewer but larger operations, coupled with greater emphasis on more intensive production methods and specialization," a trend that—along with "increased reports of large-scale discharges from these facilities" and "continued runoff"—had contributed to "the significant increase in nutrients and resulting impairment of many U.S. waterways." *Id.*

The EPA received approximately 11,000 public comments on the proposed rule, *see* Preamble to the Final Rule at 7187, as well as an additional 450 or so comments following the publication, in November 2001 and July 2002, of Notices of Data Availability (documents that summarized new data and information presented to the EPA). *See id.* at 7187–88. Ultimately, on February 12, 2003, the EPA promulgated its Final CAFO Rule ("CAFO Rule" or "Rule"). *See* 40 C.F.R. §§ 9, 122, 123, 412; *see also* Preamble to the Final Rule at 7176.

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The aspects of the Rule most relevant to the petitions before us are as follows:

(1) *The Duty to Apply for an NPDES Permit*

The Rule requires that all CAFO owners or operators must apply for an individual NPDES permit or submit a notice of intent for coverage under an NPDES general permit. *See* 40 C.F.R. § 122.23(d)(1). There is, however, an exception: Section 122.23(d)(2) provides, in effect, that an owner or operator of a Large CAFO need not seek coverage under an NPDES permit if the owner or operator secures a determination from the director of the relevant permitting authority that the Large CAFO has "no potential to discharge" manure, litter or process wastewater. *See* 40 C.F.R. § 122.23(d)(2); *see also id.* at § 122.23(f) (describing the process by which a Large CAFO may secure a determination that it has "no potential to discharge").

(2) *NPDES Permit Requirements*

The Rule includes the requirement that each CAFO develop and implement a nutrient management plan. Such a nutrient management plan must, under the Rule:

> (i) Ensure adequate storage of manure, litter, and process wastewater, including procedures to ensure proper operation and maintenance of the storage facilities;
>
> (ii) Ensure proper management of mortalities (i.e. dead animals) to ensure that they are not disposed of in a liquid manure, storm water, or process wastewater storage or treatment system that is not specifically designed to treat animal mortalities;
>
> (iii) Ensure that clean water is diverted, as appropriate, from the production area;
>
> (iv) Prevent direct contact of confined animals with waters of the United States;
>
> (v) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure, litter, process wastewater, or storm water storage or treatment system unless specifically designed to treat such chemicals and other contaminants;
>
> (vi) Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States;
>
> (vii) Identify protocols for appropriate testing of manure, litter, process wastewater, and soil;
>
> (viii) Establish protocols to land apply manure, litter or process wastewater in accordance with site specific nutrient ***496** management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater; and
>
> (ix) Identify specific records that will be maintained to document the implementation and management of the minimum elements described [above].

40 C.F.R. § 122.42(e)(1)(i)-(ix). Additionally, the effluent limitation guidelines for CAFOs (which we will describe in a moment) further require that each Large CAFO develop and implement a nutrient management plan that, *inter alia,* includes a waste "application rate" that "minimize[s] phosphorus and nitrogen transport from the field to surface waters." 40 C.F.R. § 412.4(c)(2).

(3) *The Discharges Subject to NPDES Requirements*

The Rule provides, in § 122.23(e), that all land application discharges from a CAFO are subject to NPDES requirements, i.e., any discharge of manure, litter, or process wastewater that results from the land application of these materials by a CAFO is a discharge that is regulable and subject to NPDES permit requirements. 40 C.F.R. § 122.23(e). Where, however, CAFOs land-apply waste in accordance with site-specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in that waste, any subsequent "precipitation-related" discharge is considered to be an "agricultural stormwater discharge" that is, under the Act, exempt from regulation. *See id.;* 33 U.S.C. § 1362(14).

(4) *Effluent Limitation Guidelines*

The Rule establishes effluent limitation guidelines ("ELGs") that apply to land application discharges by Large CAFOs and to the "production areas"[13] of Large CAFOs.[14] Two general comments about these ELGs are in order. First, although the EPA usually

establishes quantitative or numerical ELGs, the EPA here promulgated "best management practices," which are qualitative or non-numerical ELGs for Large CAFOs, but which, we note, are still technology-based because they are based on the technology standards prescribed by the Act. *See* 40 C.F.R. § 412.4; *see also* 40 C.F.R. § 122.44(k) (describing the circumstances in which the EPA may promulgate "best management practices" in the place of numerical ELGs). Second, because the EPA here decided to organize Large CAFOs into four subcategories (depending upon the types of animals present), the ELGs are also organized into four subcategories. *See* Preamble to the Final Rule at 7208. Additionally, we note that, with respect ***497** to land application, best management practices include, most importantly, the requirement that Large CAFOs "develop and implement a nutrient management plan" that, *inter alia,* sets an application rate that minimizes the transport of phosphorus and nitrogen from the land application field to surface waters. 40 C.F.R. §§ 412.4(c)(1)-(2). The land application best management practices also provide for manure and soil sampling, inspection of land application equipment and various setback requirements. *See* 40 C.F.R. § 412.4(c)(3)-(5). With respect to the ELGs for production areas, best management practices include various requirements designed to minimize the possibility of overflows, such as mandatory inspections of relevant equipment and the installation of depth markers in surface and liquid impoundments (e.g., lagoons, ponds, and tanks). *See* 40 C.F.R. § 412.37; Preamble to the Final Rule at 7214–21.

DISCUSSION

Two sets of petitioners bring challenges to the CAFO Rule: the "Environmental Petitioners" (Waterkeeper Alliance, Inc., Sierra Club, Natural Resources Defense Council, Inc., and the American Littoral Society) and the "Farm Petitioners" (American Farm Bureau Federation, National Chicken Council, and the National Pork Producers Council).[15] *Amici curiae,* who represent various environmental and public health interests, join the Environmental Petitioners in some of their challenges.

All the challenges we here consider—most of which are brought by the Environmental Petitioners—can be divided into three general categories: (1) challenges to the permitting scheme established by the CAFO Rule; (2) challenges to the types of discharges subject to regulation under the CAFO Rule; and (3) challenges to the effluent limitation guidelines established by the CAFO Rule.[16] We will address each category in turn.

To the extent we are asked to review whether some aspect of the CAFO Rule violates the Clean Water Act, our inquiry is governed by the standards set forth in *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984). *See also Public Citizen, Inc. v. Mineta,* 340 F.3d 39, 53 (2d Cir.2003). If Congress has "directly spoken to the precise question at issue" and "the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress." *Chevron,* 467 U.S. at 842–43, 104 S.Ct. 2778 (footnote omitted). If, however, we determine that the statute is silent or ambiguous with respect to the specific question at issue, then we consider "whether the agency's answer is based on a permissible construction of the statute." *Id.* at 843, 104 S.Ct. 2778.

***498** **[1]** **[2]** To the extent we are asked to review whether some aspect of the CAFO Rule violates the Administrative Procedure Act because it is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law," 5 U.S.C. § 706(2)(A), our inquiry is governed by the standard set forth in *Motor Vehicle Manufacturers' Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company.* *See* 463 U.S. 29, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983). *See also Public Citizen,* 340 F.3d at 53. To determine whether an agency has acted in an arbitrary and capricious fashion, we ask whether the agency has "examine[d] the relevant data and articulate[d] a satisfactory explanation for its action including a rational connection between the facts found and the choice made." *State Farm,* 463 U.S. at 42, 103 S.Ct. 2856. Then, "[i]n reviewing that explanation, we must consider whether the decision was based on a consideration of the relevant factors and whether there has been a clear error of judgment." *Id.* Normally, we must deem arbitrary and capricious an agency rule where "the agency has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." *Id.* at 43, 103 S.Ct. 2856 (internal quotations and citations omitted).

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With this background in mind, we turn now to the various challenges.

A. *Challenges to the CAFO Rule Permitting Scheme*

1. *Failure to Regulate*

The Environmental Petitioners broadly indict the CAFO Rule as countenancing the creation of an "impermissible self-regulatory permitting regime." More precisely, the Environmental Petitioners argue that the CAFO Rule is unlawful because: (1) it empowers NPDES authorities to issue permits to Large CAFOs in the absence of any meaningful review of the nutrient management plans those CAFOs have developed; and (2) it fails to require that the terms of the nutrient management plans be included in the NPDES permits. We agree with the Environmental Petitioners on both counts.

a. *Failure to Require Permitting Authority Review*

[3] The Clean Water Act demands regulation in fact, not only in principle. Under the Act, permits authorizing the discharge of pollutants may issue only where such permits *ensure* that every discharge of pollutants will comply with all applicable effluent limitations and standards. Section 1342(a)(1) of Title 33 provides, for example, that when the EPA is, itself, issuing NPDES permits, the EPA may issue a permit for the discharge of any pollutant or combination of pollutants "upon condition that such discharge will meet ... all applicable requirements [including the effluent limitations statutorily required by 33 U.S.C. § 1311]." The Act further provides that the EPA "shall prescribe conditions for such permits *to assure compliance with* [all applicable requirements, including effluent limitations]." 33 U.S.C. § 1342(a)(2) (emphasis added). Similarly, 33 U.S.C. § 1342(b) allows states to distribute NPDES permits only where, *inter alia,* the state permitting programs "*apply, and insure compliance with,* any applicable [effluent limitations and standards]." 33 U.S.C. § 1342(b) (emphasis ***499** added). [17]

By failing to provide for permitting authority review of the nutrient management plans, the CAFO Rule plainly violates these statutory commandments and is otherwise arbitrary and capricious under the Administrative Procedure Act. The requirement to develop and implement a nutrient management plan is, after all, one of the "best management practices" that constitute the effluent limitation guidelines for land application by Large CAFOs. *See* 40 C.F.R. § 412.4(c)(1). But not just *any* nutrient management plan suffices under the Rule. On the contrary, the effluent limitation guidelines expressly require that Large CAFOs develop and implement a nutrient management plan that:

> incorporates the requirements of paragraphs (c)(2) through (c)(5) of this section based on a field-specific assessment of the potential for nitrogen and phosphorus transport from the field and that addresses the form, source, amount, timing, and method of application of nutrients on each field to achieve realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters.

Id. Accordingly, in order to comply with the effluent limitations for land application of manure, litter, and process wastewater, Large CAFOs must, *inter alia,* develop and implement nutrient management plans that, pursuant to paragraph(c)(2), include "application rates" that "minimize phosphorus and nitrogen transport from the field to surface waters in compliance with the technical standards for nutrient management established by the Director." *See* 40 C.F.R. § 412.4(c)(2).

As presently constituted, the CAFO Rule does nothing to *ensure* that each Large CAFO has, in fact, developed a nutrient management plan that satisfies the above requirements. The CAFO Rule does nothing to ensure, in other words, that each Large CAFO will comply with all applicable effluent limitations and standards. This is because, most glaringly, the CAFO Rule fails to require that permitting authorities review the nutrient management plans developed by Large CAFOs before issuing a permit that authorizes land application discharges.

A recent decision of the Ninth Circuit supports the conclusion we here reach. In *Environmental Defense Center, Inc. v. EPA* ("EDC"), the Ninth Circuit considered a challenge to a "Phase II" EPA rule for municipal storm sewer systems. *See* 344 F.3d 832 (9th Cir.2003), *cert. denied, Texas Cities Coalition on Stormwater v. EPA,* 541 U.S. 1085, 124 S.Ct. 2811, 159 L.Ed.2d 246 (2004). Among other things, the Phase II

Rule allowed small municipal storm sewer systems to seek permission to discharge pollutants by submitting an individualized set of best management practices designed by each municipal storm sewer system ("stormwater management plans"), either in the form of an individual permit application or in the form of a notice of intent to comply with a general permit. *See EDC,* 344 F.3d at 842. So long as a notice of intent included a stormwater management plan, the EPA deemed a municipal storm sewer system to be in compliance with the relevant standards of the Clean Water Act, including the standard that municipal stormwater pollution be reduced to the "maximum extent practicable." *See id.* at 855; 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 123.35. The Phase II Rule did not require NPDES authorities to review the stormwater management plans themselves.

***500** The Ninth Circuit held, however, that the failure to require permitting authority review of the stormwater management plans violated the Clean Water Act. [18] While the Ninth Circuit was quick to laud "[i]nvolving regulated parties in the development of individual stormwater pollution control programs," it emphasized that "programs that are designed by regulated parties must, in every instance, be subject to meaningful review by an appropriate regulating entity to ensure that each such program reduces the discharge of pollutants to the maximum extent practicable [i.e., the relevant statutory standard]." *EDC,* 344 F.3d at 856. The Phase II Rule, by contrast, failed to require that the relevant permitting authorities review the stormwater management plans to "ensure that the measures that any given operator of a [small municipal storm sewer system] has decided to undertake will *in fact* reduce discharges to the maximum extent practicable." *Id.* at 855 (emphasis in original). Accordingly, the Phase II Rule provided no safeguard against a municipal storm sewer system's "misunderstanding or misrepresenting its own stormwater situation and proposing a set of minimum measures for itself that would reduce discharges by far less than the maximum extent practicable." *Id.*

Like the Phase II Rule, the CAFO Rule does not require that NPDES permitting authorities review the nutrient management plans to ensure that the nutrient management plans designed by the Large CAFOs will *in fact* reduce land application discharges in a way that "achieve[s] realistic production goals, while minimizing nitrogen and phosphorus movement to surface waters." 40 C.F.R. § 412.4(c)(1). Like the Phase II Rule, the CAFO Rule does not adequately prevent Large CAFOs "from misunderstanding or misrepresenting" their specific situation and adopting improper or inappropriate nutrient management plans, with improper or inappropriate waste application rates. [19]

The EPA offers two principal arguments in defense of the permitting scheme, neither ***501** of which we find to be persuasive. First, the EPA argues that the nutrient management plan does not, itself, constitute an effluent limitation guideline but is, instead, "simply a planning tool" to help CAFOs comply with the effluent limitations. Accordingly, EPA contends that it is not statutorily compelled to require permitting authority review of the plans. We reject this argument. For one thing, we believe that the terms of the nutrient management plans are *themselves* effluent limitations, for reasons we state in Section A.1.b, *infra.* By failing to require permitting authority review of nutrient management plans, the CAFO Rule thus allows permits to issue that do not assure compliance with all applicable effluent limitations. Even assuming, *arguendo,* that EPA is correct and the nutrient management plan is not, itself, an effluent limitation, EPA's argument still fails on its own terms. For while EPA denies that the nutrient management plan is itself an effluent limitation, even the EPA concedes, as it must, that the requirement to develop and implement a nutrient management plan *is* an effluent limitation; this requirement is, after all, one of the "best management practices" required by the CAFO Rule. *See* 40 C.F.R. § 412.4(c)(1). The CAFO Rule—by failing to provide for permitting authority review—still does not *ensure* that each Large CAFO has, in fact, developed and implemented a nutrient management plan that satisfies the requirements of 40 C.F.R. § 412(c)(1).

Second, the EPA argues that there is no *need* for permitting authority review because the Rule provides Large CAFOs with little room for discretion—and thus little room for error—in setting their waste application rates. This is true, the EPA argues, because the Rule requires states to develop "technical standards" based on certain "field-specific assessment[s]" and further requires Large CAFOs to adopt application rates that comply with those technical standards. *See* 40 C.F.R. § 412.4(c)(2); 40 C.F.R. § 412.4(c)(1). However, while state technical standards will reduce discretion on the part of the Large CAFOs, they will not eliminate it. State technical

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standards are based on *field*-specific assessments. But Large CAFOs ultimately set application rates based on *site*-specific assessments of the relevant field conditions, as the EPA concedes in the Preamble to the Rule. *See* Preamble to the Final Rule at 7209 ("Today's rule requires Large CAFOs to determine and implement *site-specific* nutrient application rates that are consistent with the technical standards for nutrient management established by the permitting authority.") (emphasis added); *see also id.* at 7213 ("The nutrient management plan is the tool CAFOs must use to assess soil and other field conditions at their operation ... to determine the *site-specific* nitrogen or phosphorus-based rate at which manure, litter, and other process wastewaters are to be applied.") (emphasis added).[20] ***502** By not providing for permitting authority review of these application rates, the CAFO Rule fails to adequately prevent Large CAFOs from "misunderstanding or misrepresenting" the application rates they must adopt in order to comply with state technical standards. The CAFO Rule does not ensure that the Large CAFOs will, in fact, develop nutrient management plans—and waste application rates—that comply with all applicable effluent limitations and standards.

b. *Failure to Require that the Terms of the Nutrient Management Plans be Included in the NPDES Permits*

[4] The Clean Water Act unquestionably provides that all applicable effluent limitations must be included in each NPDES permit. *See* 33 U.S.C. §§ 1311(a), 1311(b), 1342(a); *see also Am. Paper Inst., Inc. v. EPA,* 996 F.2d 346, 349 (D.C.Cir.1993) (noting that the Clean Water Act "mandates that every permit contain [*inter alia*] effluent limitations that reflect the pollution reduction achievable by using technologically practicable controls"). What the parties here dispute is whether the terms of the nutrient management plans, themselves, constitute effluent limitations that must be included in the NPDES permits.

As we have already stated, rather than setting forth *numerical* effluent limitations for land application of manure, the CAFO Rule establishes *non-numerical* effluent limitations in the form of best management practices. *See* 40 C.F.R. § 412.4. Among these best management practices is the requirement that CAFOs "develop and implement a nutrient management plan" that, *inter alia,* sets application rates that minimize phosphorus and nitrogen transport. *See* 40 C.F.R. § 412.4(c)(1). The EPA readily acknowledges that the requirement to *develop and implement* a nutrient management plan is a non-numerical effluent limitation, but argues that—under the wording of this requirement—the terms of the nutrient management plans themselves do not constitute the non-numerical effluent limitations. Accordingly, EPA argues that the terms of the nutrient management plans need not be included in the NPDES permits.

We believe that the EPA's argument is foreclosed by the statutory definition of effluent limitation. The Clean Water Act defines effluent limitation to mean "any *restriction* established by a State or the Administrator on quantities, *rates,* and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources ..." 33 U.S.C. § 1362(11) (emphasis added). There is no doubt that under the CAFO Rule, the only restrictions actually imposed on land application discharges are those restrictions imposed by the various terms of the nutrient management plan, including the waste application *rates* developed by the Large CAFOs pursuant to their nutrient management plans. Indeed, the requirement to develop a nutrient management plan constitutes a restriction on land application discharges only to the extent that the nutrient management plan actually imposes restrictions on land application discharges. To accept the EPA's contrary argument—that *requiring* a nutrient management plan is itself a restriction on land application discharges—is to allow semantics to torture logic.

Because we believe that the terms of the nutrient management plans constitute effluent limitations, we hold that the CAFO Rule—by failing to require that the terms of the nutrient management plans be included in NPDES permits—violates the ***503** Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act.

2. *Lack of Public Participation*

[5] The Environmental Petitioners also argue, and we here find, that the permitting scheme established by the CAFO Rule violates the Clean Water Act's public participation requirements and is otherwise arbitrary and capricious under the Administrative Procedure Act.

Congress clearly intended to guarantee the public a meaningful role in the implementation of the Clean Water Act. The Act unequivocally and broadly declares, for example, that "[p]ublic participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States." 33 U.S.C. § 1251(e). Consistent with this demand, the Act further provides that there be an "opportunity for public hearing" before any NPDES permit issues, *see* 33 U.S.C. §§ 1342(a), 1342(b)(3); that a "copy of each permit application and each permit issued under this section [1342] shall be available to the public," *see* 33 U.S.C. § 1342(j); and that "any citizen" may bring a civil suit for violations of the Act, *see* 33 U.S.C. § 1365(a).

The CAFO Rule deprives the public of the opportunity for the sort of regulatory participation that the Act guarantees because the Rule effectively shields the nutrient management plans from public scrutiny and comment. Admittedly, the Preamble to the Rule indicates that the "EPA *expects* that the permitting authority will make this information available to the public upon request," *see* Preamble to the Final Rule at 7233 (emphasis added); however, the Rule provides no assurance that EPA's expectations will be satisfied. Not only does the CAFO Rule fail to require that the terms of the nutrient management plans be included in the NPDES permits, it also fails to provide the public with any other means of access to them. After all, the Rule provides only that a "copy of the CAFO's site-specific nutrient management plan must be maintained on site and made available to the Director [of the state permitting authority] upon request." 40 C.F.R. § 122.42(e)(2)(ii). The Rule does not similarly require that copies of the nutrient management plans be made available to the *public* by the CAFOs.

This scheme violates the Act's public participation requirements in a number of respects. First and foremost, in light of our holding that the terms of the nutrient management plans constitute effluent limitations that should have been included in NPDES permits, the CAFO Rule deprives the public of its right to assist in the "development, revision, and enforcement of ... [an] *effluent limitation.*" 33 U.S.C. § 1251(e) (emphasis added). More specifically, the CAFO Rule prevents the public from calling for a hearing about—and then meaningfully commenting on—NPDES permits before they issue. *See* 33 U.S.C. §§ 1342(a), 1342(b)(3). The CAFO Rule also impermissibly compromises the public's ability to bring citizen-suits, a "proven enforcement tool" that "Congress intended [to be used...] to both spur and supplement government enforcement actions." Clean Water Act Amendments of 1985, Senate Environment and Public Works Comm., S.Rep. No. 50, 99th Cong., 1st Sess. 28 (1985). Under the CAFO Rule, as written, citizens would be limited to enforcing the mere requirement to develop a nutrient management plan, but would be without means to enforce the terms of the nutrient management plans because they ***504** lack access to those terms. This is unacceptable.

And even assuming, *arguendo,* that the nutrient management plans did not themselves constitute effluent limitations, we would still hold that the CAFO Rule violates the Act's public participation requirements. Nutrient management plans are, even under the EPA's own theory of the CAFO Rule, a critical indispensable feature of the "plan, or program established by the Administrator or any State" in order to regulate Large CAFO land application discharges. 33 U.S.C. § 1251(e). The EPA itself has stated in the Preamble to the Rule that "the only way to ensure that non-permitted point source discharges of manure, litter, or process wastewaters from CAFOs do not occur is to require ... [land application] in accordance with site specific nutrient management practices." Preamble to the Final Rule at 7198. Since nutrient management plans embody all the relevant "site specific nutrient management practices," it is clear that, even according to the EPA, nutrient management plans are a *sine qua non* of the "regulation, standard, plan, or program" it established to regulate land application discharges. 33 U.S.C. § 1251(e).

Given that the CAFO Rule forestalls—rather than "provid[es] for, encourag [es], and assist[s]"—public participation in the development and enforcement of nutrient management plans, and given that nutrient management plans are an important "regulation, standard, effluent limitation, plan or program" established by the EPA to regulate land application discharges, the CAFO Rule violates the plain dictates of 33 U.S.C. § 1251(e).

3. *The Duty to Apply*

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[6] The Farm Petitioners also challenge the permitting scheme established by the CAFO Rule. They contend that the EPA has exceeded its statutory jurisdiction by requiring all CAFOs to either apply for NPDES permits or otherwise demonstrate that they have no potential to discharge. We agree and grant their petition in this regard.

The Clean Water Act authorizes the EPA to regulate, through the NPDES permitting system, only the discharge of pollutants. The Act generally provides, for example, that "Except as in compliance [with all applicable effluent limitations and permit restrictions,] the *discharge of any pollutant* by any person shall be unlawful." 33 U.S.C. § 1311(a) (emphasis added). Consistent with this prohibition, the Act authorizes the EPA to promulgate effluent limitations for—and issue permits incorporating those effluent limitations for—the discharge of pollutants. Section 1311 of Title 33 provides that "[e]ffluent limitations ... shall be applied to all point sources of *discharge of pollutants,*" *see* 33 U.S.C. § 1311(e). Section 1342 of the same Title then gives NPDES authorities the power to issue permits authorizing the *discharge of any pollutant or combination of pollutants. See* 33 U.S.C. § 1342(a)(1) ("the Administrator may, after opportunity for public hearing, issue a permit for *the discharge of any pollutant, or combination of pollutants* ") (emphasis added); *see also* 33 U.S.C. § 1342(b) (authorizing states to administer permit programs for "discharges into navigable waters"). In other words, unless there is a "discharge of any pollutant," there is no violation of the Act, and point sources are, accordingly, neither statutorily obligated to comply with EPA regulations for point source discharges, nor are they statutorily obligated to seek or obtain an NPDES permit.

Congress left little room for doubt about the meaning of the term "discharge of any pollutant." The Act expressly defines the term to mean "(A) any addition of any ***505** pollutant to navigable waters from any point source, [or] (B) any addition of any pollutant to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft." 33 U.S.C. § 1362(12). Thus, in the absence of an actual addition of any pollutant to navigable waters from any point, there is no point source discharge, no statutory violation, no statutory obligation of point sources to comply with EPA regulations for point source discharges, and no statutory obligation of point sources to seek or obtain an NPDES permit in the first instance.

The CAFO Rule violates this statutory scheme. It imposes obligations on all CAFOs regardless of whether or not they have, in fact, added any pollutants to the navigable waters, i.e. discharged any pollutants. After all, the Rule demands that every CAFO owner or operator either apply for a permit—and comply with the effluent limitations contained in the permit—or affirmatively demonstrate that no permit is needed because there is "no potential to discharge." *See* 40 C.F.R. §§ 122.23(d) and (f). In the EPA's view, such demands are appropriate because all CAFOs have the *potential* to discharge pollutants. *See* Preamble to the Final Rule at 7202 ("The 'duty to apply' provision is based on the presumption that every CAFO has a potential to discharge."). While we appreciate the policy considerations underlying the EPA's approach in the CAFO Rule, however, we are without authority to permit it because it contravenes the regulatory scheme enacted by Congress; the Clean Water Act gives the EPA jurisdiction to regulate and control only *actual* discharges—not potential discharges, and certainly not point sources themselves. *See Natural Resources Defense Council v. EPA,* 859 F.2d 156, 170 (D.C.Cir.1988) (noting that "the [Act] does not empower the agency to regulate point sources themselves; rather, EPA's jurisdiction under the operative statute is limited to regulating the discharge of pollutants"). To the extent that policy considerations do warrant changing the statutory scheme, "such considerations address themselves to Congress, not to the courts." *MCI Telecommunications Corp. v. AT & T, Co.,* 512 U.S. 218, 234, 114 S.Ct. 2223, 129 L.Ed.2d 182 (1994) (citation omitted).

EPA's other arguments are also unavailing. The EPA principally attempts to derive support for its "duty to apply" provision from the statutory definition of point source. EPA argues that point source is defined to mean not only "any discernible, confined and discrete conveyance" from which pollutants "are" discharged, but also "any discernible, confined and discrete conveyance" from which pollutants "*may be* " discharged. 33 U.S.C. § 1362(14). The EPA cannot, however, point to any provision of the statute that gives operational effect to the "may be" language in the manner in which the EPA seeks to do so here. The EPA points, for example, to 33 U.S.C. § 1311(e). Yet that section provides not that effluent limitations shall be applied to all point sources, end of story, but that effluent limitations shall be applied "to all point sources *of discharge of*

pollutants in accordance with the provisions of this chapter." 33 U.S.C. § 1311(e) (emphasis added). Thus, while point sources are statutorily defined to include potential dischargers, effluent limitations can, pursuant to 33 U.S.C. § 1311(e), be applied only to "point sources of *discharge of pollutants,*" i.e. those point sources that are *actually* discharging. [21] *Id.*

The EPA also argues that the "duty to apply" provision is consistent with the Act's goal of not just reducing, but eliminating ***506** water pollution. It is true that the duty to apply provision is consistent with the broad goal of eliminating water pollution. However, the duty to apply flatly contravenes the statute's text, which more specifically defines—and circumscribes—the powers that Congress conferred upon the EPA in order to effectuate the Clean Water Act's goals. Principles of statutory construction forbid us from sanctioning EPA conduct that is plainly inconsistent with a statute's specific text. *See Caminetti v. United States,* 242 U.S. 470, 485, 37 S.Ct. 192, 61 L.Ed. 442 (1917) ("It is elementary that the meaning of a statute must, in the first instance, be sought in the language in which the act is framed, and if that is plain ... the sole function of the courts is to enforce it according to its terms.").

For all these reasons, we believe that the Clean Water Act, on its face, prevents the EPA from imposing, upon CAFOs, the obligation to seek an NPDES permit or otherwise demonstrate that they have no potential to discharge. *See Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.,* 467 U.S. 837, 842–43, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984) (where Congress has "directly spoken to the precise question at issue" and "the intent of Congress is clear, that is the end of the matter; for the court, as well as the agency, must give effect to the unambiguously expressed intent of Congress.") (footnote omitted). [22]

B. *Challenges to the Types of Discharges Regulated*

1. *Regulatory Exemption for "Agricultural Stormwater" Discharges*

As stated in the background section, *supra,* the CAFO Rule generally provides ***507** that discharges from a land application area under the control of a CAFO are subject to NPDES requirements. *See* 40 C.F.R. § 122.23(e). However, the Rule, like the Clean Water Act itself, carves out an exception where the discharge in question is "an agricultural storm water discharge," *id.*—a category of discharges that the Act exempts from regulation via the statutory definition of "point source." *See* 33 U.S.C. § 1362(14). More specifically, the Rule classifies, as agricultural stormwater, any "precipitation-related discharge of manure, litter, or process wastewater from land areas under the control of a CAFO" where the "manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization." 40 C.F.R. § 122.23(e).

[7] The Environmental Petitioners contend that this approach violates the Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act because the Clean Water Act's definition of "point source" requires regulation of *all* CAFO discharges, notwithstanding the fact that agricultural stormwater discharges are otherwise deemed exempt from regulation. We disagree.

The Act defines the term "point source" as follows:

> "[P]oint source" means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, *concentrated animal feeding operation,* or vessel or other floating craft, from which pollutants are or may be discharged. *This term does not include agricultural stormwater discharges* and return flows from irrigated agriculture.

33 U.S.C. § 1362(14) (emphasis added). Contrary to the views of the Environmental Petitioners, we find that this provision is self-evidently ambiguous as to whether CAFO discharges can ever constitute agricultural stormwater. Here, the Act expressly defines the term point source to *include* "concentrated animal feeding operations;" the Act expressly defines "point source" to *exclude* "agricultural stormwater;" and the Act makes absolutely no attempt to reconcile the two. Congress has not addressed the precise issue the Environmental Petitioners put before us, and, as a result, the operative question we must consider becomes, pursuant to *Chevron,* whether the CAFO Rule's

exemption for "precipitation-related" land application discharges is grounded in a "permissible construction" of the Clean Water Act. *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.,* 467 U.S. 837, 843, 104 S.Ct. 2778, 81 L.Ed.2d 694 (1984).

The EPA reads the Act's definition of "point source" as generally authorizing the regulation of CAFO discharges, but exempting such discharges from regulation to the extent that they constitute agricultural stormwater. We think this is a reasonable construction in light of the legislative purpose of the agricultural stormwater exemption and given precedent from this circuit. With respect to legislative purpose, we believe it reasonable to conclude that when Congress added the agricultural stormwater exemption to the Clean Water Act, it was affirming the impropriety of imposing, on "any person," liability for agriculture-related discharges triggered not by negligence or malfeasance, but by the weather—even when those discharges came from what would otherwise be point sources. There is no authoritative legislative history to the contrary. The Environmental Petitioners, for example, cite legislative history from 1972 in support of their position; however, the agricultural stormwater ***508** exemption was not added to the Clean Water Act until a full fifteen years later, when Congress passed the Water Quality Act of 1987. *See* Water Quality Act of 1987, Pub.L. No. 100–4 § 503, 101 Stat. 7 (1987). It would be improper for us to rely on statements from 1972 in order to resolve an ambiguity that was not created until 1987. In our view, prior legislative history is a hazardous basis for inferring the intent of a subsequent Congress, in the same way that "*subsequent* legislative history is a hazardous basis for inferring the intent of an *earlier* Congress." *Pension Benefit Guaranty Corp. v. LTV Corp.,* 496 U.S. 633, 650, 110 S.Ct. 2668, 110 L.Ed.2d 579 (1990) (emphasis added) (citation omitted). And, in any event, none of the legislative history from 1972 comes close to casting doubt on the construction we permit here. [23]

Precedent from this circuit also supports the construction that the EPA advances and we here permit. In *Concerned Area Residents for the Environment v. Southview Farm,* this Court considered the agricultural stormwater exemption and its statutory relationship to point source discharges, specifically CAFO discharges. 34 F.3d 114 (2d Cir.1994). The essence of the Court's holding was not, as Environmental Petitioners contend, that discharges from an area under the control of a CAFO can *never* qualify for the agricultural stormwater exemption. Rather, the Court held that a discharge from an area under the control of a CAFO can be considered *either* a CAFO discharge that is subject to regulation *or* an agricultural stormwater discharge that is not subject to regulation. Whether or not a discharge is regulable turned, in the Court's view, on the primary cause of the discharge. That is why the Court wrote that a discharge could be regulated, and liability imposed, where "the run-off was primarily caused by the over-saturation of the fields rather than the rain and that sufficient quantities of manure were present so that the run-off could not be classified as 'stormwater.' " *Id.* at 121.

We believe that the CAFO Rule comports both with Congress' intent in enacting the agricultural stormwater exemption and with our holding in *Southview Farm.* So far as Congress' intent is concerned, while the Rule holds CAFOs liable for most land application discharges, it prevents CAFOs from being held liable for "precipitation-related discharge[s]" where "manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization." 40 C.F.R. § 122.23(e). In other words, like the Clean Water Act itself, the CAFO Rule seeks to remove liability for agriculture-related discharges ***509** primarily caused by nature, while maintaining liability for other discharges. So far as our holding in *Southview Farm* is concerned, discharges from land areas under the control of a CAFO can and should generally be regulated, but where a CAFO has taken steps to ensure appropriate agricultural utilization of the nutrients in manure, litter, and process wastewater, it should not be held accountable for any discharge that is primarily the result of "precipitation."

We also find unpersuasive the only other significant complaint the Environmental Petitioners lodge against the CAFO Rule's agricultural stormwater exemption—namely that it is unreasonable, and hence improper, for the EPA to construe the term "agricultural" as encompassing any stormwater discharge from a land area under the control of a CAFO. The Environmental Petitioners contend that CAFOs must be viewed as industrial, not agricultural. We disagree. Dictionaries from the period in which the agricultural stormwater exemption was adopted define "agriculture" or "agricultural" in a way that can permissibly be construed to encompass CAFOs. For example, Webster's New World Dictionary defined the term "agriculture"

to include, *inter alia,* "work of cultivating the soil, producing crops, and raising livestock." WEBSTER'S NEW WORLD DICTIONARY OF AMERICAN ENGLISH 26 (3rd College Ed.1988). The Oxford English Dictionary similarly defined agriculture to include, *inter alia,* "cultivating the soil," "including the allied pursuits of gathering in the crops and rearing live stock." I THE OXFORD ENGLISH DICTIONARY 267 (2d Ed.1989). Here, there is no question that CAFOs "rais[e]" or "rear" livestock and, because land-applied manure is used as fertilizer, "cultivat[e] the soil" as well. *Cf.* Preamble to the Final Rule at 7197 ("When manure or process wastewater is applied in accordance with practices designed to ensure appropriate agricultural utilization of nutrients, it ... fulfills an important agricultural purpose, namely the fertilization of crops ..."). As a result, we cannot say that the EPA has impermissibly treated CAFOs as agricultural in character.

Additionally, we note again that the CAFO Rule classifies precipitation-related discharges as agricultural stormwater only where CAFOs have otherwise applied "manure, litter or process wastewater ... in accordance with site specific nutrient management practices that ensure appropriate *agricultural* utilization." 40 C.F.R. § 122.23(e) (emphasis added). Thus, even the CAFO Rule's application of the agricultural stormwater exemption is expressly tethered to agricultural endeavors. [24]

Accordingly, for all these reasons, we reject the Environmental Petitioners' challenge to the CAFO Rule's exemption for agricultural stormwater discharges because we believe that the exemption is premised on a permissible construction of the Act.

***510** 2. *Regulation of "Uncollected" Discharges*

[8] The Farm Petitioners contend that the CAFO Rule violates the Clean Water Act because it regulates "uncollected" discharges from land areas under the control of a CAFO; in effect, the Farm Petitioners claim that runoff from land application areas, unless "collected" or "channelized" at the land application area itself, does not constitute a point source discharge. We reject this claim because, in our view, regardless of whether or not runoff is collected at the land application area, itself, any discharge from a land area under the control of a CAFO is a point source discharge subject to regulation because it is a discharge from a *CAFO.*

To evaluate the Farm Petitioners' claim we turn, once again, to the statutory definition of point source. The term "point source" is defined to mean, in relevant part, "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, *concentrated animal feeding operation,* or vessel or other floating craft, *from which pollutants are or may be discharged."* 33 U.S.C. § 1362(14) (emphasis added). Given that the Act expressly defines "point source" to include concentrated animal feeding operations, the Farm Petitioners can prevail on their challenge only if we find that the Act prohibits classifying a land application discharge as a discharge "*from* " a CAFO. We believe, however, that the Act not only permits, but demands, that land application discharges be construed as discharges "from" a CAFO to the extent that they are not otherwise agricultural stormwater.

As this Court previously held in *Catskill Mountains Chapter of Trout Unlimited, Inc. v. City of New York*, the term point source refers to "the proximate source from which the pollutant is directly introduced to [a] destination water body." *See* 273 F.3d 481, 493 (2d Cir.2001). [25] Here, CAFOs are unquestionably "the proximate source" of any discharge of pollutants from land application areas under their control to the surface waters (again, except where those discharges are agricultural stormwater). But for the application of manure by the CAFO to the land, there could never be a discharge of pollutants from the land to the surface waters. Thus, any land application discharge that is not agricultural stormwater is, definitionally, a discharge "from" a CAFO that can be regulated as a point source discharge.

Contrary to the contentions of the Farm Petitioners, whether the land application run-off has been "collected" or "channelized" at the land application area is irrelevant to the determination regarding whether such run-off constitutes a CAFO discharge. To be sure, the Act does generally contemplate that discharges be "channelized" in order to fall within the EPA's regulatory jurisdiction; that is why the term "point source" is defined as "discrete, discernible, conveyances." However, a CAFO is, itself, a "channel" under the Act—it is, of course, expressly included in the list of examples of the types of "point sources" the EPA may regulate. Thus, ***511** any discharge "from" a CAFO is already a point

source discharge. Requiring that manure, litter, or process wastewater be separately channelized at the land application site before any runoff could be considered a "point source discharge" would be, in effect, to impose a requirement not contemplated by the Act: that pollutants be channelized not once but twice before the EPA can regulate them.

Even assuming that the Act did not plainly require that land application discharges generally be regulated as point source discharges, we would find that the EPA has permissibly construed the statute in defining, as a "discharge from a CAFO," the "discharge of manure, litter or process wastewater to waters of the United States from a CAFO as a result of the application of that manure, litter or process wastewater by the CAFO to land areas under its control." 40 C.F.R. § 122.23(e). Land application areas are, after all, an integral and indeed indispensable part of CAFO operations. CAFOs depend on them to receive the volumes of manure their animals generate; as we noted in the background section above, "[s]everal estimates indicate that 90% of CAFO-generated waste is land applied." EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002). Given this fact and given that, under the Rule, only discharges from land application areas "under [the] control" of a CAFO are subject to regulation, *see* 40 C.F.R. § 122.23(e), the EPA could quite reasonably conclude that runoff from a land application area is runoff from a CAFO.

Thus, we reject the challenge to the CAFO Rule's regulation of land application discharges, including "uncollected" discharges.

C. *Challenges to the CAFO Rule Effluent Limitations*

The Environmental Petitioners bring a host of challenges to: (1) the CAFO Rule's technology-based effluent limitation guidelines; and (2) the CAFO Rule's failure to promulgate additional water quality based effluent limitations.

Again, we note that the specific effluent limitations contained in each individual NPDES permit are dictated by the terms of more general "effluent limitation guidelines" ("ELGs"), which are separately promulgated by the EPA. *Cf. EPA v. California, ex rel. State Water Res. Control Bd.*, 426 U.S. 200, 205, 96 S.Ct. 2022, 48 L.Ed.2d 578 (1976) ("An NPDES permit serves to transform generally applicable effluent limitations and other standards including those based on water quality into the obligations ... of the individual discharger."). ELGs, and the effluent limitations established in accordance with them, are technology-based restrictions on water pollution; they are technology-based because they are established in accordance with various technological standards that the Act statutorily provides and that, pursuant to the Act, vary depending upon the type of pollutant involved, the type of discharge involved, and whether the point source in question is new or already existing. *See* 33 U.S.C. § 1311. For existing facilities, the Act requires that ELGs be based on standards that include: (1) the best available technology economically achievable ("BAT"), *see* 33 U.S.C. § 1311(b)(2)(A); (2) the best conventional pollutant control technology ("BCT"), *see* 33 U.S.C. § 1314(b)(2)(A); and (3) the best practicable control technology currently available ("BPT"), *see* 33 U.S.C. § 1314(b)(1)(A). The technology standard for new point sources, which is commonly referred to as a new source performance standard, is based on the best available ***512** demonstrated control technology. *See* 33 U.S.C. § 1316.

The EPA here established non-numerical ELGs for the production areas of CAFOs, and did so on a sub-category by sub-category basis. Of these, two are relevant: the subcategory for dairy cows and cattle (other than veal calves), grouped together under Part 412, Subpart C of EPA's regulations ("Subpart C CAFOs"), *see* 40 C.F.R. § 412.30–37, and the subcategory for swine, poultry and veal calves, grouped under Part 412, Subpart D, ("Subpart D CAFOs"), *see* 40 C.F.R. § 412.40–47. The EPA, which was required to set BAT, BPT and BCT standards for the production areas of Subpart C and Subpart D CAFOs, here determined that the identical "technologies" satisfy these standards, and accordingly promulgated ELGs based on the same technologies. Generally speaking, these ELGs, whether based on BAT, BCT or BPT standards: (1) set forth a prohibition on discharges from the production area of a CAFO (except insofar as the discharges are caused by "precipitation"); (2) require best management practices for the production area, including the installation of depth markers in manure lagoons and storage tanks, daily inspections of water lines, and weekly inspections of animal waste storage structures and of equipment used for channeling stormwater or runoff; (3) require additional best management practices

for land application areas; and (4) provide an opportunity for alternative performance standards based upon "site-specific alternative technologies that achieve a quantity of pollutants discharged from the production area equal to or less than the quantity of pollutants that would be discharged under the baseline." *See* 40 CFR § 412.31(a)(2).

The Environmental Petitioners present several challenges to the technology-based ELGs promulgated by the EPA. Specifically, they challenge the BAT-based ELGs, the BCT-based ELGs for pathogens, and the new source performance standard adopted for Subpart D CAFOs. The Environmental Petitioners also challenge the EPA's decision not to impose additional water quality based effluent limitations. We address each set of challenges in turn.

1. *Challenges to the BAT Standards*

The Environmental Petitioners contend that the CAFO Rule's BAT-based ELGs—i.e. the ELGs reflecting the best available technology economically achievable ("BAT"), *see* 33 U.S.C. § 1311(b)(2)(A)—violate the Clean Water Act, or are otherwise arbitrary and capricious, in three respects. To wit, the Environmental Petitioners claim that: (a) in establishing the BAT standards, EPA failed to consider the best-performing technologies in the CAFO industry; (b) EPA improperly abandoned a more suitable option as BAT for beef and cattle CAFOs (Subpart C CAFOs); and (c) the EPA improperly rejected a more suitable option for swine, poultry and veal CAFOs (Subpart D CAFOs). We deny all these challenges.

a. *Failure to Consider the Best Performing Technologies*

[9] The Environmental Petitioners sweepingly contend that, in developing its BAT standards, the EPA failed to consider the single-best performing or optimally operating CAFO in each category or subcategory and then adopt BAT standards that reflect the respective performances of those CAFOs. We reject this summary challenge. The record reflects that EPA extensively surveyed available technologies, narrowed the list of potential BAT candidates to seven options, and subsequently found, within the bounds of its discretion, that "Option 2"—described below—was the best candidate for BAT, because ***513** all the other options considered either did not perform better than "Option 2," were not adequately supported in science, or were not economically achievable. The EPA engaged, here, in extensive data collection. The EPA conducted more than 116 site visits to CAFOs in over 20 states. It obtained information regarding the operational characteristics, waste management systems, and financial situations of CAFOs from several agencies within the USDA such as the National Agricultural Statistics Service, the Animal and Plant Health Inspection Service, and the Economic Research Service. EPA also attended conferences, obtained research from the land grant university system, met with several trade associations, and conducted extensive literature reviews. It received and considered approximately 11,000 public comments on the proposed CAFO Rule, *see* Preamble to the Final Rule at 7178, as well as an additional 450 or so comments following the publication, in November 2001 and July 2002, of Notices of Data Availability (documents that summarized new data and information presented to the EPA). *See id.* at 7187–88. On the basis of this data collection, the EPA ultimately found that the BAT standards it adopted—which generally require improved operation and maintenance—would significantly reduce CAFO discharges as well or better than any other available, economically achievable technologies. And it generally justified this decision within the bounds of its discretion. *See, e.g., id.* at 7215 ("One recent study from Iowa State University suggested 76 percent of earthen manure structures lacked appropriate accompanying management and maintenance activities. Another study in North Carolina stated more than 90 percent of violations were attributed to operation and management deficiencies.").

To be sure, the CAFO Rule does not *explicitly* identify the single, existing best-performing CAFO in each category or subcategory of the Rule. However, it is obvious that the CAFO Rule *substantively* establishes standards that make "reference to the best performer in any industrial category"—and nothing in the Act or the legislative history indicates that any more was required of the EPA. *See* 1 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93–1, p. 170 (1973). We believe that in all BAT subcategories, the EPA has either adopted the technology employed by the best performers or declined to do so for permissible reasons. Indeed, the Environmental Petitioners cannot identify any specific performance standard that the EPA failed to consider or

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rejected for impermissible reasons in adopting its BAT standards. Thus, the EPA has complied with its statutory duties in setting the BAT standards, and we consequently reject the Environmental Petitioners' challenge to them.

b. *BAT for Beef and Cattle CAFOs ("Subpart C CAFOs")*

The Environmental Petitioners also challenge the BAT standards on the narrower ground that the EPA improperly abandoned a more suitable option as BAT for beef and cattle (Subpart C) CAFOs. Specifically, the Environmental Petitioners contend that EPA should have selected what EPA had called "Option 3," rather than "Option 2" as BAT for Subpart C CAFOs.

By way of brief background, after reviewing an array of various pollution control technologies and best management practices, the EPA—as we previously stated ***514** —narrowed the list of potential BAT candidates to seven options. Those seven options can be generally summarized as follows:

> *Option 1* would require controls on land application of manure, based on the ability of the soil to assimilate the nitrogen content of the manure, plus inspection and recordkeeping requirements for the production area;
>
> *Option 2* would require the same controls as Option 1, but would restrict the rate of manure application instead to a (generally lower) phosphorus-based application rate where necessary, depending on site-specific soil conditions;
>
> *Option 3* would require the same controls as Option 2, but would also require ground water monitoring and discharge controls, unless the CAFO could show that the groundwater beneath manure storage areas or stockpiles do not have a direct hydrologic connection to surface waters;
>
> *Option 4* would require the same controls as Option 3, but would also require sampling of surface waters adjacent to the production area and/or land under control of the CAFO to which manure is applied;
>
> *Option 5* would require—at least for Subpart D CAFOs —the same controls as Option 2, but would also establish a zero discharge requirement that does not allow overflows from the production area under any circumstances;
>
> *Option 6* would require the same controls as Option 2, but would also require that swine and dairy operations install and implement anaerobic digestion and gas recovery to treat manure; and
>
> *Option 7* would require the same controls as Option 2, but would also prohibit manure application to frozen, snow-covered, or saturated ground.

See EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 10–14 to 10–21 (Jan.2001).

[10] The EPA initially proposed adopting Option 3 as BAT for Subpart C CAFOs, *see* Proposed Rule at 3061–62, but ultimately adopted Option 2. *See* Preamble to the Final Rule at 7215–16. That is to say, the EPA initially proposed that various groundwater-related requirements be uniformly imposed on CAFOs, but ultimately decided that groundwater-related requirements be implemented, as necessary, on a case-by-case basis. *See id.;* Proposed Rule at 3062.[26] The Environmental Petitioners claim that the rejection of Option 3's groundwater requirements is unsupported in the record. The EPA argues, in opposition, that it reasonably determined that Option 2 is better technology ***515** than Option 3, and that Option 3 would impose prohibitive economic costs on the CAFO industry. We believe that the record adequately supports EPA's determinations and accordingly defer to the Agency's selection of Option 2.

The EPA principally claims that Option 2 is better technology than Option 3 because groundwater-related requirements are highly dependent on site-specific variables and that, accordingly, such requirements are more effectively evaluated and implemented on a case-by-case basis, rather than imposed uniformly. The record adequately supports this claim. Studies do show that variability in topography, climate, distance to surface water, and geologic factors influence whether and how pollutant discharges at a particular site enter surface water via groundwater. *See* EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 12–12 (Jan.2001). For example, a study by Clapp and Hornberger demonstrates that variability in soil types significantly affects the rates at which water flows through them; indeed, Clapp and Hornberger "reported that water flowed through sand about 100 times faster than through clayey [sic] soils and about 10 times faster than through silty soils." *Id.* Given that there is sufficient record support for EPA's

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determination that groundwater-related requirements are better imposed on a case-by-case basis, and given that Option 2 requires CAFOs to consider whether such requirements are needed, *see* Proposed Rule at 3062, we find that EPA has adequately justified its finding that Option 2 constitutes better technology than Option 3. *See Nat'l Wildlife Fed'n v. EPA,* 286 F.3d 554, 566 (D.C.Cir.2002) (upholding the EPA's determination to regulate "color discharges" from pulp and paper mill process on a case-by-case basis where such discharges were dependent on site-specific conditions).

The record also supports the EPA's decision to reject Option 3 as economically prohibitive and not likely to result in any significant reduction in groundwater pollution. *See Am. Petroleum Inst. v. EPA,* 787 F.2d 965, 972 (5th Cir.1986) ("EPA would disserve its mandate were it to tilt at windmills by imposing BAT limitations which removed de minimis amounts of polluting agents from our nation's waters, while imposing possibly disabling costs upon the regulated industry."). EPA's final economic analysis showed a nearly six-fold increase in the number of beef, dairy, and heifer CAFOs projected to close under Option 3, were that Option, rather than Option 2, adopted. This amounted to a potential facility closure rate under Option 3 of 29% for heifer CAFOs, 19% for beef, and 12% for the subcategory as a whole. *See* EPA, FINAL RULE ECONOMIC ANALYSIS 3–22 (Dec.2002). At the same time, the EPA found that while it was difficult to quantify on an industry-wide basis the pollutant reduction that would be associated with nationally-applicable ELGs for groundwater controls, its pollution reduction models showed a difference of less than 1% between the nitrogen load reduction achieved under Option 3 as opposed to Option 2. *See* EPA, PROPOSED RULE DEVELOPMENT DOCUMENT 12–15 (Jan.2001).

In light of all the above, we deny the Environmental Petitioners' challenge to the selection of Option 2 as BAT for Subpart C CAFOs.

c. *BAT for Swine, Poultry and Veal CAFOs ("Subpart D CAFOs")*

[11] Although the EPA initially proposed Option 5 as BAT for Subpart D CAFOs, *see* Proposed Rule at 3063–64, the EPA ultimately determined that the costs of Option 5 would not be economically achievable and, accordingly, adopted Option ***516** 2. *See* Preamble to the Final Rule at 7218–19. The Environmental Petitioners here challenge the EPA's rejection of Option 5 on the grounds that: (1) the EPA gave undue consideration to cost; (2) the EPA's economic modeling is flawed; and (3) even assuming the reasonableness of the EPA's economic models, the Agency has, in other contexts, deemed "economically achievable" technologies that produced the same or worse economic costs. We reject all of these challenges and uphold the EPA's selection of Option 2 as BAT for Subpart D CAFOs.

As a preliminary matter, we note that Environmental Petitioners are correct that cost is only one of the factors that EPA is supposed to consider in establishing BAT standards. *See* 33 U.S.C. § 1314(b)(2)(B) (specifying that the EPA should consider "the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the Administrator deems appropriate"). However, the Clean Water Act "does not state what weight should be accorded to the relevant factors; rather, the Act gives EPA the discretion to make those determinations." *BP Exploration & Oil, Inc. v. EPA,* 66 F.3d 784, 802 (6th Cir.1995). And as this Court previously indicated in *Riverkeeper, Inc. v. EPA,* the Administrator is obligated to "inquire into the initial and annual costs of applying the technology and make an affirmative determination that those costs can be reasonably borne by the industry." 358 F.3d 174, 195 (2d Cir.2004). Thus, if the EPA determines, with adequate support in the record, that a given set of costs cannot reasonably be borne by a given industry, courts must defer to that determination.

We believe that the EPA has here determined, with adequate support in the record, that Subpart D CAFOs cannot reasonably bear the costs associated with Option 5, because the EPA—after conducting extensive economic analysis, involving numerous economic tests and modeling—determined that Option 5 would render 17% of swine CAFOs and 11% of Subpart D CAFOs, on the whole, vulnerable to closure. *See* EPA, FINAL RULE ECONOMIC ANALYSIS at 3–19 to 3–22 (Dec.2002). [27]

[12] Environmental Petitioners challenge the probity of the EPA's economic modeling, because, in their view,

the EPA should have assumed that CAFOs could offset their compliance costs by obtaining state and federal funding ("cost-share assistance") and by passing the costs on to consumers ("cost passthrough"). In evaluating this challenge, we wish to make clear, at the outset, that the EPA's determinations about costs, as well as the methodology that the EPA employs in making such determinations, are entitled to deference. [28] "While EPA must take seriously its statutory duty to consider cost, courts of review should be mindful of the many ***517** problems inherent in an undertaking of this nature and uphold a reasonable effort made by the Agency." *Nat'l Wildlife Fed'n v. EPA,* 286 F.3d 554, 563 (D.C.Cir.2002) (quoting *FMC Corp. v. Train,* 539 F.2d 973, 979 (4th Cir.1976)). A reviewing court can neither "second-guess EPA's analysis nor 'undertake [its] own economic study'; rather, the court must 'uphold the regulations if EPA has established in the record a reasonable basis for its decision.' " *Id.* at 565 (citation omitted); *see also Chem. Mfrs. Ass'n v. EPA,* 870 F.2d 177, 250 (5th Cir.1989) ("a 'court's inquiry will be limited to whether the Agency considered the cost of technology, along with the other statutory factors, and whether its conclusion is reasonable' " (citation omitted)).

We believe that the EPA has reasonably justified its decision not to consider either cost-share assistance or cost passthrough in promulgating the final CAFO Rule. First, with respect to cost-share assistance, the EPA determined, within the bounds of its discretion, that there were too many uncertainties regarding the extent to which any such assistance would mitigate compliance costs and that, accordingly, it would be inappropriate to consider cost-share assistance as a reliable offset to compliance costs. In its proposed economic analysis, EPA determined, for example, that although the USDA's Environmental Quality Incentives Program ("EQIP") could theoretically ease the economic strain that Option 5 might impose, the EQIP program should not be relied upon because it might not cover all new applications from CAFOs, might limit the eligibility of CAFOs through various requirements, and might delay distributing funds to CAFOs given various waiting lists and geographic priorities. *See* EPA, PROPOSED RULE ECONOMIC ANALYSIS 4–55 to 56 (Jan.2001). And while certain legislation passed by Congress in 2002 eliminated some restrictions on EQIP participation and substantially increased funding for EQIP, EPA still believed, at the time it conducted its final economic analysis, that the benefits of the EQIP program were still too speculative to count on because it remained unclear what the actual funding levels would be, what limits might be placed on the types of waste management practices covered, and what share of dollars would be allocated to confinement facilities—as opposed to other agricultural operations—and to larger-sized operations. *See* EPA, FINAL RULE ECONOMIC ANALYSIS 2–66 to 2–68 (Dec.2002). We cannot say that the EPA unreasonably determined that federal allocations were too uncertain to rely upon.

Second, with respect to cost passthrough, we believe that EPA determined, within the bounds of its discretion, that the possibility of passing costs on to consumers was also too uncertain to rely upon. The EPA explained in its proposed rule economic analysis that farmers are at the bottom of a long food marketing chain, subject to imperfect market conditions characterized by "local oligopsony conditions, or 'few buyers'." *See* EPA, PROPOSED RULE ECONOMIC ANALYSIS 4–60 (Jan.2001), citing Rogers and Sexton, *Assessing the Importance of Oligopsony Power in Agricultural Markets,* 76 AMER. J. AGR. ECON. 1143–50, Dec. 1994. Given the limited bargaining power of those who raise and confine animals, *see id.* at 2–25 to 2–26, the EPA thus concluded that "[i]ndividual farmers generally have a limited ability to pass on increased costs associated with regulations" and that, as a result, it would be a mistake to rely on cost passthrough. *See id.* at 4–60. We cannot say that the EPA acted unreasonably in ***518** making these determinations. [29]

Having rejected the challenges to the soundness of the EPA's economic models, we move finally to Environmental Petitioners' claim that, even assuming the reasonableness of the EPA's economic modeling, the results do not support a finding that Option 5 was economically unachievable because the Agency has, in other contexts, deemed "economically achievable" technologies that produced the same or worse economic costs. We reject this claim as well. The EPA here estimated that Option 5 would expose up to 11% of Subpart D CAFOs to financial stress sufficient to create a risk of closure. *See* EPA, FINAL RULE ECONOMIC ANALYSIS at 3–22 (Dec.2002). While the EPA—and courts—have treated more substantial risks of closure as nonetheless supporting a finding of economic achievability, *see, e.g., Chem. Mfrs. Assoc. v. EPA,* 870 F.2d at 202 (upholding BAT where 14% of facilities

would be forced to close), it is also true that the EPA—and courts—have treated less substantial risks of closure as supporting a finding of economic unachievability. For example, the D.C. Circuit has upheld an EPA determination that a projected closure rate of less than 7% could support a finding of economic unachievability. *See Nat'l Wildlife Fed'n v. EPA,* 286 F.3d 554, 563 (D.C.Cir.2002). In the end, economic achievability is a determination the EPA must make on an industry-by-industry basis because each industry has its own special attributes and requires an individual assessment of appropriate financial criteria. And we must defer to such determinations unless they are unreasonable. *See id.,* 286 F.3d at 565.

Thus, we reject the Environmental Petitioners' claim that the EPA unlawfully selected Option 2, rather than Option 5, as BAT for Subpart D CAFOs.

2. *Challenge to the BCT Standard for Pathogens*

[13] The Environmental Petitioners next claim that the EPA's failure to adopt any requirements specifically designed to reduce pathogen discharges violates the Clean Water Act and is otherwise arbitrary and capricious in violation of the Administrative Procedure Act.[30] We agree with the Environmental Petitioners in part.

The EPA does not dispute that it is required, under the Clean Water Act, to promulgate BCT-based effluent guidelines for at least one pathogen, namely fecal coliform. *See* 33 U.S.C. § 1314(a)(4) (listing fecal coliform as a conventional pollutant subject to regulation); 33 U.S.C. § 1311(b)(2)(E) (requiring the promulgation of BCT standards for pollutants). That is to say, the EPA does not dispute that it is required to promulgate a technology standard for achieving pathogen reductions that reflects the *best* conventional ***519** pollutant control technology. The EPA also does not here dispute that there is a more than *de minimis* presence of pathogens in the animal waste regulated by the CAFO Rule. In the Preamble to the CAFO Rule, for example, the EPA expressly acknowledges "the presence of pathogens in animal wastes and the potential risk they pose to human health and the environment." Preamble to the Final Rule at 7217. *See also* EPA, RESPONSE TO COMMENTS ON THE NPDES PERMITTING REQUIREMENTS AND EFFLUENT LIMITATIONS GUIDELINES FOR CONCENTRATED ANIMAL FEEDING OPERATIONS A–8 (Dec.2002) ("EPA recognizes the presence of pathogens in animal wastes and the potential risk they pose to human health and the environment"); Proposed Rule at 2977 (noting that livestock manure "contains countless microorganisms, including bacteria, viruses, protozoa, and parasites," that "[m]ultiple species of pathogens may be transmitted directly from a host animal's manure to surface water" and that "[o]ver 150 pathogens found in livestock manure are associated with risks to humans").

The EPA argues that, notwithstanding the above, its failure to impose any BCT-based ELGs specifically designed to achieve pathogen reductions is justified. Principally, the EPA argues that: (1) the pathogen controls it did evaluate, most of which appear to relate to the use or potential use of anaerobic digestion technology, would not necessarily lead to significant pathogen reduction, but would impose significant costs, *see* Preamble to the Final Rule at 7217; and (2) the ELGs otherwise adopted by the CAFO Rule may "incidentally" achieve some reductions of the pathogens in CAFO discharges. *See* Brief of Respondents United States Environmental Protection Agency, et al. at 196; *see also* Preamble to the Final Rule at 7217 ("Although the ELG requirements in this rule are not specifically designed to reduce the pathogens in animal wastes, today's rule may achieve some reductions of pathogens in CAFO discharges ...").

In our view, however, the CAFO Rule violates the Clean Water Act because the EPA has not made an affirmative finding that the BCT-based ELGs adopted in the CAFO Rule do *in fact* represent the best conventional pollutant control technology for reducing pathogens. The EPA may well determine, within the bounds of its discretion, that the ELGs otherwise adopted by the CAFO do in fact represent the best conventional pollutant control technology for reducing pathogens. It may well be the case, to put it slightly differently, that the EPA determines, after considering all the relevant factors, that the ELGs otherwise adopted by the CAFO Rule will directly—not just incidentally—reduce pathogens and do so better than any other pollutant control technology. But we cannot, consistent with the Act, allow the EPA to avoid imposing any other pollutant control technology without an express finding in this regard. The Act requires that the EPA select the best pollutant control technology for reducing pathogens, and we must enforce that requirement.[31]

Accordingly, we grant the petition to the extent that Environmental Petitioners challenge the EPA's failure to impose ELGs specifically designed to reduce pathogens in CAFO discharges as a violation of the Clean Water Act.

***520** 3. *Challenge to the New Source Performance Standard for Swine, Poultry, and Veal*

The Environmental Petitioners claim that the EPA's "new source performance standard" for the production areas of swine, poultry, and veal CAFOs is arbitrary and capricious and that—because the EPA introduced a change to the standard that was not subject to public comment—the new source performance standard for the production areas of swine, poultry, and veal CAFOs violates the Clean Water Act's public participation requirements. We agree with them in part.

The Clean Water Act requires the EPA to promulgate "New Source Performance Standards" ("NSPS") for new, as opposed to already existing, sources of pollution. *See* 33 U.S.C. § 1316. The Act provides that these standards must "reflect the greatest degree of effluent reduction which the Administrator determines to be achievable through application of the best available demonstrated control technology, processes, operating methods, or other alternatives, including, where practicable, a standard permitting no discharge of pollutants." 33 U.S.C. § 1316(a)(1). The Act further requires that the EPA "take into consideration the cost of achieving such effluent reduction, and any non-water quality, environmental impact and energy requirements." 33 U.S.C. § 1316(b)(1)(B). And we note that the EPA is given "considerable discretion to weigh and balance the various factors required by statute to set [NSPS]." *Riverkeeper, Inc. v. EPA,* 358 F.3d 174, 195 (2d Cir.2004) (citation omitted).

The EPA initially proposed that the NSPS for the production areas of swine, poultry and veal CAFOs include various groundwater-related requirements, *see* Proposed Rule at 3144, and also proposed that the NSPS for the production areas of swine, poultry, and veal CAFOs include a total prohibition on production area discharges. *See id.* ("There must be no discharge of process wastewater pollutants into U.S. waters, including any pollutants discharged to ground water which have a direct hydrological connection to surface waters."). In the Final Rule, however, the EPA changed course in several respects: (1) The NSPS did not include the groundwater-related requirements; (2) the NSPS still barred all production area discharges, but provided that a CAFO could comply with this requirement by designing, constructing, operating and maintaining production areas that could "contain all manure, litter, and process wastewater including the runoff and the direct precipitation from a 100–year, 24–hour rainfall event;" and (3) the NSPS empowered permitting authorities to establish alternative performance standards that allow production area discharges, so long as such discharges were accompanied by "an equivalent or greater reduction in the quantity of pollutants released to other media" by the CAFO. *See* 40 C.F.R. § 412.46. The Environmental Petitioners here challenge all three aspects of the final NSPS.

We reject the challenge to the extent that it concerns the EPA's failure to include groundwater-related requirements as part of the NSPS. The EPA's decision not to include such requirements as part of the NSPS was predicated on the same findings underlying its decision not to include groundwater-related requirements as part of the BAT for "Subpart C CAFOs." And as we have already explained, we believe that these findings are supported in the record. *See* discussion *supra.*

[14] However, we agree with the Environmental Petitioners that there is not adequate support in the record for either: (1) ***521** the EPA's decision to allow CAFOs to comply with the "total prohibition" requirement by designing, operating, and maintaining a facility to contain the runoff from a 100–year, 24–hour rainfall event; or (2) the EPA's decision to allow CAFOs to comply with the "total prohibition" requirement through alternative performance standards.

With respect to the former, the EPA claims that the "100–year, 24–hour rainfall event" design standard is functionally equivalent to or a logical outgrowth of a total prohibition standard. The EPA has not, however, adequately substantiated this claim. For example, the EPA never modeled the potential overflows and pollutant loads from a system with a 100–year, 24–hour storm event design capacity; so far as we can tell, the EPA modeled only the potential overflows and pollutant loads from a system with a 25–year, 24–hour storm event. And while certain studies may have shown that the production area BMPs adopted by the CAFO Rule would have substantially prevented the production area discharges documented in the record, we think it obvious that

substantially preventing discharges is not the same as prohibiting them outright.

With respect to the latter, the EPA has not justified in any way—let alone with adequate support in the record—its decision to allow a CAFO to comply with the total prohibition standard through an alternative standard permitting production area discharges so long as the CAFO's aggregate pollution is equivalent to or lower than what it would have been without the production area discharges.

[15] Additionally, because the EPA did not indicate, until the adoption of the final rule, that it was considering either the 100–year, 24–hour rainfall event option or the possibility of alternative performance standards, we find that the EPA's decision to adopt such provisions as part of the NSPS for swine, poultry, and veal violates the Clean Water Act's public participation requirements. *See* 33 U.S.C. § 1251(e) ("Public participation in the development, revision, and enforcement of any regulation, standard, effluent limitation, plan, or program established by the Administrator or any State under this Act shall be provided for, encouraged, and assisted by the Administrator and the States").

4. *Challenge to the EPA's Failure to Impose Water Quality Based Effluent Limitations*

[16] We now consider the final challenge brought in this consolidated petition, namely, whether the CAFO Rule violates the Clean Water Act and is otherwise arbitrary and capricious under the Administrative Procedure Act because the Rule fails to promulgate water quality based effluent limitations ("WQBELs") and also bars states from doing so. We agree with the Environmental Petitioners that it does, at least in part.

As stated above, the Clean Water Act not only requires that the EPA promulgate technology-based effluent limitations, but also provides that additional WQBELs "shall be established"—either by the EPA, *see* 33 U.S.C. § 1312(a), or by the states, *see* 33 U.S.C. § 1314(1)—where "discharges of pollutants from a point source or group of point sources ... would interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water." 33 U.S.C. § 1312(a). The Act authorizes the imposition of such WQBELs because "[t]he limitations necessary ***522** to achieve a given level of water quality in one reach of a waterway may require more control of effluents than that attainable through application of the best available technology." 2 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93–1, p. 1464 (1973).

The CAFO Rule does not, here, promulgate any WQBELs. This much is clear. And this does not present a problem to the extent that the Rule fails to promulgate—and bars the states from promulgating—WQBELs for any "agricultural stormwater discharge," as that term is defined in 40 C.F.R. § 122.23(e). [32] Agricultural stormwater discharges are, after all, statutorily exempt from any effluent limitations, including WQBELs, because they are not point source discharges. *See* 33 U.S.C. § 1362(14).

What is fully unclear is: (1) why the CAFO Rule exempts discharges other than agricultural stormwater discharges from WQBELs, and (2) whether the CAFO Rule bars the states from promulgating WQBELs for discharges other than agricultural stormwater discharges, and, if so, why. With regard to the former, the EPA has here indicated its intention not to promulgate any WQBELs whatsoever; the Preamble to the Final Rule states, after all, that the "EPA does not expect that water quality-based effluent limitations will be established for CAFO discharges resulting from the land application of manure, litter or process wastewater." Preamble to the Final Rule at 7207. The EPA has, however, only justified its determination not to impose WQBELs, only insofar as agricultural stormwater discharges are concerned. *See id.* The EPA has not attempted, in any way, to explain its failure to promulgate WQBELs for CAFO discharges other than agricultural stormwater discharges as that term is defined in 40 C.F.R. § 122.23(e). The EPA sidesteps the issue completely on appeal, and the Preamble to the CAFO Rule similarly fails to explain, let alone justify, its decision. Since there is otherwise evidence in the record suggesting that the EPA's technology-based effluent limitation guidelines may not, on their own, "assure ***523** protection of public health," *see, e.g.,* Memorandum from Laurel J. Staley, Chief, Treatment and Destruction

Branch, Land Remediation & Pollution Control Division, EPA, Re: Assessment of the Necessity for Controlling Potentially Infectious Microorganisms in Animal Wastes (Jan. 16, 2002), we find that the EPA's failure to justify the lack of WQBELs for CAFO discharges other than agricultural stormwater discharges violates 33 U.S.C. § 1312(a) and is arbitrary and capricious in violation of the Administrative Procedure Act.[33] Accordingly, on remand, we direct the EPA to explain whether or not, and why, WQBELs are needed to assure that CAFO discharges will not "interfere with the attainment or maintenance of that water quality in a specific portion of the navigable waters which shall assure protection of public health, public water supplies, agricultural and industrial uses, and the protection and propagation of a balanced population of shellfish, fish and wildlife, and allow recreational activities in and on the water." 33 U.S.C. § 1312(a).

Additionally, we find that the Preamble to the Rule is ambiguous about whether states may promulgate WQBELs for discharges other than agricultural stormwater discharges as that term is defined in 40 C.F.R. § 122.23(e). On the one hand, the Preamble does, at one time, seem to suggest that states may promulgate WQBELs; it provides that "[a]lthough, as noted above, manure and process wastewater discharges from the land application area are not directly subject to water quality-based effluent limits, EPA encourages States to address water quality protection issues in their technical standards for determining appropriate land application practice." Preamble to the Final Rule at 7198. On the other hand, the Preamble elsewhere says that where a CAFO has implemented site-specific practices designed to ensure appropriate agricultural utilization of nutrients, it is free from *any* further regulation. To wit, the Preamble states:

> In explaining how the scope of CAFO point source discharges is limited by the agricultural storm water exemption, EPA intends that this limitation will provide a "floor" for CAFOs that will ensure that, where a CAFO is land applying manure, litter or process wastewater in accordance with site specific practices designed to ensure appropriate agricultural utilization of nutrients, *no further effluent limitations will be authorized, for example, to ensure compliance with water quality standards.*

Id. (emphasis added). Given the ambiguity in the Preamble, and given the fact that at least one state has expressed concern that the Rule prevents the imposition of any state WQBELs, *see* Wisconsin Dep't of Natural Res. Comments on U.S. EPA's Proposed Rule Revisions for Concentrated Animal Feeding Operations at 1 (July 27, 2001), we believe it necessary for the EPA to explain more clearly, on remand, whether in fact states may promulgate WQBELs for discharges other than agricultural stormwater discharges as the term is defined in 40 C.F.R. § 122.23(e) and, if not, why.

Accordingly, we grant the Environmental Petitioners' challenge to the extent that they claim that the CAFO Rule is arbitrary and capricious under the Administrative Procedure Act because the EPA has ***524** not sufficiently justified its decision not to promulgate WQBELs for discharges other than agricultural stormwater discharges, as that term is defined in 40 C.F.R. § 122.23(e). Additionally, we grant the Environmental Petitioners' petition to the extent that it seeks clarification of whether the CAFO Rule bars the states from promulgating WQBELs.[34]

CONCLUSION

For the foregoing reasons, the petitions are granted in part and denied in part. We hereby vacate those provisions of the CAFO Rule that: (1) allow permitting authorities to issue permits without reviewing the terms of the nutrient management plans; (2) allow permitting authorities to issue permits that do not include the terms of the nutrient management plans and that do not provide for adequate public participation; and (3) require CAFOs to apply for NPDES permits or otherwise demonstrate that they have no potential to discharge. We also remand other aspects of the CAFO Rule to the EPA for further clarification and analysis. Specifically, we direct the EPA to: (1) definitively select a BCT standard for pathogen reduction; and (2) clarify—via a process that adequately involves the public—the statutory and evidentiary basis for allowing Subpart D CAFO's to comply with the new source performance standard by either: (a) designing, constructing, operating and maintaining production areas that could contain

all manure, litter and process wastewater including the runoff and the direct precipitation from a 100–year, 24–hour rainfall event; or (b) complying with alternative performance standards that allow production area discharges, so long as such discharges are accompanied by an equivalent or greater reduction in the quantity of pollutants released to other media. Additionally, we direct the EPA to clarify the statutory and evidentiary basis for failing to promulgate water quality based effluent limitations for discharges other than agricultural stormwater discharges, as that term is defined in 40 C.F.R. § 122.23(e), and also direct the EPA to clarify whether states may develop water quality based effluent limitations on their own. We uphold the CAFO Rule in all other respects.

All Citations

399 F.3d 486, 59 ERC 2089, 35 Envtl. L. Rep. 20,049

Footnotes

1 The term "discharge of a pollutant" is defined to mean, *inter alia,* "any addition of any pollutant to navigable waters from any point source." 33 U.S.C. § 1362(12)(A).

2 The term "person" is defined to mean "an individual, corporation, partnership, association, State, municipality, commission, or political subdivision of a State, or any interstate body." 33 U.S.C. § 1362(5).

3 The term "point source" is defined to mean "any discernible, confined and discrete conveyance ... from which pollutants are or may be discharged." 33 U.S.C. § 1362(14). Notably, the Act includes "concentrated animal feeding operation" as an example of a point source. *Id.*

4 Under 40 C.F.R. 122.23(b)(1), an animal feeding operation ("AFO") is defined to mean:

> a lot or facility (other than an aquatic animal production facility) where the following conditions are met:
> (i) Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12–month period, and
> (ii) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

5 The CAFO Rule defines a concentrated animal feeding operation as "an AFO [animal feeding operation] that is defined as a Large CAFO or as a Medium CAFO by the terms of this paragraph, or that is designated as a CAFO in accordance with paragraph (c) of this section." 40 C.F.R. § 122.23(b)(2). Paragraph (c) provides that an appropriate authority (either a state director, the EPA administrator or both) may designate an AFO as a CAFO upon a determination that the AFO is "a significant contributor of pollutants to waters of the United States." 40 C.F.R. § 122.23(c).

6 According to 40 C.F.R. § 122.23(b)(6), the term Medium CAFO includes:

> ... any AFO with the type and number of animals that fall within any of the ranges listed in paragraph (b)(6)(i) of this section and which has been defined or designated as a CAFO. An AFO is defined as a Medium CAFO if:
> (i) The type and number of animals that it stables or confines falls within any of the following ranges:
> (A) 200 to 699 mature dairy cows, whether milked or dry;
> (B) 300 to 999 veal calves;
> (C) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs;
> (D) 750 to 2,499 swine each weighing 55 pounds or more;
> (E) 3,000 to 9,999 swine each weighing less than 55 pounds;
> (F) 150 to 499 horses;
> (G) 3,000 to 9,999 sheep or lambs;
> (H) 16,500 to 54,999 turkeys;
> (I) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;
> (J) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
> (K) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;
> (L) 10,000 to 29,999 ducks (if the AFO uses other than a liquid manure handling system); or
> (M) 1,500 to 4,999 ducks (if the AFO uses a liquid manure handling system); and
> (ii) Either one of the following conditions are met:
> (A) Pollutants are discharged into waters of the United States through a man-made ditch, flushing system, or other similar man-made device; or

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(B) Pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

7 However, the animal feeding operation raising the chickens must use something "other than a liquid manure handling system." *See* 40 C.F.R. 122.23(b)(6)(J).

8 40 C.F.R. § 122.23(b)(3) classifies an animal feeding operation as a Large CAFO if it:

... stables or confines as many as or more than the number of animals specified in any of the following categories:
(i) 700 mature dairy cows, whether milked or dry;
(ii) 1,000 veal calves;
(iii) 1,000 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls and cow/calf pairs.
(iv) 2,500 swine each weighing 55 pounds or more;
(v) 10,000 swine each weighing less than 55 pounds;
(vi) 500 horses;
(vii) 10,000 sheep or lambs;
(viii) 55,000 turkeys;
(ix) 30,000 laying hens or broilers, if the AFO uses a liquid manure handling system;
(x) 125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system
(xi) 82,000 laying hens, if the AFO uses other than a liquid manure handling system;
(xii) 30,000 ducks (if the AFO uses other than a liquid manure handling system); or
(xiii) 5,000 ducks (if the AFO uses a liquid manure handling system).

9 *See, e.g.,* EPA, DEVELOPMENT DOCUMENT FOR THE FINAL REVISIONS TO THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM REGULATION AND THE EFFLUENT GUIDELINES FOR THE CONCENTRATED ANIMAL FEEDING OPERATIONS , 4–35 (Dec.2002) (noting that "[b]y 1997, the value of poultry production exceeded $21.6 billion, and much of the poultry output was generated by corporate producers on large facilities producing more than 100,000 birds." (citations omitted)).

10 The USDA estimates that operations that confine livestock and poultry generate about 500 million tons of animal manure each year—over three times more raw waste than humans generate in the United States, according to the EPA. Preamble to the Final Rule at 7180.

11 "Several estimates indicate that 90% of CAFO-generated waste is land applied." EPA, STATE COMPENDIUM: PROGRAMS AND REGULATORY ACTIVITIES RELATED TO ANIMAL FEEDING OPERATIONS 13 (May 2002).

12 That suit, brought by the NRDC and Public Citizen, was resolved by a consent decree in which the EPA agreed to propose new effluent limitation guidelines for the swine, poultry, beef and dairy subcategories of CAFOs. *See* Consent Decree, as amended, *NRDC v. Reilly, modified sub. nom., NRDC v. Whitman,* No. 89–2980 (D.D.C.1/31/1992).

13 40 C.F.R. § 122.23(b)(8) defines production area as:

that part of an AFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and the waste containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities [dead animals].

14 The ELGs promulgated by the CAFO Rule apply only to *Large* CAFOs. *See* Preamble to the Final Rule at 7208.

15 We refer to both sets of petitioners as they refer to themselves.

16 The Farm Petitioners also challenge the CAFO Rule for impermissibly assuming jurisdiction over all "surface waters," when the Clean Water Act confers upon the EPA the authority to regulate only "navigable waters," a term defined by the Act to mean "waters of the United States, including the territorial seas." 33 U.S.C. § 1362(7). The EPA has clarified, however, that the CAFO Rule employs the term "surface waters" only in an effort to distinguish surface water from groundwater and that the Agency fully recognizes that its regulatory authority encompasses only the "waters of the United States, including the territorial seas." Given these clarifications, we deny the Farm Petitioners' challenge as moot.

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17 We note that the EPA has authorized 45 States and the Virgin Islands to administer the NPDES program. *See* Preamble to the Final Rule at 7185.

18 Admittedly, the Ninth Circuit predicated its holding on a violation of a statutory provision different from the provisions at issue in this case. To wit, the Ninth Circuit held that the Phase II Rule violated 33 U.S.C. § 1342(p)(3)(B)(iii), a provision that specifically pertains to municipal storm sewer discharges and that allows permits for such discharges to issue only where the permits "require controls to reduce the discharge of pollutants to the maximum extent practicable." 33 U.S.C. § 1342(p)(3)(B)(iii). *See EDC,* 344 F.3d at 855–56. This is, however, a distinction without a difference. The demand that permits authorizing municipal storm sewer discharges must "require controls" is, in sum and substance, identical to the demand that permits authorizing discharges from *other* point sources must "assure compliance with" applicable effluent limitations. Both provisions require regulation of discharges *in fact.*

19 There may well be reason to fear that Large CAFOs may misunderstand their specific situation and prepare inadequate nutrient management plans as a result. Even the EPA has acknowledged that crafting proper waste application rates is a complicated task—that is why the EPA expressly recommended, but notably did not require, that waste application rates be prepared by those who are "competent in or have an understanding of a number of technical areas, including soil science and soil fertility, nutrient application and management, crop production, soil and manure testing and results interpretation, fertilizer materials and their characteristics, BMPs [best management practices] for the management of nutrients and water, and applicable laws and regulations." Preamble to the Final Rule at 7213. Tellingly, the EPA also specifically recognized, in the Preamble to the CAFO Rule, that "USDA, and other organizations such as the American Society of Agronomy, Crop Science Society of America, Soil Science Society of America, and a number of land grant universities, recommend that nutrient management plans be prepared by trained and certified specialists." *Id.*

20 On its face, the Rule requires CAFOs—like state permitting authorities—to develop nutrient management plans based on "field-specific assessments." 40 C.F.R. § 412.4(c)(1). However, it is clear that each CAFO must make such "field-specific assessments" on a site-by-site basis; that is, each CAFO must determine what the relevant field conditions are at its site in order to determine its site-specific waste application rate. *See* Preamble to the Final Rule at 7209 ("Today's rule requires Large CAFOs to determine and implement *site-specific* nutrient application rates that are consistent with the technical standards for nutrient management established by the permitting authority.") (emphasis added); *see also id.* at 7213 ("The nutrient management plan is the tool CAFOs must use to assess soil and other field conditions at their operation ... to determine the *site-specific* nitrogen or phosphorus-based rate at which manure, litter, and other process wastewaters are to be applied.") (emphasis added).

21 We also point out that our reading of 33 U.S.C. § 1311(e) does not render superfluous the "may be" language included in the statutory definition of point source. In our view, the "may be" language can be read to clarify the reach of the EPA's power to seek injunctive relief. *See* 33 U.S.C. § 1319(b); *see generally Weinberger v. Romero–Barcelo,* 456 U.S. 305, 102 S.Ct. 1798, 72 L.Ed.2d 91 (1982).

22 Because we find that the EPA lacks statutory authorization to require potential dischargers to apply for NPDES permits, we need not consider whether the record here supports the EPA's determination that Large CAFOs may reasonably be presumed to be such potential dischargers. We hasten to note, however, that if Congress were to amend the Clean Water Act to permit the imposition of a duty-to-apply, we believe the EPA would have ample reason to consider imposing this duty upon Large CAFOs. In our view, the EPA has marshaled evidence suggesting that such a prophylactic measure may be necessary to effectively regulate water pollution from Large CAFOs, given that Large CAFOs are important contributors to water pollution and that they have, historically at least, improperly tried to circumvent the permitting process. *See, e.g.,* Proposed Rule at 2976–77 (noting that, according to the 1998 National Water Quality Inventory, the agricultural sector was the leading contributor to identified water quality impairments in the nation's rivers and lakes); *id.* at 3008 ("since the inception of the NPDES permitting program in the 1970s, a relatively small number of larger CAFOs has actually sought permits"); *see also* Preamble to the Final Rule at 7180 (describing a rise in the excess manure nutrients produced by animal feeding operations); *id.* at 7181 (detailing the ecological and human health impacts caused by CAFO manure and wastewater), *id.* at 7237 (noting the pollutants present in manure and other CAFO wastes and describing how they contribute to the impairment of water quality).

We also note that the EPA has not argued that the administrative record supports a regulatory presumption to the effect that Large CAFOs *actually* discharge. As such, we do not now consider whether, under the Clean Water Act as it currently exists, the EPA might properly presume that Large CAFOs—or some subset thereof—actually discharge. *See generally NLRB v. Curtin Matheson Scientific, Inc.,* 494 U.S. 775, 110 S.Ct. 1542, 108 L.Ed.2d 801 (1990); *National Mining Ass'n v. Babbitt,* 172 F.3d 906 (D.C.Cir.1999).

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23 For example, the Environmental Petitioners substantially rely on a statement from Senator Robert Dole acknowledging the environmental threat posed by "[p]recipitation runoff" from areas storing animal and poultry waste. 2 A LEGISLATIVE HISTORY OF THE WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972, Committee Print Compiled for the Senate Committee on Public Works by the Library of Congress, Ser. No. 93–1, p. 1295 (1973). Senator Dole did not at all suggest that the Act aimed, in fact, to regulate precipitation runoff. His statement about precipitation runoff was merely part of a larger discussion about the general environmental threat posed by animal and poultry waste. To wit, he stated that: "In these modern facilities, the use of bedding and litter has been greatly reduced; consequently, the manure which is produced remains essentially in the liquid state and is much more difficult to handle without odor and pollution problems. Precipitation runoff from these areas picks up high concentrates of pollutants, which reduce oxygen levels in receiving streams and lakes and accelerate the eutrophication process." *Id.*

24 We note, moreover, that while the EPA had previously classified CAFO discharges as industrial, rather than agricultural, the Agency has here adequately justified that change on the ground that "[w]hen manure or process wastewater is applied in accordance with practices designed to ensure appropriate agricultural utilization of nutrients, it... fulfills an important agricultural purpose, namely the fertilization of crops..." Preamble to the Final Rule at 7197. *Cf. Motor Vehicle Manufacturers Association of the United States, Inc. v. State Farm Mutual Automobile Insurance Company,* 463 U.S. 29, 42, 103 S.Ct. 2856, 77 L.Ed.2d 443 (1983) (where an agency has changed course it is "obligated to supply a reasoned analysis for the change."). Because the EPA also put the public on notice of the substantive change, *see* Proposed Rule at 3029–32, it has complied with all applicable procedural requirements.

25 We note that, in this respect, *Catskill Mountains* is in complete accord with *Southview Farm.* Implicit in *Southview Farm* is the idea that when a discharge from a land application area under the control of a CAFO is primarily caused by rain, such a discharge is not subject to regulation because the rain—not the CAFO—is the proximate source of the discharge; but when "run-off [is] primarily caused by the over-saturation of the fields rather than the rain and [there are] sufficient quantities of manure ... present," *Southview Farm,* 34 F.3d at 121, such a discharge *is* subject to regulation because the CAFO—not the rain—is the proximate source of the discharge.

26 As the EPA explained in the Preamble to the Proposed Rule and reaffirmed in its brief in this consolidated petition,

> even under Option 2, permit writers [are] required to consider whether a facility is located in an area where its hydrogeology makes it likely that the ground water underlying the facility is hydrologically connected to surface water and whether a discharge to surface water from the facility through such hydrologically connected ground water may cause or contribute to a violation of State water quality standards. In cases where such a determination was made by the permit writer, he or she would impose appropriate conditions to prevent discharge via a hydrologic connection [and that these conditions] would be included in the permit.

Proposed Rule at 3062. It is thus clear that when the EPA stated, in the Preamble to the Final Rule, that "requirements limiting the discharge of pollutants to surface water via groundwater ... are beyond the scope of today's ELGs," Preamble to the Final Rule at 7216, the EPA meant only that uniform national requirements are beyond the scope of today's ELGs. The EPA did not, in other words, mean to suggest that NPDES authorities lacked the power to impose groundwater-related requirements on a case-by-case basis, where necessary.

27 Because the Clean Water Act "imposes no obligation on EPA to subdivide industries so that each point-source category contains identical producers," *BASF Wyandotte Corp. v. Costle,* 598 F.2d 637, 655 (1st Cir.1979), we reject the Environmental Petitioners' claim that EPA should segregate poultry CAFOs out of Subpart D and separately consider the costs of imposing Option 5 on them.

28 We agree with the Environmental Petitioners that the EPA's economic determinations are not—as the EPA puts it—entitled to "heightened deference." Deference, not "heightened" deference, is due.

29 We also uphold, as reasonable, EPA's decision not to rely on "long-run market adjustments," given that these, too, are inherently uncertain and difficult to predict and that, in any event, adjustments for the long-run might "mask severe financial effects at regulated CAFOs in the short-run." *See* EPA, FINAL RULE ECONOMIC ANALYSIS 2–64 (Dec.2002).

30 We find that, contrary to the EPA's argument, the Environmental Petitioners are not barred from bringing this claim, because one comment expressly addressed the inadequacy of the Agency's pathogen reduction measures, *see* Excerpt Number CAFO201424–27 in EPA, RESPONSE TO COMMENTS ON THE NPDES PERMITTING REQUIREMENTS AND EFFLUENT LIMITATIONS GUIDELINES FOR CONCENTRATED ANIMAL FEEDING OPERATIONS at 9–81 (Dec.2002) and because, in any event, the Agency clearly considered its statutory obligation to impose pathogen reduction measures in the course of promulgating the CAFO Rule. *See Nat'l Resources Def. Council, Inc. v. EPA,* 824 F.2d 1146, 1151 (D.C.Cir.1987).

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31 Because the EPA never made an affirmative finding that the other ELGs adopted by the CAFO Rule constitute the *best* conventional pollutant control technology, we need not address whether EPA reasonably rejected other pathogen controls. The rejection of those controls is not properly before this Court.

32 The Environmental Petitioners argue that the Preamble to the Final Rule can be construed to give the term "agricultural stormwater discharge" a broader definition than the one provided in 40 C.F.R. § 122.23(e). Because the Preamble at one point states that where a CAFO has developed site specific practices to ensure appropriate agricultural utilization of nutrients, "*[a]ny remaining discharge* ... would be covered by the agricultural storm water exemption," the Environmental Petitioners claim that the agricultural stormwater exemption might be read to include even "dry weather discharges," i.e., discharges not caused by rain. Preamble to the Final Rule at 7198. We disagree. First and most importantly, the CAFO Rule itself provides that only a "precipitation-related discharge" can be classified as agricultural stormwater. 40 C.F.R. § 122.23(e). Dry-weather discharges are, by definition, not precipitation-related. Second, the Preamble expressly states—in the paragraph preceding the statement that the Environmental Petitioners construe as suggesting a broader definition of agricultural stormwater—that "any dry weather discharge of manure or process wastewater resulting from its application to land area [sic] under the control of a CAFO would not be considered an agricultural storm water discharge and would thus be subject to Clean Water Act requirements." Preamble to the Final Rule at 7198. Thus, the agricultural stormwater exemption encompasses only those discharges that the CAFO Rule defines as agricultural stormwater, that is, a "precipitation-related discharge of manure, litter, or process wastewater from land areas under the control of a CAFO" where the "manure, litter or process wastewater has [otherwise] been applied in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization." 40 C.F.R. § 122.23(e).

33 To be clear, we are not asked to consider—and we accordingly do not consider—whether EPA is statutorily required, in the first instance, to investigate the propriety of imposing WQBELs. Here, we hold only that where the EPA has made a determination, one way or the other, about the propriety of imposing WQBELs, that determination must be reasonable and supported in the record, i.e., not arbitrary and capricious.

34 The Environmental Petitioners moved to clarify and/or supplement the administrative record on appeal to include certain documents exchanged between the EPA and the Office of Management and Budget. They so moved because, in their view, the EPA–OMB documents supported their challenges to (a) the EPA's failure to promulgate WQBELs and (b) the CAFO Rule's new source performance standard for swine, poultry, and veal. Because we have granted both these challenges without even considering the EPA–OMB documents, we deny the Environmental Petitioners' motion as moot.

End of Document

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ATTACHMENT
12

KeyCite Yellow Flag - Negative Treatment
Distinguished by San Diego Unified School Dist. v. Commission On State Mandates, Cal., August 2, 2004

43 Cal.3d 46
Supreme Court of California,
In Bank.

COUNTY OF LOS ANGELES
et al., Plaintiffs and Appellants,
v.
The STATE of California et al.,
Defendants and Respondents.
CITY OF SONOMA et al., Plaintiffs and Appellants,
v.
The STATE of California et al.,
Defendants and Respondents.

L.A. No. 32106.
|
Jan. 2, 1987.
|
Rehearing Denied Feb. 26, 1987.

After State mandated increases in certain workers' compensation benefits, cities and counties, as self-insured employers, brought action against State for reimbursement of required increases. The Superior Court, Los Angeles County, Leon Savitch and John L. Cole, JJ., denied relief, and cities and counties appealed. The Court of Appeal, Eagleson, J., 215 Cal.Rptr. 139, affirmed in part, reversed in part, and remanded. The Supreme Court granted review, superseding the opinion of the Court of Appeal. The Supreme Court, Grodin, J., held that constitutional provision, requiring State to reimburse local governments for increased costs whenever legislature mandated new program or higher level of service, was not applicable to increases in workers' compensation benefits, where public and private employers were equally affected.

Court of Appeal reversed.

Mosk, J., concurred and filed opinion.

West Headnotes (1)

[1] **States**

Disbursements in General

Constitutional provision requiring State to reimburse local governments for costs of new programs or higher levels of service mandated by legislature was not applicable to costs incurred by local governments in complying with legislatively mandated increases in workers' compensation benefits where increases were applicable to both public and private employers; disapproving *City of Sacramento v. State of California,* 156 Cal.App.3d 182, 203 Cal.Rptr. 258 (3 Dist.). West's Ann.Cal. Const. Art. 13B, § 6; West's Ann.Cal.Labor Code §§ 4453, 4453.1, 4460, 4553, 4702.

45 Cases that cite this headnote

Attorneys and Law Firms

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Opinion

GRODIN, Justice.

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We are asked in this proceeding to determine whether legislation enacted in 1980 and 1982 increasing certain workers' compensation benefit payments is subject to the command of article XIIIB of the California Constitution that local government costs mandated by the state must be funded by the state. The County of Los Angeles and the City of Sonoma sought review by this court of a decision of the Court of Appeal which held that state-mandated increases ***39** in workers' compensation benefits that do not exceed the rise in the cost of living are not costs which must be borne by the state under article XIIIB, an initiative constitutional provision, and legislative implementing statutes.

Although we agree that the State Board of Control properly denied plaintiffs' claims, our conclusion rests on grounds other than those relied upon by the Court of Appeal, and requires that its judgment be reversed. We conclude that when the voters adopted article XIIIB, section 6, their intent was not to require the state to provide subvention whenever a newly enacted statute resulted incidentally in some cost to local agencies. Rather, the drafters and the electorate had in mind subvention for the expense or *50 increased cost of programs administered locally and for expenses occasioned by laws that impose unique requirements on local governments and do not apply generally to all state residents or entities. In using the word "programs" they had in mind the commonly understood meaning of the term, programs which carry out the governmental function of providing services to the public. Reimbursement for the cost or increased cost of providing workers' compensation benefits to employees of local agencies is not, therefore, required by section 6.

We recognize also the potential conflict between article XIIIB and the grant of plenary power over workers' compensation bestowed upon the Legislature by section 4 of article XIV, but in accord with established rules of construction our construction of article XIIIB, section 6, harmonizes these constitutional provisions.

I

On November 6, 1979, the voters approved an initiative measure which added article XIIIB to the California Constitution. That article imposed spending limits on the state and local governments and provided in section 6 (hereafter section 6): "Whenever the Legislature or any state agency mandates a new program or higher level of **204 service on any local government, the state shall provide a subvention of funds to reimburse such local government for the costs of such program or increased level of service, except that the Legislature may, but need not, provide such subvention of funds for the following mandates: [¶] (a) Legislative mandates requested by the local agency affected; [¶] (b) Legislation defining a new crime or changing an existing definition of a crime; or [¶] (c) Legislative mandates enacted prior to January 1, 1975, or executive orders or regulations initially implementing legislation enacted prior to January 1, 1975." No definition of the phrase "higher level of service" was included in article XIIIB, and the ballot materials did not explain its meaning. [1]

The genesis of this action was the enactment in 1980 and 1982, after article XIIIB had been adopted, of laws increasing the amounts which employers, *51 including local governments, must pay in workers' compensation benefits to injured employees and families of deceased employees.

The first of these statutes, Assembly Bill No. 2750 (Stats.1980, ch. 1042, p. 3328), amended several sections of the Labor Code related to workers' compensation. The amendments of Labor Code sections 4453, 4453.1 and 4460 increased the maximum weekly wage upon which temporary and permanent disability indemnity is computed from $231 per week to $262.50 per week. The amendment of section 4702 of the Labor Code increased certain death benefits from $55,000 to $75,000. No appropriation ***40** for increased state-mandated costs was made in this legislation. [2]

Test claims seeking reimbursement for the increased expenditure mandated by these changes were filed with the State Board of Control in 1981 by the County of San Bernardino and the City of Los Angeles. The board rejected the claims, after hearing, stating that the increased maximum workers' compensation benefit levels did not change the terms or conditions under which benefits were to be awarded, and therefore did not, by increasing the dollar amount of the benefits, create an increased level of service. The first of these consolidated actions was then filed by the County of Los Angeles, the County of San Bernardino, and the City of San Diego, seeking a writ of mandate to compel the board to approve the

reimbursement claims for costs incurred in providing an increased level of service mandated by the state pursuant to Revenue and Taxation Code section 2207.[3] They also sought a declaration that because the State of California and the board were obliged by article XIIIB to reimburse them, they were not obligated to ****205** pay the increased benefits until the state provided reimbursement.

The superior court denied relief in that action. The court recognized that although increased benefits reflecting cost of living raises were not expressly ***52** excepted from the requirement of state reimbursement in section 6 the intent of article XIIIB to limit governmental expenditures to the prior year's level allowed local governments to make adjustment for changes in the cost of living, by increasing their own appropriations. Because the Assembly Bill No. 2750 changes did not exceed cost of living changes, they did not, in the view of the trial court, create an "increased level of service" in the existing workers' compensation program.

The second piece of legislation (Assem. Bill No. 684), enacted in 1982 (Stats. 1982, ch. 922, p. 3363), again changed the benefit levels for workers' compensation by increasing the maximum weekly wage upon which benefits were to be computed, and made other changes among which were: The bill increased minimum weekly earnings for temporary and permanent total disability from $73.50 to $168, and the maximum from $262.50 to $336. For permanent partial disability the weekly wage was raised from a minimum of $45 to $105, and from a maximum of $105 to $210, in each case for injuries occurring on or after January 1, 1984. (Lab.Code, § 4453.) A $10,000 limit on additional compensation for injuries resulting from serious and willful employer misconduct was removed (Lab.Code, § 4553), and the maximum death benefit was raised from $75,000 to $85,000 for deaths in 1983, and to $95,000 for deaths on or after January 1, 1984. (Lab.Code, § 4702.)

Again the statute included no appropriation and this time the statute expressly acknowledged that the omission was made "[n]otwithstanding section 6 of Article XIIIB of the California Constitution and *****41** section 2231 ... of the Revenue and Taxation Code." (Stats.1982, ch. 922, § 17, p. 3372.)[4]

Once again test claims were presented to the State Board of Control, this time by the City of Sonoma, the County of Los Angeles, and the City of San Diego. Again the claims were denied on grounds that the statute made no change in the terms and conditions under which workers' compensation benefits were to be awarded, and the increased costs incurred as a result of higher benefit levels did not create an increased level of service as defined in Revenue and Taxation Code section 2207, subdivision (a).

The three claimants then filed the second action asking that the board be compelled by writ of mandate to approve the claims and the state to pay them, and that chapter 922 be declared unconstitutional because it was not adopted in conformity with requirements of the Revenue and Taxation Code or ***53** section 6. The trial court granted partial relief and ordered the board to set aside its ruling. The court held that the board's decision was not supported by substantial evidence and legally adequate findings on the presence of a state-mandated cost. The basis for this ruling was the failure of the board to make adequate findings on the possible impact of changes in the burden of proof in some workers' compensation proceedings (Lab.Code § 3202.5); a limitation on an injured worker's right to sue his employer under the "dual capacity" exception to the exclusive remedy doctrine (Lab.Code §§ 3601–3602); and changes in death and disability benefits and in liability in serious and wilful misconduct cases. (Lab.Code, § 4551.)

The court also held: "[T]he changes made by chapter 922, Statutes of 1982 may be excluded from state mandated costs if that change effects a cost of living increase which does not impose a higher or increased level of service on an existing program." The City of Sonoma, the County of Los Angeles, and the City of San Diego ****206** appeal from this latter portion of the judgment only.

II

The Court of Appeal consolidated the appeals. The court identified the dispositive issue as whether legislatively mandated increases in workers' compensation benefits constitute a "higher level of service" within the meaning of section 6, or are an "increased level of service"[5] described in subdivision (a) of Revenue and Taxation Code section 2207. The parties did not question the proposition that higher benefit payments might constitute a higher level of "service." The dispute centered on whether higher

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benefit payments which do not exceed increases in the cost of living constitute a higher level of service. Appellants maintained that the reimbursement requirement of section 6 is absolute and permits no implied or judicially created exception for increased costs that do not exceed the inflation rate. The Court of Appeal addressed the problem as one of defining "increased level of service."

The court rejected appellants' argument that a definition of "increased level of service" that once had been included in section 2231, subdivision, (e) of the Revenue and Taxation Code should be applied. That definition brought any law that imposed "additional costs" within the scope of "increased level of service." The court concluded that the repeal of section 2231 in 1975 (Stats.1975, ch. 486, § 7, pp. 999–1000) and the failure of the Legislature by statute or the electorate in article XIIIB to readopt the ***54** definition must be treated as reflecting an intent to change the law. (*Eu v. Chacon* (1976) 16 Cal.3d 465, 470, 128 Cal.Rptr. 1, 546 P.2d 289.)[6] On that basis the court *****42** concluded that increased costs were no longer tantamount to an increased level of service.

The court nonetheless assumed that an increase in costs mandated by the Legislature did constitute an increased level of service if the increase exceeds that in the cost of living. The judgment in the second, or "Sonoma" case was affirmed. The judgment in the first, or "Los Angeles" case, however, was reversed and the matter "remanded" to the board for more adequate findings, with directions.[7]

III

The Court of Appeal did not articulate the basis for its conclusion that costs in excess of the increased cost of living do constitute a reimbursable increased level of service within the meaning of section 6. Our task in ascertaining the meaning of the phrase is aided somewhat by one explanatory reference to this part of section 6 in the ballot materials.

A statutory requirement of state reimbursement was in effect when section 6 ****207** was adopted. That provision used the same "increased level of service" phraseology but it also failed to include a definition of "increased level of service," providing only: 'Costs mandated by the state' means any increased costs which a local agency is required to incur as a result of the following: [¶] (a) Any law ... which mandates a new program or an increased level of service of an existing program." (Rev. & Tax. Code, 2207.) As noted, however, the definition of that term which had been ***55** included in Revenue and Taxation Code section 2164.3 as part of the Property Tax Relief Act of 1972 (Stats.1972, ch. 1406, § 14.7, p. 2961), had been repealed in 1975 when Revenue and Taxation Code section 2231, which had replaced section 2164.3 in 1973, was repealed and a new section 2231 enacted. (Stats.1975, ch. 486, §§ 6 & 7, p. 999.)[8] Prior to repeal, Revenue and Taxation Code section 2164.3, and later section 2231, after providing in subdivision (a) for state reimbursement, explained in subdivision (e) that " 'Increased level of service' means any requirement mandated by state law or executive regulation ... which makes necessary expanded or additional costs to a county, city and county, city, or special district." (Stats.1972, ch. 1406, § 14.7, p. 2963.)

*****43** Appellants contend that despite its repeal, the definition is still valid, relying on the fact that the Legislature, in enacting section 2207, explained that the provision was "declaratory of existing law." (Stats.1975, ch. 486, § 18.6, p. 1006.) We concur with the Court of Appeal in rejecting this argument. "[I]t is ordinarily to be presumed that the Legislature by deleting an express provision of a statute intended a substantial change in the law." (*Lake Forest Community Assn. v. County of Orange* (1978) 86 Cal.App.3d 394, 402, 150 Cal.Rptr. 286; see also *Eu v. Chacon,* supra, 16 Cal.3d 465, 470, 128 Cal.Rptr. 1, 546 P.2d 289.) Here, the revision was not minor: a whole subdivision was deleted. As the Court of Appeal noted, "A change must have been intended; otherwise deletion of the preexisting definition makes no sense."

Acceptance of appellants' argument leads to an unreasonable interpretation of section 2207. If the Legislature had intended to continue to equate "increased level of service" with "additional costs," then the provision would be circular: "costs mandated by the state" are defined as "increased costs" due to an "increased level of service," which, in turn, would be defined as "additional costs." We decline to accept such an interpretation. Under the repealed provision, "additional costs" may have been deemed tantamount to an "increased level of service," but not under the post–1975 statutory scheme. Since that definition has been repealed, an act of which the drafters of section 6 and the electorate are presumed to have been ***56** aware, we may not conclude that an intent existed to incorporate the repealed definition into section 6.

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In construing the meaning of the constitutional provision, our inquiry is not focussed on what the Legislature intended in adopting the former statutory reimbursement scheme, but rather on what the voters meant when they adopted article XIIIB in 1979. To determine this intent, we must look to the language of the provision itself. (*ITT World Communications, Inc. v. City and County of San Francisco* (1985) 37 Cal.3d 859, 866, 210 Cal.Rptr. 226, 693 P.2d 811.) In section 6, the electorate commands ****208** that the state reimburse local agencies for the cost of any "new program or higher level of service." Because workers' compensation is not a new program, the parties have focussed on whether providing higher benefit payments constitutes provision of a higher level of service. As we have observed, however, the former statutory definition of that term has been incorporated into neither section 6 nor the current statutory reimbursement scheme.

Looking at the language of section 6 then, it seems clear that by itself the term "higher level of service" is meaningless. It must be read in conjunction with the predecessor phrase "new program" to give it meaning. Thus read, it is apparent that the subvention requirement for increased or higher level of service is directed to state mandated increases in the services provided by local agencies in existing "programs." But the term "program" itself is not defined in article XIIIB. What programs then did the electorate have in mind when section 6 was adopted? We conclude that the drafters and the electorate had in mind the commonly understood meanings of the term—programs that carry out the governmental function of providing services to the public, or laws which, to implement a state policy, impose unique requirements on local governments and do not apply generally to all residents and entities in the state.

The concern which prompted the inclusion of section 6 in article XIIIB was the perceived attempt by the state to enact legislation or adopt administrative orders creating programs to be administered by local agencies, thereby transferring to those agencies the fiscal responsibility for providing services which the state believed should be extended to the public. In their ballot arguments, the proponents of article XIIIB explained section 6 to the voters: "Additionally, this measure: (1) Will not allow the state government to *force programs* on local governments without the state paying for them." (Ballot Pamp., Proposed Amend. to Cal. Const. with arguments *****44** to voters, Spec. Statewide Elec. (Nov. 6, 1979) p. 18. Ital. added.) In this context the phrase "to force programs on local governments" confirms that the intent underlying section 6 was to require reimbursement to local agencies for the costs involved in carrying out functions peculiar to government, not ***57** for expenses incurred by local agencies as an incidental impact of laws that apply generally to all state residents and entities. Laws of general application are not passed by the Legislature to "force" programs on localities.

The language of section 6 is far too vague to support an inference that it was intended that each time the Legislature passes a law of general application it must discern the likely effect on local governments and provide an appropriation to pay for any incidental increase in local costs. We believe that if the electorate had intended such a far-reaching construction of section 6, the language would have explicitly indicated that the word "program" was being used in such a unique fashion. (Cf. *Fuentes v. Workers' Comp. Appeals Bd.* (1976) 16 Cal.3d 1, 7, 128 Cal.Rptr. 673, 547 P.2d 449; *Big Sur Properties v. Mott* (1976) 62 Cal.App.3d 99, 105, 132 Cal.Rptr. 835.) Nothing in the history of article XIIIB that we have discovered, or that has been called to our attention by the parties, suggests that the electorate had in mind either this construction or the additional indirect, but substantial impact it would have on the legislative process.

Were section 6 construed to require state subvention for the incidental cost to local governments of general laws, the result would be far-reaching indeed. Although such laws may be passed by simple majority vote of each house of the Legislature (art. IV, § 8, subd. (b)), the revenue measures necessary to make them effective may not. A bill which will impose costs subject to subvention of local agencies must be accompanied by a revenue measure providing the subvention required by article XIIIB. (Rev & Tax. Code, § 2255, subd. (c).) Revenue bills must be passed by two-thirds vote of each house of the Legislature. (art. IV, § 12, subd. (d).) Thus, were we to construe section 6 as ****209** applicable to general legislation whenever it might have an incidental effect on local agency costs, such legislation could become effective only if passed by a supermajority vote. [9] Certainly no such intent is reflected in the language or history of article XIIIB or section 6.

We conclude therefore that section 6 has no application to, and the state need not provide subvention for, the

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costs incurred by local agencies in providing to their employees the same increase in workers' compensation **58 benefits that employees of private individuals or organizations receive. [10] Workers' compensation is not a program administered by local agencies to provide service to the public. Although local agencies must provide benefits to their employees either through insurance or direct payment, they are indistinguishable in this respect from private employers. In no sense can employers, public or private, be considered to be administrators of a program of workers' compensation or to be providing services incidental to administration of the program. Workers' compensation is administered by the state through the Division of Industrial Accidents and the Workers' Compensation Appeals Board. (See ***45 Lab.Code, § 3201 et seq.) Therefore, although the state requires that employers provide workers' compensation for nonexempt categories of employees, increases in the cost of providing this employee benefit are not subject to reimbursement as state-mandated programs or higher levels of service within the meaning of section 6.

IV

Our construction of section 6 is further supported by the fact that it comports with controlling principles of construction which "require that in the absence of irreconcilable conflict among their various parts, [constitutional provisions] must be harmonized and construed to give effect to all parts. (*Clean Air Constituency v. California State Air Resources Bd.* (1974) 11 Cal.3d 801, 813–814 [114 Cal.Rptr. 577, 523 P.2d 617]; *Serrano v. Priest* (1971) 5 Cal.3d 584, 596 [96 Cal.Rptr. 601, 487 P.2d 1241]; *Select Base Materials v. Board of Equal.* (1959) 51 Cal.2d 640, 645 [335 P.2d 672].)" (*Legislature v. Deukmejian* (1983) 34 Cal.3d 658, 676, 194 Cal.Rptr. 781, 669 P.2d 17.)

Our concern over potential conflict arises because article XIV, section 4, [11] gives the **210 Legislature "plenary power, unlimited by any provision of *59 this Constitution" over workers' compensation. Although seemingly unrelated to Workers' compensation, section 6, as we have shown, would have an indirect, but substantial impact on the ability of the Legislature to make future changes in the existing workers' compensation scheme. Any changes in the system which would increase benefit levels, provide new services, or extend current service might also increase local agencies' costs. Therefore, even though workers' compensation is a program which is intended ***46 to provide benefits to all injured or deceased employees and their families, because the change might have some incidental impact on local government costs, the change could be made only if it commanded a supermajority vote of two-thirds of the members of each house of the Legislature. The potential conflict between section 6 and the plenary power over workers' compensation granted to the Legislature by article XIV, section 4 is apparent.

The County of Los Angeles, while recognizing the impact of section 6 on the Legislature's power over workers' compensation, argues that the "plenary power" granted by article XIV, section 4, is power over the substance of workers' compensation legislation, and that this power would be unaffected by article XIIIB if the latter is construed to compel reimbursement. The subvention requirement, it is argued, is analogous to other procedural *60 limitations on the Legislature, such as the "single subject rule" (art. IV, § 9), as to which article XIV, section 4, has no application. We do not agree. A constitutional requirement that legislation either exclude employees of local governmental agencies or be adopted by a supermajority vote would do more than simply establish a format or procedure by which legislation is to be enacted. It would place workers' compensation legislation in a special classification of substantive legislation and thereby curtail the power of a majority to enact substantive changes by any procedural means. If section 6 were applicable, therefore, article XIIIB would restrict the power of the Legislature over workers' compensation.

The City of Sonoma concedes that so construed article XIIIB *would* restrict the plenary power of the Legislature, and reasons that the provision therefore either effected a pro tanto repeal of article XIV, section 4, or must be accepted as a limitation on the power of the Legislature. We need not accept that conclusion, however, because our construction of section 6 permits the constitutional provisions to be reconciled.

Construing a recently enacted constitutional provision such as section 6 to avoid conflict with, and thus pro tanto repeal of, an earlier provision is also consistent with **211 and reflects the principle applied by this court in *Hustedt v. Workers' Comp. Appeals Bd.* (1981) 30 Cal.3d 329, 178 Cal.Rptr. 801, 636 P.2d 1139. There, by

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coincidence, article XIV, section 4, was the later provision. A statute, enacted pursuant to the plenary power of the Legislature over workers' compensation, gave the Workers' Compensation Appeals Board authority to discipline attorneys who appeared before it. If construed to include a transfer of the authority to discipline attorneys from the Supreme Court to the Legislature, or to delegate that power to the board, article XIV, section 4, would have conflicted with the constitutional power of this court over attorney discipline and might have violated the separation of powers doctrine. (Art. III, § 3.) The court was thus called upon to determine whether the adoption of article XIV, section 4, granting the Legislature plenary power over Workers' compensation effected a pro tanto repeal of the preexisting, exclusive jurisdiction of the Supreme Court over attorneys.

We concluded that there had been no pro tanto repeal because article XIV, section 4, did not give the Legislature the authority to enact the statute. Article XIV section 4, did not expressly give the Legislature power over attorney discipline, and that power was not integral to or necessary to the establishment of a complete system of workers' compensation. In those circumstances the presumption against implied repeal controlled. "It is well established that the adoption of article XIV, section 4 'effected a repeal pro tanto' of any state constitutional provisions which conflicted with that ***61** amendment. (*Subsequent Etc. Fund. v. Ind. Acc. Com.* (1952) 39 Cal.2d 83, 88 [244 P.2d 889]; *Western Indemnity Co. v. Pillsbury* (1915) 170 Cal. 686, 695 [151 P. 398].) A pro tanto repeal of conflicting state constitutional provisions removes 'insofar as necessary' any restrictions which would prohibit the realization *****47** of the objectives of the new article. (*Methodist Hosp. of Sacramento v. Saylor* (1971) 5 Cal.3d 685, 691–692 [97 Cal.Rptr. 1, 488 P.2d 161]; cf. *City and County of San Francisco v. Workers' Comp. Appeals Bd.* (1978) 22 Cal.3d 103, 15–17 [148 Cal.Rptr. 626, 583 P.2d 151].) Thus the question becomes whether the board must have the power to discipline attorneys if the objectives of article XIV, section 4 are to be effectuated. In other words, does the achievement of those objectives compel the modification of a power—the disciplining of attorneys—that otherwise rests exclusively with this court?" (*Hustedt v. Workers' Comp. Appeals Bd.,* supra, 30 Cal.3d 329, 343, 178 Cal.Rptr. 801, 636 P.2d 1139.) We concluded that the ability to discipline attorneys appearing before it was not necessary to the expeditious resolution of workers' claims or the efficient administration of the agency. Thus, the absence of disciplinary power over attorneys would not preclude the board from achieving the objectives of article XIV, section 4, and no pro tanto repeal need be found.

A similar analysis leads to the conclusion here that no pro tanto repeal of article XIV, section 4, was intended or made necessary here by the adoption of section 6. The goals of article XIIIB, of which section 6 is a part, were to protect residents from excessive taxation and government spending. (*Huntington Park Redevelopment Agency v. Martin* (1985) 38 Cal.3d 100, 109–10, 211 Cal.Rptr. 133, 695 P.2d 220.) Section 6 had the additional purpose of precluding a shift of financial responsibility for carrying out governmental functions from the state to local agencies which had had their taxing powers restricted by the enactment of article XIIIA in the preceding year and were ill equipped to take responsibility for any new programs. Neither of these goals is frustrated by requiring local agencies to provide the same protections to their employees as do private employers. Bearing the costs of salaries, unemployment insurance, and workers' compensation coverage—costs which all employers must bear—neither threatens excessive taxation or governmental spending, nor shifts from the state to a local agency the expense of providing governmental services.

****212** Therefore, since the objectives of article XIIIB and section 6 can be achieved in the absence of state subvention for the expense of increases in workers' compensation benefit levels for local agency employees, section 6 did not effect a pro tanto repeal of the Legislature's otherwise plenary power over workers' compensation, a power that does not contemplate that the Legislature rather than the employer must fund the cost or increases in ***62** benefits paid to employees of local agencies, or that statute affecting those benefits paid to employees of local agencies, or that a statute affecting those benefits must garner a supermajority vote.

Because we conclude that section 6 has no application to legislation that is applicable to employees generally, whether public or private, and affects local agencies only incidentally as employers, we need not reach the question that was the focus of the decision of the Court of Appeal —whether the state must reimburse localities for state-mandated cost increases which merely reflect adjustments for cost-of-living in existing programs.

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V

It follows from our conclusions above, that in each of these cases the plaintiffs' reimbursement claims were properly denied by the State Board of Control. Their petitions for writs of mandate seeking to compel the board to approve the claims lacked merit and should have been denied by the superior court without the necessity of further proceedings before the board.

In B001713, the Los Angeles case, the Court of Appeal reversed the judgment of the superior court denying the petition. In the B003561, the Sonoma case, the superior court granted partial relief, ordering further proceedings before the board, and the Court of Appeal affirmed that judgment.

The judgment of the Court of Appeal is reversed. Each side shall bear its own costs.

***48** BIRD, C.J., and BROUSSARD, REYNOSO, LUCAS and PANELLI, JJ., concur.

MOSK, Justice, concurring.

I concur in the result reached by the majority, but I prefer the rationale of the Court of Appeal, i.e., that neither article XIII B, section 6, of the Constitution nor Revenue and Taxation Code sections 2207 and 2231 require state subvention for increased workers' compensation benefits provided by chapter 1042, Statutes of 1980, and chapter 922, Statutes of 1982, but only if the increases do not exceed applicable cost-of-living adjustments because such payments do not result in an increased level of service.

Under the majority theory, the state can order unlimited financial burdens on local units of government without providing the funds to meet those burdens. This may have serious implications in the future, and does violence to the requirement of section 2231, subdivision (a), that the state reimburse local government for "all costs mandated by the state."

In this instance it is clear from legislative history that the Legislature did not intend to mandate additional burdens, but merely to provide a cost-of-living *63 adjustment. I agree with the Court of Appeal that this was permissible.

All Citations

43 Cal.3d 46, 729 P.2d 202, 233 Cal.Rptr. 38

Footnotes

1 The analysis by the Legislative Analyst advised that the state would be required to "reimburse local governments for the cost of complying with 'state mandates.' 'State mandates' are requirements imposed on local governments by legislation or executive orders." Elsewhere the analysis repeats: "[T]he initiative would establish a requirement that the state provide funds to reimburse local agencies for the cost of complying with state mandates...."

The one ballot argument which made reference to section 6, referred only to the "new program" provision, stating, "Additionally, this measure [¶] (1) will not allow the state government to force programs on local governments without the state paying for them."

2 The bill was approved by the Governor and filed with the Secretary of State on September 22, 1980. Prior to this, the Assembly gave unanimous consent to a request by the bill's author that his letter to the Speaker stating the intent of the Legislation be printed in the Assembly Journal. The letter stated: (1) that the Assembly Ways and Means Committee had recommended approval without appropriation on grounds that the increases were a result of changes in the cost of living that were not reimbursable under either Revenue and Taxation Code section 2231, or article XIIIB; (2) the Senate Finance Committee had rejected a motion to add an appropriation and had approved a motion to concur in amendments of the Conference Committee deleting any appropriation.

Legislative history confirms only that the final version of Assembly Bill 2750, as amended in the Assembly on April 16, 1986, contained no appropriation. As introduced on March 4, 1980, with a higher minimum salary of $510 on which to base benefits, an unspecified appropriation was included.

3 The superior court consolidated another action by the County of Butte, Novato Fire Protection District, and the Galt Unified School District with that action. Neither those plaintiffs nor the County of San Bernardino are parties to the appeal.

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4 The same section "recognized," however, that a local agency "may pursue any remedies to obtain reimbursement available to it" under the statutes governing reimbursement for state-mandated costs in chapter 3 of the Revenue and Taxation Code, commencing with section 2201.

5 The court concluded that there was no legal or semantic difference in the meaning of the terms and considered the intent or purpose of the two provisions to be identical.

6 The Court of Appeal also considered the expression of legislative intent reflected in the letter by the author of Assembly Bill No. 2750 (see fn. 2, *ante*). While consideration of that expression of intent may have been proper in construing Assembly Bill No. 2750, we question its relevance to the proper construction of either section 6, adopted by the electorate in the prior year, or of Revenue and Taxation Code section 2207, subdivision (a) enacted in 1975. (Cf. *California Employment Stabilization Com. v. Payne* (1947) 31 Cal.2d 210, 213–214, 187 P.2d 702.) There is no assurance that the Assembly understood that its approval of printing a statement of intent as to the later bill was also to be read as a statement of intent regarding the earlier statute, and it was not relevant to the intent of the electorate in adopting section 6.

The Court of Appeal also recognized that the history of Assembly Bill No. 2750 and Statutes 1982, chapter 922, which demonstrated the clear intent of the Legislature to omit any appropriation for reimbursement of local government expenditures to pay the higher benefits precluded reliance on reimbursement provisions included in benefit-increase bills passed in earlier years. (See e.g., Stats.1973, chs. 1021 and 1023.)

7 We infer that the intent of the Court of Appeal was to reverse the order denying the petition for writ of mandate and to order the superior court to grant the petition and remand the matter to the board with directions to set aside its order and reconsider the claim after making the additional findings. (See Code Civ.Proc. § 1094.5, subd. (f).)

8 Pursuant to the 1972 and successor 1973 property tax relief statutes the Legislature had included appropriations in measures which, in the opinion of the Legislature, mandated new programs or increased levels of service in existing programs, (see, e.g., Stats.1973, ch. 1021, § 4, p. 2026; ch. 1022, § 2, p. 2027; Stats 1976, ch. 1017, § 9, p. 4597) and reimbursement claims filed with the State Board of Control pursuant to Revenue and Taxation Code sections 2218–2218.54 had been honored. When the Legislature fails to include such appropriations there is no judicially enforceable remedy for the statutory violation notwithstanding the command of Revenue and Taxation Code section 2231, subdivision (a) that "[t]he state shall reimburse each local agency for all 'costs mandated by the state,' as defined in Section 2207" and the additional command of subdivision (b) that any statute imposing such costs "provide an appropriation therefor." (*County of Orange v. Flournoy* (1974) 42 Cal.App.3d 908, 913, 117 Cal.Rptr. 224.)

9 Whether a constitutional provision which requires a supermajority vote to enact substantive legislation, as opposed to funding the program, may be validly enacted as a Constitutional amendment rather than through revision of the Constitution is an open question. (See *Amador Valley Joint Union High Sch. Dist. v. State Bd. of Equalization* (1978) 22 Cal.3d 208, 228, 149 Cal.Rptr. 239, 583 P.2d 1281.)

10 The Court of Appeal reached a different conclusion in *City of Sacramento v. State of California* (1984) 156 Cal.App.3d 182, 203 Cal.Rptr. 258, with respect to a newly enacted law requiring that all public employees be covered by unemployment insurance. Approaching the question as whether the expense was a "state mandated cost," rather than as whether the provision of an employee benefit was a "program or service" within the meaning of the Constitution, the court concluded that reimbursement was required. To the extent that this decision is inconsistent with our conclusion here, it is disapproved.

11 Section 4: "The Legislature is hereby *expressly vested with plenary power, unlimited by any provision of this Constitution,* to create, and enforce a complete system of workers' compensation, by appropriate legislation, and in that behalf to create and enforce a liability on the part of any or all persons to compensate any or all of their workers for injury or disability, and their dependents for death incurred or sustained by the said workers in the course of their employment, irrespective of the fault of any party. A complete system of workers' compensation includes adequate provisions for the comfort, health and safety and general welfare of any and all workers and those dependent upon them for support to the extent of relieving from the consequences of any injury or death incurred or sustained by workers in the course of their employment, irrespective of the fault of any party; also full provision for securing safety in places of employment; full provision for such medical, surgical, hospital and other remedial treatment as is requisite to cure and relieve from the effects of such injury; full provision for adequate insurance coverage against liability to pay or furnish compensation; full provision for regulating such insurance coverage in all its aspects, including the establishment and management of a State compensation insurance fund; full provision for otherwise securing the payment of compensation; and full provision for vesting power, authority and jurisdiction in an administrative body with all the requisite governmental functions to determine any dispute or matter arising under such legislation, to the end that the administration of such legislation shall accomplish substantial justice in all cases expeditiously, inexpensively, and without encumbrance of any character; all

of which matters are expressly declared to be the social public policy of this State, binding upon all departments of the State government.

"The Legislature is vested with plenary powers, to provide for the settlement of any disputes arising under such legislation by arbitration, or by an industrial accident commission, by the courts, or by either, any, or all of these agencies, either separately or in combination, and may fix and control the method and manner of trial of any such dispute, the rules of evidence and the manner of review of decisions rendered by the tribunal or tribunals designated by it; provided that all decisions of any such tribunal shall be subject to review by the appellate courts of this State. The Legislature may combine in one statute all the provisions for a complete system of workers' compensation, as herein defined.

"The Legislature shall have power to provide for the payment of an award to the state in the case of the death, arising out of and in the course of the employment, of an employee without dependents, and such awards may be used for the payment of extra compensation for subsequent injuries beyond the liability of a single employer for awards to employees of the employer.

"Nothing contained herein shall be taken or construed to impair or render ineffectual in any measure the creation and existence of the industrial accident commission of this State or the State compensation insurance fund, the creation and existence of which, with all the functions vested in them, are hereby ratified and confirmed." (Emphasis added.)

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ATTACHMENT
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H

Court of Appeal, Third District, California.
Kathleen CONNELL, as Controller, etc., et al.,
Petitioners,
v.
SUPERIOR COURT of Sacramento County,
Respondent;
SANTA MARGARITA WATER DISTRICT et al.,
Real Parties in Interest.
No. C024295.

Nov. 20, 1997.
Review Denied Feb. 25, 1998.

Local water districts filed petitions for writ of mandate to enforce state Board of Control decision which found state regulation amendment increasing level of purity required for use of reclaimed wastewater in irrigation to constitute reimbursable state mandate. The Superior Court, Sacramento County, James Timothy Ford, J., granted petitions. State Controller and State Treasurer appealed. The Court of Appeal, Sims, J., held that: (1) although judgment was interlocutory, Court would exercise its discretion to treat appeal as writ petition in interest of justice and judicial economy; (2) even assuming elements of administrative collateral estoppel had been met, public-interest exception applied to allow review of question of law of whether recycled wastewater regulation constituted reimbursable state mandate; (3) water district statute on its face authorized local water districts to levy fees sufficient to pay costs of regulation amendment, which thus precluded entitlement of local water districts to reimbursement; and (4) statute precluding reimbursement was triggered by districts' power or right to levy fees sufficient to cover costs of state-mandated program regardless of their practical ability to do so.

Peremptory writ of mandate issued.

****232 *385** Daniel E. Lungren, Attorney General, Floyd D. Shimomura, Senior Assistant Attorney General, Linda A. Cabatic and Susan R. Oie, Deputy Attorneys General, for Petitioners.

No appearance for Respondent.

James A. Curtis, Nevada City, for Real Parties in Interest.

SIMS, Associate Justice.

This case involves a dispute as to whether a statewide regulatory amendment, increasing the level of purity required when reclaimed wastewater is used for certain types of irrigation, constitutes a state-mandated program for which water districts are entitled to reimbursement from the state. (Cal. Const., art. XIIIB, § 6 [hereafter, ****233**section 6]; [FN1] Gov.Code, § 17500 et seq.; former Rev. & Tax.Code, § 2201 et seq.) The State Controller and State Treasurer appeal from a trial court judgment granting ***386** petitions for writ of mandate brought by Santa Margarita Water District (SMWD), Marin Municipal Water District, Irvine Ranch Water District and Santa Clara Valley Water District (the Districts), seeking to enforce a state Board of Control (the Board) decision which found the regulatory amendment constituted a reimbursable state mandate. [FN2] Appellants contend the trial court erred because (1) the amendment did not constitute a new program or higher level of service in an existing program; (2) the Districts' claim was abolished when the statutory basis for their claim-- former Revenue and Taxation Code section 2207--was repealed before their rights were reduced to final judgment, and (3) the Districts' authority to levy fees to pay for the increased costs defeats their claim of a reimbursable mandate. Appellants also challenge the trial court's determination that they were collaterally estopped from challenging the Board of Control's decision (finding a reimbursable state mandate) by their failure timely to seek judicial review of the administrative decision. We shall conclude the Districts' authority to levy fees defeats their claim of a reimbursable mandate, and appellants are not collaterally estopped from raising this matter. We therefore need not address the other contentions. Treating this appeal from a nonappealable judgment as an extraordinary writ petition, we shall direct the trial court to vacate its judgment and enter a new judgment denying the Districts' petitions.

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FN1. Section 6 provides: "Whenever the Legislature or any state agency mandates a new program or higher level of service on any local government, the State shall provide a subvention of funds to reimburse such local government for the costs of such program or increased level of service, except that the Legislature may, but need not, provide such subvention of funds for the following mandates: [¶] (a) Legislative mandates requested by the local agency affected; [¶] (b) Legislation defining a new crime or changing an existing definition of a crime; or [¶] (c) Legislative mandates enacted prior to January 1, 1975, or executive orders or regulations initially implementing legislation enacted prior to January 1, 1975."

FN2. The trial court first held proceedings in the matter of the petition filed by Santa Margarita Water District. The other three water districts had filed petitions, which were consolidated and awaiting hearing. The parties to the consolidated case filed a stipulation indicating they did not wish to relitigate the entitlement issues already decided by Judge Ford in the Santa Margarita Water District case, and they stipulated to assignment of their cases to Judge Ford pursuant to California Rules of Court, rule 213 (assignment to one judge for all or limited purposes), for determination of amounts as to each district. The judgment expressly covers the petitions of all four districts.

FACTUAL AND PROCEDURAL BACKGROUND

In 1975, the State Department of Health Services (DHS) adopted regulations (Cal.Code Regs., tit. 22, §§ 60301-60357) implementing Water Code section 13521, which provides: "The State Department of Health Services shall establish uniform statewide recycling criteria for each varying type of use of recycled water where the use involves the protection of public health." Section 60313 [FN3] of the California Code of Regulations prescribed the level of purity required for reclaimed water to be used for landscape irrigation.

FN3. California Code of Regulations section 60313, initially provided: "Landscape Irrigation. Reclaimed water used for the irrigation of golf courses, cemeteries, lawns, parks, playgrounds, freeway landscapes, and landscapes in other areas where the public has access shall be at all times an adequately disinfected, oxidized wastewater. The wastewater shall be considered adequately disinfected if at some location in the treatment process the median number of coliform organisms does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed." (Former section 60313 of Cal.Code Regs., tit. 22, Register 75. No. 14, Apr. 5, 1975.)

***387** In May 1976, SMWD adopted a plan to develop a wastewater reclamation system. In August 1976, SMWD filed an application with the responsible regional water quality control board (Water Control Board) for a permit to discharge wastewater from the proposed reclamation system. SMWD also planned to provide reclaimed water for irrigation, potentially to 2,173 acres of land.

****234** In February 1977, the Water Control Board issued SMWD a permit for operation of a reclamation system--the Oso Creek facility. The permit required SMWD to comply with all applicable wastewater reclamation regulations then in effect.

In late 1977, SMWD learned DHS might be considering modifications to the Title 22 regulations.

In August 1978, SMWD completed construction of the Oso Creek facility, at a cost of $17 million.

In September 1978, DHS amended the regulations. The amendment to California Code of Regulations section 60313 [FN4] increased the level of purity required before reclaimed wastewater could be used for the irrigation of parks, playgrounds and school yards. It is this amendment which allegedly constituted a state-mandated cost. SMWD modified its facility to comply with the amended regulations, completing the modifications in 1983.

FN4. Section 60313 of California Code of

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> Regulations, title 22, as amended, provides: "(a) Reclaimed water used for the irrigation of golf courses, cemeteries, freeway landscapes, and landscapes in other areas where the public has similar access or exposure shall be at all times an adequately disinfected, oxidized wastewater. The wastewater shall be considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 23 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of coliform organisms does not exceed 240 per 100 milliliters in any two consecutive samples.
> "(b) Reclaimed water used for the irrigation of parks, playgrounds, schoolyards, and other areas where the public has similar access or exposure shall be at all times an adequately disinfected, oxidized, coagulated, clarified, filtered wastewater or a wastewater treated by a sequence of unit processes that will assure an equivalent degree of treatment and reliability. The wastewater shall be considered adequately disinfected if the median number of coliform organisms in the effluent does not exceed 2.2 per 100 milliliters, as determined from the bacteriological results of the last 7 days for which analyses have been completed, and the number of coliform organisms does not exceed 23 per 100 milliliters in any sample."

***388** On October 1, 1982, SMWD filed a "test claim" [FN5] with the Board, alleging the regulatory amendment relating to the use of reclaimed wastewater constituted a new program or higher level of service. The test claim was made pursuant to former Revenue and Taxation Code section 2231, [FN6] which required reimbursement to local agencies for costs mandated by the state (see now Gov.Code, § 17561 [FN7]), and former Revenue and Taxation Code section 2207, subdivisions (a) and (b) [FN8] defining "costs mandated by the ****235** state." (See now Gov.Code, § 17514. [FN9]) The test claim also cited section 6 (fn. 1, ante).

> FN5. At the time in question, "test claim" meant "the first claim filed with the State Board of Control alleging that a particular statute or executive order imposes a mandated cost on such local agency or school district." (Former Rev. & Tax.Code, § 2218, Stats.1980, ch. 1256, § 7, p. 4249.) "Estimated claims" and "reimbursement claims" were used to make specific demand against an appropriation made for the purpose of paying such claims. (*Ibid.*)
> A similar structure, distinguishing between "test claims" and various "reimbursement claims" or "entitlement claims" continues presently in Government Code sections 17521-17522.
> At the time in question, the statutory procedure provided that if the Board found a mandate, it did not determine the amount to be reimbursed to the test claimant; rather, the Board then adopted a statewide cost estimate which was reported to the Legislature. (Stats.1980, ch. 1256; Stats.1982, ch. 734.) It was the State Controller who determined specific amounts to be reimbursed, after the Legislature appropriated funds for that purpose. (*Ibid.*)
>
> FN6. Former Revenue and Taxation Code section 2231 provided in part: "(a) The state shall reimburse each local agency for all 'costs mandated by the state,' as defined in Section 2207...." (Stats.1982, ch. 1586, § 3, p. 6264.)
>
> FN7. Government Code section 17561 provides in part: "(a) The state shall reimburse each local agency and school district for all 'costs mandated by the state,' as defined in Section 17514...."
>
> FN8. Former Revenue and Taxation Code section 2207 provided in part: " 'Costs mandated by the state' means any increased costs which a local agency is required to incur as a result of the following: [¶] (a) Any law enacted after January 1, 1973, which mandates a new program or an increased level of service of an existing program; [¶] (b) Any executive order issued after January 1, 1973, which mandates a new program...." (Stats.1980, ch. 1256, § 4, pp. 4247-4248.)
> The test claim did *not* invoke other subdivisions of section 2207, concerning

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"(c) Any executive order issued after January 1, 1973, which (i) implements or interprets a state statute and (ii), by such implementation or interpretation, increases program levels above the levels required prior to January 1, 1973.[¶] ... [¶] (h) Any statute enacted after January 1, 1973, or executive order issued after January 1, 1973, which adds new requirements to an existing optional program or service and thereby increases the cost of such program or service if the local agencies have no reasonable alternatives other than to continue the optional program." (Stats.1980, ch. 1256, § 4, pp. 4247-4248.) Since these subdivisions were not invoked, we have no need to consider them.

FN9. Government Code section 17514 provides: " 'Costs mandated by the state' means any increased costs which a local agency or school district is required to incur after July 1, 1980, as a result of any statute enacted on or after January 1, 1975, or any executive order implementing any statute enacted on or after January 1, 1975, which mandates a new program or higher level of service of an existing program within the meaning of Section 6...."

***389** On July 28, 1983, the Board determined the amended regulations imposed state mandated costs. In so doing, the Board rejected the position of state agencies seeking denial of the claim on the ground that local agencies are not mandated to use reclaimed water and because, if local agencies do choose to use it, they can recover the cost in charges made to purchasers of the water.

On January 19, 1984, the Board adopted "Parameters and Guidelines" establishing criteria for payment of claims to water districts pursuant to this mandate. (Former Rev. & Tax.Code, § 2253.2, Stats.1982, ch. 734, § 10; Gov.Code, § 17557.)

On May 31, 1984, the Board amended its Parameters and Guidelines to provide for reimbursement of SMWD's cost of preparing and presenting the test claim.

In June 1984, the Board, pursuant to former Revenue and Taxation Code section 2255, [FN10] submitted to the Legislature a statewide cost estimate of $14 million for this mandate. The Legislature did not appropriate any funds for the mandate in 1984.

FN10. Former Revenue and Taxation Code section 2255 provided: "At least twice each calendar year the Board of Control shall report to the Legislature on the number of mandates it has found and the estimated statewide costs of such mandates. Such report shall identify the statewide costs estimated for each such mandate and the reasons for recommending reimbursement.... Immediately on receipt of such report a local governmental claims bill shall be introduced in the Legislature. The local government claims bill, at the time of its introduction, shall provide for an appropriation sufficient to pay the estimated costs of such mandates, pursuant to the provisions of this article." (Stats.1980, ch. 1256, § 20, p. 4255.)
The current provision is contained in Government Code section 17600, which provides: "At least twice each calendar year the commission shall report to the Legislature on the number of mandates it has found pursuant to Article 1 (commencing with Section 17550) and the estimated statewide costs of these mandates. This report shall identify the statewide costs estimated for each mandate and the reasons for recommending reimbursement."

In 1985, the Legislature included an appropriation of almost $14 million for this state-mandated cost in the budget, but the Governor vetoed the appropriation.

In 1986, a bill including $945,000 for the subject mandate was introduced, but the bill was not enacted.

On January 27, 1987, SMWD filed in the trial court a petition for writ of mandate pursuant to Code of Civil Procedure section 1085. The petition sought an order directing (1) the State Controller to issue a warrant "to pay the State's obligation to SMWD for its 'costs mandated by the state' " and (2) the State Treasurer to pay the Controller's warrant.

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***390** At a hearing, the trial court upheld the Board's decision that the amended regulations required a higher level of service and held the doctrines of waiver and collateral estoppel applied to that decision, such that the state, by failing to challenge the Board's decision within the three-year statute of limitations, was barred from challenging it now. However, the trial court did allow the state to argue that the amended regulations did not come within the definition of "program," as that word had recently been defined in *County of Los Angeles v. State of California* (1987) 43 Cal.3d 46, 56, 233 Cal.Rptr. 38, 729 P.2d 202.

The trial court recognized that, since there was no appropriation for this mandate in the state budget, the court could not grant the relief sought by SMWD (an order directing the Controller to issue a warrant and the Treasurer to pay it) unless the court found ****236** the existence of funds reasonably available in the state budget which could be tapped for this purpose. The trial court stated it was not prepared to find the existence of funds reasonably available without a full evidentiary hearing. Rather than use the Board's statewide estimate, the court believed it needed to know the amount to which each water district would be entitled before it could determine whether there were funds reasonably available in the budget. The trial court ruled the exact amount of money to be reimbursed to the Districts had never been determined and referred the matter to a referee to make that determination.

In February 1989, a court-appointed referee began evidentiary hearings to determine the amount of reimbursement for each water district.

In 1989, the Legislature repealed former Revenue and Taxation Code section 2207 (fn. 8, *ante*), defining "costs mandated by the state." (Stats.1989, ch. 589, § 7.)

On July 29, 1994, appellants filed in the trial court a motion for judgment on the pleadings/motion to dismiss, arguing repeal of former Revenue and Taxation Code section 2207 destroyed any right to reimbursement and divested the court of jurisdiction to proceed. The motion also revisited the issue presented to and rejected by the Board, that the water districts' authority to levy fees defeated a finding that the costs were reimbursable.

In February 1995, the trial court issued its ruling denying appellants' motion for judgment on the pleadings and for dismissal. The court in its minute order determined repeal of former Revenue and Taxation Code section 2207 in 1989 had not destroyed the Districts' right to reimbursement pursuant to the Board's decision, because the Board's decision was reduced to "final judgment" before the statutory repeal. The court said the Board's ***391** decision on July 28, 1983, became final in July 1986, when the applicable three-year statute of limitations for seeking judicial review lapsed. The Board's decision therefore conclusively established the Districts' right to reimbursement, and appellants were collaterally estopped from challenging the Board's decision. The court further said no discernible injustice or public interest precluded this application of collateral estoppel; rather, justice would be furthered by allowing the Districts to enforce their right to reimbursement as established by the Board.

The trial court further said the statutory authority of the Districts to levy service charges and assessments (Former Rev. & Tax.Code, § 2253.2, subd. (b)(4), [FN11] Stats.1982, ch. 734, § 10, p. 2916; Gov.Code, § 17556 [FN12]) did not bar reimbursement for state-mandated costs. "When the Board determined that the 1978 amendment of the regulations establishing reclamation criteria imposed reimbursable state-mandated costs, it rejected the argument of the State Departments of Health Services and Finance that the costs were not reimbursable pursuant to former Revenue and Taxation Code section 2253(b)(4) and implicitly determined, in accordance with the presentation of [Santa Margarita Water District] that [the Districts] did not have sufficient authority to levy service charges and assessments to pay for the increased level of service mandated by the 1978 regulatory amendment. This implicit determination, resolving a mixture of legal and factual issues, became final and binding on respondents under the doctrine of collateral estoppel when they failed to seek judicial review of the Board's decision within the three-year limitations period."

> FN11. At the time SMWD filed its test claim, former Revenue and Taxation Code section 2253.2 provided in part: "(b) The Board of Control shall not find a

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> reimbursable mandate ... in any claim submitted by a local agency ... if, after a hearing, the board finds that: ... [¶] (4) The local agency ... has the authority to levy service charges, fees or assessments sufficient to pay for the mandated program or level of service." (Stats.1982, ch. 734, § 10, p. 2916.)
>
> FN12. Government Code section 17556 provides in part: "The [Commission on State Mandates (formerly the Board of Control)] shall not find costs mandated by the state, as defined in Section 17514, in any claim submitted by a local agency or school district if, after a hearing, the commission finds that: ... [¶] (d) The local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service."

****237** At a further hearing concerning the amount owed to each water district, the trial court stated it had erred in referring the matter to a referee and should have rendered a judgment directing the Controller to determine the amounts owed.

On June 3, 1996, the trial court entered a judgment stating (1) the Board's decision was final at the time the petitions were filed in the trial court; (2) ***392** the state mandate is a program for which reimbursement is due under *County of Los Angeles v. State of California, supra,* 43 Cal.3d 46, 233 Cal.Rptr. 38, 729 P.2d 202; (3) the court having concluded it was inappropriate for the court to determine amounts of reimbursement, the Controller was directed to make that determination. The court directed issuance of a writ commanding the Controller to determine the amounts due to the Districts.

Appellants appeal from the judgment.

The Districts filed a cross-appeal, but we dismissed the cross-appeal pursuant to stipulation of the parties.

DISCUSSION

I. *Appealability*

[1] Because the petition sought an order directing the Controller to issue a warrant and the Treasurer to pay a warrant but the judgment merely ordered the Controller to determine amounts without disposing of those matters, and because the record reflected the trial court's recognition that it could not order issuance or payment of warrants unless it determined appropriated funds for such expenditures were reasonably available in the state budget [FN13] (*Carmel Valley Fire Protection Dist. v. State of California* (1987) 190 Cal.App.3d 521, 538-541, 234 Cal.Rptr. 795)--a determination requiring an evidentiary hearing which was not held--we requested supplemental briefing on the question whether the judgment was a final appealable judgment, as opposed to an interlocutory judgment.

> FN13. The petition for writ of mandate alleged there was a continuously appropriated State Mandates Claims Fund upon which the Legislature had placed restrictions which on their face made the fund inapplicable to the mandate at issue in this case. The petition further alleged these restrictions were unconstitutional, such that upon a judicial declaration of their unconstitutionality, there would exist funds reasonably available to pay SMWD. The trial court made no ruling on these matters. In this appeal, we need not and do not decide the propriety of the remedy sought by the Districts.

An appealable judgment or order is a jurisdictional prerequisite to an appeal. (Code Civ. Proc., § 904.1; 9 Witkin, Cal. Procedure (4th ed. 1997) Appeal, §§ 13-14, pp. 72-73.)

[2] An interlocutory judgment is not appealable; generally, a judgment is interlocutory if anything further in the nature of judicial action on the part of the trial court is essential to a final determination of the rights of the parties. (*Lyon v. Goss* (1942) 19 Cal.2d 659, 669-670, 123 P.2d 11.)

In their supplemental briefs, both sides maintain the judgment is a final appealable judgment but for different reasons. Both sides are wrong.

***393** Appellants assert the judgment is final because nothing further remains to be done by the trial court. According to appellants, the Controller, after

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determining what amounts are due, is supposed to submit that amount to the Legislature to appropriate the funds (though the judgment contains no such direction). Appellants assert that, if the Legislature does not appropriate the funds, the Districts' remedy would be to file a new action in the Superior Court to enforce the court's prior order, and to compel payment out of funds already appropriated and reasonably available for the expenditures. Appellants assert it is thus premature to consider whether appropriated funds are reasonably available to pay any reimbursement due.

The Districts' supplemental brief, while agreeing the judgment is a final appealable judgment, disputes appellants' view of what happens after the Controller determines the amounts. The Districts maintain the trial court intended for appellants to pay the amounts determined by the Controller, despite the judgment's failure so to state. The Districts claim the unresolved factual question of the existence of available appropriated ****238** funds in the budget is merely "an administrative detail" which need not be addressed by the court except in a proceeding to enforce the judgment in the event appellants refuse to pay.

Both sides are wrong. Nothing in the judgment requires the Controller to submit an appropriations bill to the Legislature, and appellants cite no authority that would require such a procedure--which would duplicate steps previously undertaken in this case without success. Nor does anything in the judgment call for issuance or payment of warrants. *Carmel Valley, supra,* 190 Cal.App.3d 521, 234 Cal.Rptr. 795--a case discussed in the trial court and on appeal--recognized that a court violates the separation of powers doctrine if it purports to compel the Legislature to appropriate funds, but no such violation occurs if the court orders payment from an existing appropriation. (*Id.* at pp. 538-539, 234 Cal.Rptr. 795.) Thus, the Districts' view of this matter as an administrative detail for a later postjudgment enforcement proceeding is unsupported.

We recognize this litigation arises from a "test claim," which merely determines whether a state-mandated cost exists. (See fn. 5, *ante.*) Perhaps no issue of payment should arise at all at the test claim stage, though neither side so argues.

In any event, the judgment plainly leaves matters undecided.

We conclude the judgment is interlocutory and therefore not appealable.

[3] Nevertheless, on our own motion, we shall exercise our discretion to treat the appeal as a writ petition and shall grant review on that basis. ***394**(*Morehart v. County of Santa Barbara* (1994) 7 Cal.4th 725, 743-744, 29 Cal.Rptr.2d 804, 872 P.2d 143 [treating appeal as writ petition is authorized means for obtaining review of interlocutory judgments].) We shall exercise our discretion to treat the appeal as a writ petition in the interest of justice and judicial economy, because the merits of the dispositive issues have been fully briefed, both sides urge review, and the judgment compels the Controller to engage in complex factfinding determinations which may be moot if the trial court erred on the merits of the mandate issues. Given the difficulties in discerning how the former statutory process of test claims was supposed to work in practice, we believe the interests of justice and judicial economy are best served by reviewing the judgment rather than dismissing the appeal.

We stress, however, that our review is limited to contentions raised in the briefs--which do not raise issues of the propriety of the remedy sought by the Districts. We express no view on whether the remedy sought by the Districts was an available or appropriate remedy.

II. *Standard of Review*

[4][5] In reviewing the trial court's ruling on a writ of mandate, the appellate court is ordinarily confined to an inquiry as to whether the findings and judgment of the trial court are supported by substantial evidence. (*Evans v. Unemployment Ins. Appeals Bd.* (1985) 39 Cal.3d 398, 407, 216 Cal.Rptr. 782, 703 P.2d 122.) However, where the facts are undisputed and the issues present questions of law, the appellate court is not bound by the trial court's decision but may make its own determination. (*Ibid.*)

III. *Collateral Estoppel*

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We first address the trial court's determination that appellants were collaterally estopped from challenging the Board's determination of state-mandated cost (except for the ability to address the effect of a new Supreme Court case defining "program"). The trial court stated the Board's decision became final for collateral estoppel purposes in July 1986, when the statute of limitations for judicial review expired.

Appellants contend the trial court erred in applying collateral estoppel, because there was no "final judgment" for collateral estoppel purposes, since the amount of reimbursement had yet to be determined.

We conclude it is not necessary to decide the parties' dispute as to whether the requirements of administrative collateral estoppel are met, because even assuming the elements are met, the doctrine of collateral ****239** estoppel should be disregarded pursuant to the public interest exception.

***395** Thus, our Supreme Court declined to apply collateral estoppel in a state-mandated costs case in *City of Sacramento v. State of California* [*Sacramento II*] (1990) 50 Cal.3d 51, 64-65, 266 Cal.Rptr. 139, 785 P.2d 522. There, a city and a county filed claims with the Board seeking subvention of costs imposed by a statute (Stats.1978, ch. 2, p. 6 et seq. referred to in *Sacramento II* as "chapter 2/78") which extended mandatory coverage under the state unemployment insurance law to include state and local governments. The Board found there was no state-mandated program and denied the claims. On mandamus, the trial court overruled the Board and found the costs reimbursable. We affirmed the trial court in a published opinion. (*City of Sacramento v. State of California* [*Sacramento I*] (1984) 156 Cal.App.3d 182, 203 Cal.Rptr. 258.) On remand, the Board determined the amounts due on the claims, but the Legislature refused to appropriate the necessary funds. The city filed a class action seeking among other things payment of the state-mandated costs. The trial court granted summary judgment for the state on the grounds the statute did not impose state-mandated costs. The Supreme Court upheld the trial court's decision.

The Supreme Court in *Sacramento II* rejected the local agencies' argument that the state was collaterally estopped from relitigating the issue whether a state-mandated cost existed, because *Sacramento I* "finally" decided the matter. (*Sacramento II, supra,* 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522.) The Supreme Court said: "Generally, collateral estoppel bars the party to a prior action, or one in privity with him, from relitigating issues finally decided against him in the earlier action. [Citation.] '... But when the issue is a question of law rather than of fact, the prior determination is not conclusive either if injustice would result or if the public interest requires that relitigation not be foreclosed....' [Citation.]

"Even if the formal prerequisites for collateral estoppel are present here, the public-interest exception governs. Whether chapter 2/78 costs are reimbursable under article XIIIB and parallel statutes constitutes a pure question of law. The *state* was the losing party in *Sacramento I,* and also the only entity legally affected by that decision. Thus, strict application of collateral estoppel would foreclose any reexamination of the holding of that case. The state would remain bound, and no other person would have occasion to challenge the precedent.

"Yet the consequences of any error transcend those which would apply to mere private parties. If the result of *Sacramento I* is wrong but unimpeachable, taxpayers statewide will suffer unjustly the consequences of the state's continuing obligation to fund the chapter 2/78 costs of local agencies...." (*Sacramento II, supra,* 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522, original italics.)

***396** The Supreme Court also rejected the argument that res judicata applied. "Of course, res judicata and the rule of final judgments bar us from disturbing individual claims or causes of action, on behalf of specific agencies, which have been finally adjudicated and are no longer subject to review. [Citations.] However, the issues presented in the current action are not limited to the validity of any such finally adjudicated individual claims. Rather, they encompass the question of defendants' subvention obligations *in general* under chapter 2/78." (*Sacramento II, supra,* 50 Cal.3d at p. 65, 266 Cal.Rptr. 139, 785 P.2d 522, original italics.)

[6] If this court's opinion finding a reimbursable mandate in *Sacramento I* did not constitute a final

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adjudication precluding further consideration of the matter, a fortiori the Board's decision in the instant case does not constitute a final adjudication precluding further consideration. Thus, here, as in *Sacramento II*, the issues presented are not limited to the validity of any finally adjudicated individual claim, but encompass the question of subvention obligations in general under the regulatory amendment of wastewater purification standards. If the Board's decision is wrong but unimpeachable, taxpayers statewide would suffer unjustly the consequences of a continuing obligation to fund the costs of local water districts. We reject the Districts' argument that no public interest ****240** exists in this case because only a few local entities are involved.

The Districts suggest application of the public interest exception to collateral estoppel would nullify the legislative intent to avoid multiple proceedings by creating a comprehensive and exclusive procedure for handling state mandated costs issues in the administrative forum. (E.g., Gov.Code, § 17500. [FN14]) However, we are bound by Supreme Court authority applying the public interest exception in a state-mandated costs case. ***397**(*Auto Equity Sales, Inc. v. Superior Court* (1962) 57 Cal.2d 450, 20 Cal.Rptr. 321, 369 P.2d 937.) Moreover, contrary to the Districts' implication, the administrative decision is not the final word; the statutory scheme authorizes judicial review of the administrative decision. (Gov.Code, § 17559; former Rev. & Tax.Code, § 2253.5, Stats.1977, ch. 1135, § 12, p. 3650.) Additionally, the instant judicial proceeding was initiated by the Districts, not by appellants. Thus, in this case application of the public interest exception to collateral estoppel is not creating multiple proceedings.

> FN14. Government Code section 17500 provides in part: "The Legislature finds and declares that the existing system for reimbursing local agencies ... for the costs of state-mandated local programs has not provided for the effective determination of the state's responsibilities under Section 6.... The Legislature finds and declares that the failure of the existing process to adequately and consistently resolve the complex legal questions involved in the determination of state-mandated costs has led to an increasing reliance by local agencies and school districts on the judiciary and, therefore, in order to relieve unnecessary congestion of the judicial system, it is necessary to create a mechanism which is capable of rendering sound quasi-judicial decisions and providing an effective means of resolving disputes over the existence of state-mandated local programs. [¶] It is the intent of the Legislature in enacting this part to provide for the implementation of Section 6 ... and to consolidate the procedures for reimbursement of statutes specified in the Revenue and Taxation Code with those identified in the Constitution. Further, the Legislature intends that the Commission on State Mandates, as a quasi-judicial body, will act in a deliberative manner in accordance with the requirements of Section 6...."

In light of the Supreme Court's decision in *Sacramento II*, we disregard earlier authority of an intermediate appellate court which applied administrative collateral estoppel to a question of law in a state-mandated costs case without express discussion of the public interest exception. (*Carmel Valley, supra*, 190 Cal.App.3d at p. 536, 234 Cal.Rptr. 795.)

We conclude that, insofar as appellants' contentions present questions of law, the public interest exception to administrative collateral estoppel governs, and we shall therefore address the legal arguments raised in appellants' brief.

IV. *Authority To Levy Fees*

Appellants contend that, even if the regulatory amendment is a new program for state mandated costs purposes, the water districts' authority to levy fees defeats a determination that the costs are reimbursable. We agree.

At the time SMWD filed its test claim, former Revenue and Taxation Code section 2253.2 provided in part:

"(b) The Board of Control shall not find a reimbursable mandate, pursuant to either Section 2250 of this code or to Section 905.2 of the Government Code, in any claim submitted by a local

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agency or school district, pursuant to subdivision (a) of Section 2218, if, after a hearing, the board finds that:

"....
"(4) The local agency or school district has the authority to levy service charges, fees or assessments sufficient to pay for the mandated program or level of service." [FN15] (Stats.1982, ch. 734, § 10, p. 2917; Stats.1980, ch. 1256, § 15, pp. 4253-4254.)

> FN15. This case presents no issue concerning any distinction between "service charges, fees or assessment," as used in the statute. The parties on appeal frame the issue in terms of the authority to levy "fees." We adopt their usage for the sake of simplicity.

***398** The same provision is currently contained in Government Code section 17556. [FN16]

> FN16. Government Code section 17556 provides in part: "The commission [formerly the Board] shall not find costs mandated by the state, as defined in Section 17514, in any claim submitted by a local agency or school district, if, after a hearing, the commission finds that: ... [¶] (d) The local agency or school district has the authority to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service...."

****241** The facial constitutionality of this provision was upheld in *County of Fresno v. State of California* (1991) 53 Cal.3d 482, 280 Cal.Rptr. 92, 808 P.2d 235. The *Fresno* court rejected an argument that the statute was facially unconstitutional as conflicting with section 6 (fn. 1, *ante*), which contains no exclusion of reimbursement where the local agency has authority to levy fees. Section 6 requires subvention only when the costs in question can be recovered solely from tax revenues. (*Id.* at p. 487, 280 Cal.Rptr. 92, 808 P.2d 235.) Government Code section 17556, subdivision (d), "effectively construes the term 'costs' in the constitutional provision as excluding expenses that are recoverable from sources other than taxes. Such a construction is altogether sound." (*County of Fresno v. State of California, supra,* 53 Cal.3d at p. 487, 280 Cal.Rptr. 92, 808 P.2d 235.)

Here, appellants contend that, at all pertinent times, the water districts have had *authority* to levy fees to cover the costs at issue in this case. They cite provisions such as Water Code section 35470, which provides: "Any district formed on or after July 30, 1917, may, in lieu in whole or in part of raising money for district purposes by assessment, make water available to the holders of title to land or the occupants thereon, and may fix and collect charges therefor. The charges may include standby charges to holders of title to land to which water may be made available, whether the water is actually used or not. The charges may vary in different months and in different localities of the district to correspond to the cost and value of the service, and the district may use so much of the proceeds of the charges as may be necessary to defray the ordinary operation or maintenance expenses of the district and for any other lawful district purpose."

[7] We agree this statute on its face authorizes the Districts to levy fees sufficient to pay the costs involved with the regulatory amendment. We thus shall conclude the Board erred in finding a right to reimbursement despite this authority to levy fees, and we shall conclude appellants are not collaterally estopped from pressing this point.

The Districts do not dispute they have authority to levy fees for the costs involved in this case. Instead they argue the real issue is whether they had ***399** "sufficient" authority. They claim this issue was a mixed question of law and fact, and appellants should be collaterally estopped from raising it. [FN17]

> FN17. The Districts assert appellants are relying on evidence that was not before the Board. However, they do not explain what they mean or give us any reference to appellants' brief. We therefore disregard the assertion.

We agree with appellants that the public interest exception to collateral estoppel should be applied here, because the issue presents a pure question of law. The Districts tried to make it a factual issue, but we shall explain why the facts presented by the District were immaterial.

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Thus, in proceedings before the Board (where Water Code section 35470 was cited to the Board by state agencies), SMWD did not argue it lacked "authority" to levy fees for this purpose. Instead, SMWD argued and presented evidence that it would not be economically desirable to do so. SMWD submitted declarations stating that rates necessary to cover the increased costs would render the reclaimed water unmarketable and would encourage users to switch to potable water. SMWD maintained that imposition of higher fees on users would contravene the legislative policy expressed in Water Code section 13512, which directs the state to undertake all possible steps to encourage development of wastewater reclamation facilities.

The Board made no express finding concerning this issue. The record contains only the Board minutes, which reflect a motion was made "To find a mandate and continue the issue regarding the claimant's ability to levy a service charge, to the parameters and guidelines process." There was no second to the motion. A motion was then made to find the regulatory amendment contained a reimbursable mandate. The motion carried. The minutes then state: "Discussion: Chairperson Yost disagreed with the motion as she felt the claimant could recover their costs by levying a service charge...." The Board's Parameters and Guidelines stated in part: ****242** "If service charges or assessments were levied to defray the cost of the new criteria, the claim must be reduced by the amount received from such charges or assessment."

In proceedings before the trial court, SMWD admitted the district had the authority to levy fees but argued existence of authority was not enough, and the real question was whether it was economically feasible to levy fees sufficient to pay the mandated costs. Thus, SMWD's counsel stated at the hearing in the trial court: "The state keeps focusing on the question of whether the authority to issue, to assess fees and charges exists, and we have never contested that it didn't.

"But the statute which says that the Board cannot find the existence of a mandate if there's authority to assess fees and charges, and then the critical ***400** phrase, 'sufficient to pay for the mandated costs,' that's the condition with [*sic*] which they cannot satisfy.

"We proved that, the Board of Control hearing, through economic evidence. We proved it through testimony that the market was absolutely inelastic in terms of reclaimed water and potable water, that if you raise the price of reclaimed water over the potable water, that people would then buy the potable water, and that's all in the record.

"And so we showed that even though we have the authority, it was not sufficient to pay...."

We note the record also reflects comments by SMWD's counsel to the trial court, that its customers were paying the increased costs as an "advance" against the state's obligation. The court pointed out users' payment of increased costs disproved the economic evidence SMWD had presented to the Board, that it could not raise its prices without losing its customers. The record also contains indications that the Districts funded the increased costs by diverting money from other sources. As will appear, we need not address this evidence, because it is not relevant to the question of authority to levy fees sufficient to fund the increased costs imposed by the regulatory amendment, which is a question of law in this case.

The trial court's minute order stated the districts' authority to levy fees did not bar reimbursement for state-mandated costs, because the Board "implicitly determined" the districts did not have "sufficient" authority to levy fees to pay for the increased service mandated by the 1978 regulatory amendment, and this "implicit determination, resolving a mixture of legal and factual issues, became final and binding on [appellants] under the doctrine of collateral estoppel when they failed to seek judicial review of the Board's decision within the three-year limitations period."

On appeal, appellants argue the sole inquiry is whether the local agency has "authority" to levy fees sufficient to pay the costs, and it does not matter whether the local agency, for economic reasons, finds it undesirable to exercise that authority. Appellants argue this presents a question of law, such that the public interest exception to collateral estoppel would apply (assuming the requirements of collateral estoppel are otherwise met).

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[8][9] We agree with appellants. In construing statutes, our primary task is to determine the lawmakers' intent. (*Brown v. Kelly Broadcasting Co.* (1989) 48 Cal.3d 711, 724, 257 Cal.Rptr. 708, 771 P.2d 406.) To determine intent, we look first to the words themselves. (*Ibid.*) "If the language is clear ***401** and unambiguous there is no need for construction, nor is it necessary to resort to indicia of the intent of the Legislature...." (*Lungren v. Deukmejian* (1988) 45 Cal.3d 727, 735, 248 Cal.Rptr. 115, 755 P.2d 299.)

[10] Here, the statute is clear and unambiguous. On its face the statute precludes reimbursement where the local agency has "authority" to levy fees sufficient to pay for the mandated program or level of service. The legal meaning of "authority" includes the "Right to exercise powers; ..." (Black's Law Dictionary (6th ed.1990) p. 133.) The lay meaning of "authority" includes "the power or right to give commands [or] take action...." (Webster's New World Dictionary (3d college ed.1988) p. 92.) Thus, when we commonly ask whether a police officer has the "authority" to arrest a suspect, we want to know whether the officer has the legal ****243** sanction to effect the arrest, not whether the arrest can be effected as a practical matter.

Thus, the plain language of the statute precludes reimbursement where the local agency has the authority, i.e., the right or the power, to levy fees sufficient to cover the costs of the state-mandated program.

The Districts in effect ask us to construe "authority," as used in the statute, as a practical ability in light of surrounding economic circumstances. However, this construction cannot be reconciled with the plain language of the statute and would create a vague standard not capable of reasonable adjudication. Had the Legislature wanted to adopt the position advanced by the Districts, it would have used "reasonable ability" in the statute rather than "authority."

The question is whether the Districts have authority, i.e., the right or power, to levy fees sufficient to cover the costs. The Districts clearly have authority to levy fees sufficient to cover the costs at issue in this case. Water Code section 35470 authorizes the levy of fees to "correspond to the cost and value of the service," and the fees may be used "to defray the ordinary operation or maintenance expenses of the district and for any other lawful district purpose." The Districts do not demonstrate that anything in Water Code section 35470 limits the authority of the Districts to levy fees "sufficient" to cover their costs.

Thus, the economic evidence presented by SMWD to the Board was irrelevant and injected improper factual questions into the inquiry.

On appeal, the Districts briefly argue economic undesirability of levying fees constitutes a lack of authority to levy fees sufficient to cover costs. They claim the evidence before the Board showed SMWD "could not" ***402** increase its fees because it was already charging as much for reclaimed as it was for potable water. However, the cited portion of the record does not show SMWD "could not" increase its fees but only that an increase would render reclaimed water unmarketable and encourage users to switch to potable water. The Districts cite no authority supporting their construction of former Revenue and Taxation Code section 2253.2 (now Gov.Code, § 17556) that *authority* to levy fees sufficient to cover costs turns on economic feasibility. We have seen the plain language of the statute defeats the Districts' position.

Since the issue in this case presented a question of law, we conclude the public interest exception to collateral estoppel applies. (*Sacramento II*, *supra*, 50 Cal.3d at p. 64, 266 Cal.Rptr. 139, 785 P.2d 522.)

The Districts argue application of the public interest exception in this case raises policy concerns about the finality of administrative decisions on state-mandated costs, because if collateral estoppel does not apply in this case, it will never apply. However, we merely hold, in accordance with Supreme Court pronouncement, that the public interest exception to collateral estoppel applies under the circumstances of this case to this state-mandated cost issue which presents solely a question of law.

The Districts argue any fees levied by the districts "cannot exceed the cost to the local agency to provide such service," because such excessive fees would constitute a special tax. However, the districts fail to explain how this is an issue. No one is suggesting the districts levy fees that exceed their costs.

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The Districts cite evidence presented to the referee in the aborted hearing to determine amounts owed to each District, that SMWD's Director of Finance testified SMWD has other sources of revenue from other services it provides (such as sewer service), maintains separate accounts, and borrowed funds internally from other accounts to cover costs incurred as a result of the subject mandate. The Districts assert this testimony reflects that SMWD "recognized the legal limitations on its authority to impose fees for the services that it provides." However, nothing in this evidence demonstrates any legal limitations on the authority to levy the necessary fees.

The Districts say appellants appear to believe the Districts should require users of other services to subsidize the Districts' cost of reclaiming and selling wastewater, through excessive user fees. However, we do not read appellants' brief as presenting ****244** any such argument and in any event do not base our decision on that ground.

***403** In a footnote, the districts make the passing comment: "In light of the adoption of Proposition 218, which added Articles XIII C and XIII D to the California Constitution this past November [1996], the authority of local agencies to recover costs for many services will be impacted by the requirement to secure the approval by majority vote of the property owners voting, to levy or to increase property related fees. See Section 6, Article XIII D." The districts do not contend that the services at issue in this appeal are among the "many services" impacted by Proposition 218. We therefore have no need to consider what effect, if any, Proposition 218 might have on the issues in this case.

We conclude the districts were not entitled to reimbursement of state-mandated costs, because they had authority to levy fees sufficient to pay for the level of service mandated by the 1978 regulatory amendment. Appellants were not collaterally estopped from raising this issue in the trial court. We thus conclude the Districts' mandamus petitions should have been denied. We therefore need not address appellants' contentions that (1) the regulatory amendment did not constitute a new program or higher level of service, or (2) any right to reimbursement was abolished upon repeal of former Revenue and Taxation Code section 2207.

DISPOSITION

Let a peremptory writ of mandate issue, directing the trial court to vacate its judgment and enter a new judgment denying the Districts' petitions for writ of mandate. Appellants shall recover their costs on appeal.

PUGLIA, P.J., and NICHOLSON, J., concur.

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents and Cross-Appellants, v. STATE CONTROLLER, et al, Appellants and Cross-Respondents., 1997 WL 33560339 (Appellate Brief) (Cal.App. 3 Dist. January 10, 1997), Appellants' Opening Brief

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents and Cross-Appellants, v. STATE CONTROLLER, et al., Appellants and Cross-Respondents., 1997 WL 33560175 (Appellate Brief) (Cal.App. 3 Dist. April 14, 1997), Respondents' Brief

•SANTA MARGARITA WATER DISTRICT; Irvine Ranch Water District; Marin Municipal Water District; Santa Clara Valley Water District, Respondents, v. STATE CONTROLLER, et al., Appellants., 1997 WL 33559969 (Appellate Brief) (Cal.App. 3 Dist. June 4, 1997), Appellants' Reply Brief

59 Cal.App.4th 382, 69 Cal.Rptr.2d 231, 97 Cal. Daily Op. Serv. 8821, 97 Daily Journal D.A.R. 14,255

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ATTACHMENT
14

188 Cal.App.4th 794
Court of Appeal, Third District, California.

CLOVIS UNIFIED SCHOOL DISTRICT et al., Plaintiffs and Appellants,
v.
John CHIANG, as State Controller, etc., Defendant and Appellant.

No. C061696.
|
Sept. 21, 2010.
|
As Modified on Denial of Rehearing Oct. 14, 2010.

Synopsis
Background: School districts and community college districts brought action against State Controller's Office for declaratory and writ relief challenging auditing rules used in reducing state-mandated reimbursement claims for employee salary and benefit costs. The Superior Court, Sacramento County, No. 06CS00748 and 07CS00263, Lloyd G. Connelly, J., invalidated the Contemporaneous Source Document Rule (CSDR) as applied to Intradistrict Attendance Program and Collective Bargaining Program, granted no relief as to CSDR as applied to the School District of Choice Program (SDC) and the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD), and upheld the Health Fee Rule. Plaintiffs appealed.

Holdings: The Court of Appeal, Butz, J., held that:

[1] CSDR implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims;

[2] declaratory and traditional mandate relief was appropriate form of relief for use of CSDR as underground regulation; and

[3] amount of optional student fee was deducted from amount reimbursed to community college districts for state-mandated costs.

Reversed in part with directions and affirmed in part.

West Headnotes (14)

[1] **Declaratory Judgment**
Limitations and laches

Mandamus
Time to Sue, Limitations, and Laches

States
State expenses and charges and statutory liabilities

School districts' and community college districts' action against State Controller's Office, for declaratory and writ relief challenging audits that reduced state-mandated reimbursement claims for employee salary and benefit costs based on an auditing rule which was an invalid underground regulation in violation of the state Administrative Procedure Act (APA), was subject to the three-year statute of limitations for lawsuits based on statutory liability, since state-mandated reimbursement was a statutory liability. West's Ann.Cal.C.C.P. § 338(a); West's Ann.Cal.Gov.Code §§ 11340 et seq., 17500 et seq.

1 Cases that cite this headnote

[2] **Administrative Law and Procedure**
Nature and Scope

An Administrative Procedure Act (APA) regulation has two principal characteristics: it must apply generally; and it must implement, interpret, or make specific the law enforced or administered by the agency, or govern the agency's procedure. West's Ann.Cal.Gov.Code § 11342.600.

1 Cases that cite this headnote

[3] **Administrative Law and Procedure**
Nature and Scope

For a regulation to "apply generally," as required to be subject to the Administrative Procedure Act (APA), the rule need not apply universally; a rule applies generally so long

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as it declares how a certain class of cases will be decided. West's Ann.Cal.Gov.Code § 11342.600.

Cases that cite this headnote

[4] States

Administration of finances in general

State Controller's Office's Contemporaneous Source Document Rule (CSDR) applied generally, as required to be a regulation subject to the Administrative Procedure Act (APA), where the CSDR was applied generally to the auditing of reimbursement claims, and the Controller's auditors had no discretion to judge on a case-by-case basis whether to apply the CSDR. West's Ann.Cal.Gov.Code § 11342.600.

Cases that cite this headnote

[5] States

State expenses and charges and statutory liabilities

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the School District of Choice (SDC) Program in effect before May 27, 2004, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; the CSDR barred the use of employee time declarations and certifications as source documents or equivalents even though the P&Gs had nothing to say on that subject, and the CSDR did not countenance the use of documented estimates even though such estimates were allowable under the P&Gs. West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5(a); West's Ann.Cal.Educ.Code § 48209.9 (Repealed).

Cases that cite this headnote

[6] States

State expenses and charges and statutory liabilities

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD), and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR barred the use of employee time declarations and certifications as source documents, and the CSDR did not countenance the use of documented estimates. West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5(a); West's Ann.Cal.Educ.Code §§ 35925–35927, 40041.5, 40042 (Repealed).

Cases that cite this headnote

[7] States

State expenses and charges and statutory liabilities

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the Intradistrict Attendance Program, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR barred the use of time studies or employee time declarations and certifications as source documents. West's Ann.Cal.Gov.Code §§ 11342.600, 17557, 17558.5(a); West's Ann.Cal.Educ.Code § 35160.5.

Cases that cite this headnote

[8] States

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State expenses and charges and statutory liabilities

State Controller's Office's Contemporaneous Source Document Rule (CSDR) implemented, interpreted, or made specific the regulatory Parameters and Guidelines (P&Gs) applied to state-mandated reimbursement claims for the school district Collective Bargaining Program, and thus was a regulation subject to the Administrative Procedure Act (APA), since there were substantive differences between the CSDR and the P&Gs then in effect; unlike the P&Gs, the CSDR required source documents. West's Ann.Cal.Gov.Code §§ 3540 et seq., 11342.600, 17557, 17558.5(a).

1 Cases that cite this headnote

[9] **Declaratory Judgment**
State officers and boards

Declaratory Judgment
Education

Mandamus
Establishment, maintenance, and management of schools

Declaratory and accompanying traditional mandate relief was an appropriate form of relief, for school districts' challenge to State Controller's Office's policy of using an underground regulation to conduct audits in violation of the Administrative Procedure Act (APA), even though the underground regulation was later incorporated into valid regulations, where the dispute related to audit determinations under the invalid regulation which did not become final prior to the applicable statute of limitations, and there was no adequate administrative remedy because the Commission on State Mandates consistently refused to rule on underground regulation claims. West's Ann.Cal.Gov.Code § 11350.

2 Cases that cite this headnote

[10] **Evidence**
Administrative rules and regulations

In appeal from trial court's partial grant of declaratory and writ relief against underground regulations used by State Controller's Office in reducing state-mandated reimbursement claims for employee salary and benefit costs, Court of Appeal would not take judicial notice of a subsequent amendment of the regulatory Parameters and Guidelines (P&Gs) applied to the reimbursement claims, which brought the underground regulations into compliance with the Administrative Procedure Act (APA) after the time period at issue in the lawsuit. West's Ann.Cal.Gov.Code §§ 11340 et seq., 17500 et seq.

Cases that cite this headnote

[11] **Evidence**
Official proceedings and acts

In appeal from trial court's partial grant of declaratory and writ relief against underground regulations used by State Controller's Office in reducing school districts' and community college districts' state-mandated reimbursement claims for employee salary and benefit costs, Court of Appeal would not take judicial notice of the Commission on State Mandates Incorrect Reduction Claim caseload summary or the Controller's list of final audit reports for California school districts and community college districts. West's Ann.Cal.Gov.Code § 17558.7(a).

1 Cases that cite this headnote

[12] **States**
State expenses and charges and statutory liabilities

Under the statutes requiring reimbursement to local government for state-mandated costs, the amount of an optional student health fee was deducted from the amount reimbursed to community college districts for the state-mandated cost of the Health Fee Elimination Program, even when districts chose not to charge their students those fees. West's

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Ann.Cal.Gov.Code §§ 17514, 17556(d); West's Ann.Cal.Educ.Code § 76355(a)(1); § 72246 (Repealed).

See Cal. Jur. 3d, State of California, § 104; 9 Witkin, Summary of Cal. Law (10th ed. 2005) Taxation, § 121.

Cases that cite this headnote

[13] States
State expenses and charges and statutory liabilities

To the extent a local agency or school district has the authority to charge for a state-mandated program or increased level of service, that charge cannot be recovered as a state-mandated cost. West's Ann.Cal. Const. Art. 13B, § 6; West's Ann.Cal.Gov.Code §§ 17514, 17556(d).

Cases that cite this headnote

[14] States
State expenses and charges and statutory liabilities

State Controller's Office had the authority to rely on the Government Code, rather than only on the Parameters and Guidelines (P&Gs) adopted by the Commission on State Mandates, to uphold an audit rule excluding the amount of optional fees from the amount recoverable as state-mandated costs. West's Ann.Cal.Gov.Code §§ 17514, 17556(d).

Cases that cite this headnote

Attorneys and Law Firms

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Richard L. Hamilton for California School Boards Association and Its Education Legal Alliance, as Amicus Curiae on behalf of Plaintiffs and Appellants Clovis Unified School District, Fremont Unified School District, Newport–Mesa Unified School District, Norwalk–La Mirada Unified School District, Riverside Unified School District, San Juan Unified School District and Sweetwater Union High School District.

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Opinion

BUTZ, J.

***797** This declaratory relief and writ of mandate action concerns the validity of two auditing rules used by defendant State Controller's Office (Controller). The Controller used these rules in reducing state-mandated reimbursement claims for employee salary and benefit costs submitted from plaintiff school districts and community college districts (hereafter plaintiffs).

Contemporaneous Source Document Rule (CSDR)

The first auditing rule is referred to by plaintiffs as the Contemporaneous Source Document Rule (CSDR). The Controller used this rule to reduce reimbursement claims for the following four state-mandated school district programs during the challenged period straddling fiscal years 1998 to 2003: (1) the School District of Choice Program (SDC); (2) the Emergency Procedures, Earthquake Procedures and Disasters Program (EPEPD); (3) the ***798** Intradistrict Attendance Program; and (4) the Collective Bargaining Program. We conclude this rule was an invalid underground regulation under the state Administrative Procedure Act (APA) during this period. (Gov.Code, § 11340 et seq.) [1] Consequently, we overturn the Controller's audits for these four programs during this period to the extent they were based on this rule.

Health Fee Elimination Program: Health Fee Rule

The second auditing rule is the Health Fee Rule, which the Controller used to reduce reimbursement claims for state-****37** mandated health services provided by the plaintiff community college districts pursuant to the Health Fee Elimination Program. We uphold the validity of this rule.

The trial court: (1) invalidated the CSDR as applied to the Intradistrict Attendance and Collective Bargaining Programs (from which the Controller appeals); (2) hinted at the CSDR's invalidity as applied to the

SDC and EPEPD Programs but did not grant relief thereon, apparently deeming the administrative remedy sufficient (from which the school districts appeal); and (3) upheld the validity of the Health Fee Rule (from which the community college districts appeal). We shall affirm the judgment regarding the Intradistrict Attendance Program, the Collective Bargaining Program, and the Health Fee Rule, but reverse the judgment, with directions, regarding the SDC and EPEPD Programs.

Because the issues raised in this appeal are almost entirely legal ones subject to our independent review (see *Grier v. Kizer* (1990) 219 Cal.App.3d 422, 434, 268 Cal.Rptr. 244, disapproved on a different ground in *Tidewater Marine Western, Inc. v. Bradshaw* (1996) 14 Cal.4th 557, 577, 59 Cal.Rptr.2d 186, 927 P.2d 296 (*Tidewater*) [whether an auditing rule is an APA regulation is a question of law]), it is unnecessary to set forth a factual background at this stage. Instead, we will proceed straight to our discussion. First, we will briefly summarize the process of state-mandated reimbursement and the concept of underground regulation. Then we will turn our attention to the programs and remedies at issue, weaving in the pertinent facts as we go.

DISCUSSION

I. State-mandated Reimbursement Process

In 1979, California's voters adopted article XIII B, section 6 of the state Constitution, which specifies that if the state imposes any "new program ***799** or higher level of service" on any local government (including a school district), the state must reimburse the locality for the costs of the program or increased level of service.

In 1984, the Legislature enacted statutes to govern the state mandate process. (§ 17500 et seq.) Under these statutes, the Commission on State Mandates (the Commission) determines, pursuant to a "test claim" process, whether a state program constitutes a reimbursable state mandate. (§§ 17551, subd. (c), 17553.)

Once the Commission determines that a state mandate exists, it adopts regulatory "[P]arameters and [G]uidelines" (P & G's) to govern the state-mandated reimbursement. (§ 17557.) The Controller, in turn, then issues nonregulatory "[C]laiming [I]nstructions" for each Commission-determined mandate; these instructions must derive from the Commission's test claim decision and its adopted P & G's. (§ 17558.) Claiming Instructions may be specific to a particular mandated program, or general to all such programs.

The Controller may audit a reimbursement claim filed by a local agency or school district within three years of the claim's filing or last amendment. (§ 17558.5, subd. (a).)

If the Controller reduces a specific reimbursement claim via an audit, the claimant may file an "[I]ncorrect [R]eduction [C]laim" with the Commission. (§ 17558.7, subd. (a).)

II. The Concept of Invalid Underground Regulation

[1] In their petitions for writ of mandate and complaints for declaratory relief, the school districts (comprising Clovis, ****38** Fremont, Newport–Mesa, Norwalk–La Mirada, Riverside, Sweetwater, and San Juan; hereafter collectively, School Districts) allege that the CSDR constitutes an invalid, unenforceable underground regulation under the APA as applied by the Controller in auditing salary and benefit costs in reimbursement claims for the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs during the applicable periods roughly encompassing the fiscal years 1998 to 2003. [2]

***800** In their petition for writ of mandate and complaint for declaratory relief (actually appended to the School Districts' petition and complaint), the community college districts (comprising San Mateo, Santa Monica, State Center, and El Camino; hereafter collectively, College Districts) allege that the Health Fee Rule constitutes an invalid, unenforceable underground regulation under the APA as applied by the Controller in auditing reimbursement claims for the Health Fee Elimination Program or, alternatively, that the Controller's auditing actions in this respect were beyond its lawful authority.

The basic legal principles that apply to these allegations are as follows:

" 'If a rule constitutes a "regulation" within the meaning of the APA (other than an "emergency regulation" ...) it may not be adopted, amended, or

repealed except in conformity with "basic minimum procedural requirements" ' " which include public notice, opportunity for comment, agency response to comment, and review by the state Office of Administrative Law. (*Morning Star Co. v. State Bd. of Equalization* (2006) 38 Cal.4th 324, 333, 42 Cal.Rptr.3d 47, 132 P.3d 249 (*Morning Star*).) "These requirements promote the APA's goals of bureaucratic responsiveness and public engagement in agency rulemaking." (*Ibid.*)

Any regulation " 'that substantially fails to comply with these requirements may be judicially declared invalid' " and is deemed unenforceable. (*Morning Star, supra,* 38 Cal.4th at p. 333, 42 Cal.Rptr.3d 47, 132 P.3d 249; § 11350, subd. (a).)

[2] A "regulation" under the APA "means every rule, regulation, order, or standard of general application or the amendment, supplement, or revision of any rule, regulation, order, or standard adopted by any state agency to implement, interpret, or make specific the law enforced or administered by it, or to govern its procedure." (§ 11342.600.) As we will later explain more fully, an APA regulation has two principal characteristics: It must apply generally; and it must implement, interpret, or make specific the law enforced or administered by the agency, or govern the agency's procedure. (*Morning Star, supra,* 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249; *Tidewater,* ****39** *supra,* 14 Cal.4th at p. 571, 59 Cal.Rptr.2d 186, 927 P.2d 296.)

*801 III. The CSDR as Applied to the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs

We will start with the SDC Program. We do so because, of these four programs, the Commission's APA-valid, pre-May 27, 2004 P & G's for the SDC Program most closely resemble the Controller's CSDR. [3] If we conclude, nevertheless, that the CSDR is an underground regulation that violates the APA in this context, we will have to conclude similarly for these three other programs. It is undisputed that the Controller's CSDR was not enacted in compliance with APA procedure.

As we shall explain, we conclude that the CSDR, as applied to the (pre-May 27, 2004) SDC Program, is an underground, unenforceable regulation under the APA. Accordingly, the CSDR is invalid as applied to the School Districts' SDC Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003 (see fn. 2, *ante*), and invalid in parallel fashion to the three other programs as well.

The Commission determined, in the mid–1990's, that the SDC Program imposed a reimbursable state-mandated program on school districts by establishing the right of parents/guardians of students, who were prohibited from transferring to another school district, to appeal to the county board of education. (See former Ed.Code, § 48209.9, inoperative July 1, 2003.)

From August 24, 1995, until May 27, 2004, the Commission's P & G's for the SDC Program set forth the following two requirements for school districts seeking SDC state-mandated reimbursement for employee salary and benefit costs: (1) "Identify the employee(s) and their job classification, describe the mandated functions performed and specify the actual number of hours devoted to each function, the productive hourly rate and the related benefits. The average number of hours devoted to each function may be claimed if supported by a documented time study"; and (2) "For auditing purposes, all costs claimed must be traceable to source documents (e.g., employee time records, invoices, receipts, purchase orders, contracts, etc.) and/or worksheets that show evidence of and the validity of such claimed costs."

The Commission's SDC Program P & G's divide the subject of reimbursable costs into three categories: employee salaries and benefits; materials and supplies; and contracted services. The examples set forth in these P & G's for ***802** "source documents" align with these three categories: "employee time records" for employee salaries and benefits; "invoices," "receipts" and "purchase orders" for materials and supplies; and "contracts" for contracted services. At issue in this appeal for the SDC, EPEPD, Intradistrict Attendance, and Collective Bargaining Programs are just the cost category of employee salaries and benefits.

From the initial issuance of the Commission's SDC Program P & G's in 1995 until May 27, 2004, the Controller's SDC-specific Claiming Instructions substantively aligned with the SDC Program P & G's.

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However, in September 2003, the Controller revised its general Claiming Instructions (that apply to state-mandated reimbursement claims in general) to set **40 forth, for the first time, what has become known as the CSDR. The CSDR states:

"To be eligible for mandated cost reimbursement for any fiscal year, only actual costs may be claimed. Actual costs are those costs actually incurred to implement the mandated activities. Actual costs must be traceable and supported by source documents that show the validity of such costs, when they were incurred, and their relationship to the reimbursable activities. A source document is a document created at or near the same time the actual cost was incurred for the event or activity in question. Source documents may include, but are not limited to, employee time records or time logs, sign-in sheets, invoices, and receipts.

"Evidence corroborating the source documents may include, but is not limited to, worksheets, cost allocation reports (system generated), purchase orders, contracts, agendas, training packets, and declarations. Declarations must include a certification or declaration stating, 'I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct based upon personal knowledge.' Evidence corroborating the source documents may include data relevant to the reimbursable activities otherwise in compliance with local, state, and federal government requirements. However, corroborating documents cannot be substituted for source documents."

Substantial evidence showed that prior to the use of the CSDR in Controller audits, school districts obtained SDC state-mandated reimbursement for employee salary and benefit costs based on (1) declarations and certifications from the employees that set forth, after the fact, the time they had spent on SDC-mandated tasks; or (2) an annual accounting of time determined by the number of mandated activities and the average time for each activity. After the Controller began using the CSDR in its auditing of SDC reimbursement claims, the Controller deemed these declarations, certifications, and accounting methods insufficient, and reduced the *803 reimbursement claims accordingly. (Substantial evidence also showed that the Controller, in 2000, began applying a CSDR requirement in field audits of SDC reimbursement claims, before the CSDR was expressed in the Controller's general Claiming Instructions in September 2003 or adopted in the Commission's SDC Program P & G's on May 27, 2004.)

The question is whether the Controller's CSDR constituted an underground, unenforceable regulation that the Controller used in auditing the School Districts' SDC Program for the fiscal years 1998 to 2003, because the CSDR constituted a state agency regulation that was not adopted in conformance with the APA prior to its valid adoption in the Commission's SDC Program P & G's on May 27, 2004. We answer this question "yes."

[3] " '*A regulation subject to the APA* ... has *two principal identifying characteristics.* [Citation.] *First,* the agency must intend its rule to apply generally, rather than in a specific case. The rule need not, however, apply universally; a rule applies generally so long as it declares how a certain class of cases will be decided. [Citation.] *Second,* the rule must "implement, interpret, or make specific the law enforced or administered by [the agency], or ... govern [the agency's] procedure." ' " (*Morning Star, supra,* 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249, quoting *Tidewater, supra,* 14 Cal.4th at p. 571, 59 Cal.Rptr.2d 186, 927 P.2d 296, italics added.)

[4] As to the first criterion—whether the rule is intended to apply generally—substantial evidence supports the trial **41 court's finding that the CSDR was "applie[d] generally to the auditing of reimbursement claims ...; the Controller's auditors ha[d] no discretion to judge on a case[-]by[-]case basis whether to apply the rule." (The trial court made this finding in the context of ruling on the Intradistrict Attendance and Collective Bargaining Programs, but this finding is a general one that applies equally to the SDC Program. The trial court did not apply this general finding to the SDC Program only because the court reasoned that the CSDR was not an APA-violative underground regulation in the SDC context, as the Commission later adopted the CSDR into its SDC Program P & G's (see fn. 3, *ante*). As we shall explain later, we reject this reasoning involving subsequent adoption.)

[5] The CSDR also meets the second criterion of being a regulation: It implements, interprets, or makes specific the law enforced or administered by the Controller. The Controller argues, to the contrary, that the CSDR "merely restates" the source document requirement found in the pre-May 27, 2004 Commission P & G's for the SDC Program, and that "source documents" are, by their

sourceful nature, contemporaneous. As we explain, we reject this argument.

Admittedly, the pre-May 27, 2004 SDC Program P & G's stated that, "[f]or auditing purposes, all costs claimed must be traceable to source documents ***804** (e.g., employee time records, invoices, receipts, purchase orders, contracts, etc.) and/or worksheets that show evidence of and the validity of such claimed costs." However, the Controller's CSDR, in contrast to these P & G's, did not equate "source documents" with "worksheets," but relegated "worksheets" to the second-class status of "corroborating documents" that can only serve as evidence that corroborates "source documents." This is no small matter either. This is because, prior to the Controller using the CSDR to audit reimbursement claims, the School Districts, in making these claims, had used employee declarations and certifications and average time accountings to document the employee time spent on SDC-mandated activities; and such methods can be deemed akin to worksheets.

More significantly, the CSDR expressly states that employee declarations and certifications are only corroborating documents, *not* source documents; the pre-May 27, 2004 SDC Program P & G's had nothing to say on this subject. In effect, then, the CSDR bars the use of employee time declarations and certifications as source documents or source document-equivalent worksheets, in contrast to the pre-May 27, 2004 P & G's.

Along similar lines, the pre-May 27, 2004 SDC Program P & G's also stated that the "average number of [employee] hours devoted to each [mandated] function may be claimed if supported by a documented time study"; the record showed that such a time study is a documented estimate. The CSDR, which recognizes only actual costs traceable and supported by contemporaneous source documents, does not countenance such estimation.

Nor may the Controller point to the examples of the source documents listed in the pre-May 27, 2004 SDC Program P & G's and argue they show the contemporaneous nature of source documents: "employee time records, invoices, receipts, purchase orders, contracts, etc." First, this argument ignores the source document-equivalent of "worksheets" set forth in these P & G's, as discussed above. And, second, while the CSDR lists "employee time records," "invoices," and "receipts" as source documents, it specifies that "purchase orders," "contracts" (and "worksheets") ****42** are only corroborating documents, not source documents.

Finally, the School Districts that had used employee declarations and certifications and average time accountings to document time for reimbursement claims also note that it is *now* physically impossible to comply with the CSDR's requirement of contemporaneousness that "[a] source document is a ***805** document *created at or near the same time the actual cost was incurred* for the event or activity in question." [4] (Italics added.)

Given these substantive differences between the Commission's pre-May 27, 2004 SDC Program P & G's and the Controller's CSDR, we conclude that the CSDR implemented, interpreted or made specific the following laws enforced or administered by the Controller: the Commission's pre-May 27, 2004 P & G's for the SDC Program (§ 17558) [the Commission submits regulatory P & G's to the Controller, who in turn issues nonregulatory Claiming Instructions based thereon]; and the Controller's statutory authority to audit state-mandated reimbursement claims (§ 17561, subd. (d)(2)).

Consequently, the CSDR meets the two criteria for being an APA regulation. And because the CSDR, as applied to the SDC Program, was not adopted as a regulation in compliance with the APA rule-making procedures until its May 27, 2004 incorporation into the SDC Program P & G's, this CSDR is an underground and unenforceable regulation as applied to the audits of the School Districts' SDC Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante.*) These audits are invalidated to the extent they used this CSDR.

[6] **[7]** **[8]** As we noted at the outset of this part of the opinion, if we were to conclude (as we now have done) that the CSDR is an underground regulation that violates the APA in the SDC Program context presented here, we would have to conclude similarly for the EPEPD, Intradistrict Attendance, and Collective Bargaining Programs too. This is because the Commission's P & G's for these latter three programs less resembled the Controller's CSDR than did the Commission's pre-May 27, 2004 P & G's for the SDC Program. We now turn to the EPEPD, Intradistrict

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Attendance, and Collective Bargaining Programs, which we will describe briefly in order.

The EPEPD Program was found to be a reimbursable state-mandated program in 1987. This program requires school districts to establish earthquake procedures for each of its school buildings, and to allow use of its buildings, grounds and equipment for mass care and welfare shelters during public disasters or emergencies. (Former Ed.Code, §§ 35925–35927, 40041.5, 40042.)

***806** From 1991 until June 2, 2003, the Commission's P & G's for the EPEPD Program required school districts seeking state-mandated reimbursement for employee salary and benefit costs: (1) to "provide a listing of each employee ... and the number of hours devoted to their [mandated] function"; and (2) "[f]or auditing purposes, all costs claimed may be ****43** traceable to source documents and/or worksheets that show evidence of the validity of such costs." The Controller's EPEPD-specific Claiming Instructions, since 1996, have stated that "Source documents required to be maintained by the [reimbursement] claimant may include, but are not limited to, employee time cards and/or cost allocation reports." (The Commission, in like fashion to what it did with the SDC Program, incorporated the CSDR into its P & G's for the EPEPD Program, effective June 2, 2003.)

These pre-June 2, 2003 P & G's for the EPEPD Program parallel the pre-May 27, 2004 P & G's for the SDC Program, but even less resemble the Controller's CSDR than did those SDC Program P & G's. For the reasons set forth above involving the SDC Program, then, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' EPEPD Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante.*) These audits are invalidated to the extent they used this CSDR.

The Intradistrict Attendance Program, in 1995, was found to be a reimbursable state-mandated program. This program establishes a policy of open enrollment within a school district for district residents. (Former Ed.Code, § 35160.5.)

Since 1995, the Commission's P & G's for the Intradistrict Attendance Program have required school districts seeking state-mandated reimbursement for employee salary and benefit costs (1) to "[i]dentify the employee(s) and their job classification ... and specify the actual number of hours devoted to each [mandated] function.... The average number of hours devoted to each function may be claimed if supported by a documented time study"; and (2) "[f]or auditing purposes, all costs claimed must be traceable to source documents and/or worksheets that show evidence of the validity of such costs." For the 1998 to 2003 period of fiscal years at issue, the Controller's Intradistrict Attendance Program-specific Claiming Instructions substantively mirrored P & G's for (1) above (except for the "average number of hours" provision), and stated as to source documents: "Source documents required to be maintained by the claimant may include, but are not limited to, employee time records that show the employee's actual time spent on this mandate." (In early 2010, the Commission incorporated the Controller's CSDR into the Intradistrict Attendance Program P & G's; see fn. 5, *post.*)

***807** Applying the same reasoning we have applied above with respect to the SDC and the EPEPD Programs, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' Intradistrict Attendance Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante.*) These audits are invalidated to the extent they used this CSDR.

That leaves the Collective Bargaining Program, which was found to be a reimbursable state-mandated program in 1978 (by the Commission's predecessor, the State Board of Control). This program requires school district employers to collectively bargain with represented employees, and to publicly disclose the major provisions of their agreements prior to final adoption. (§ 3540 et seq.)

If the Commission's pre-May 27, 2004 P & G's for the SDC Program most closely resemble the Controller's CSDR, the P & G's for the Collective Bargaining Program bear the least resemblance. As pertinent, the Collective Bargaining Program P & G's require school districts seeking reimbursement ****44** for employee salary and benefit costs to simply "[s]upply workload data requested ... to support the level of costs claimed" and "[s]how the classification of the employees involved, amount of time spent, and their hourly rate"; nothing is said about "source documents."

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The Controller's Collective Bargaining Program-specific Claiming Instructions substantively mirror those of the Intradistrict Attendance Program, stating that source documents include employee time records that show the employee's actual time spent on the mandated function. (And as with the Intradistrict Attendance Program, the Commission, in early 2010, incorporated the Controller's CSDR into the Collective Bargaining Program P & G's; see fn. 5, *post.*)

Consequently, employing the same reasoning we have employed above, we conclude that the Controller's CSDR is an underground, unenforceable regulation as applied to the audits of the School Districts' Collective Bargaining Programs for the applicable periods roughly encompassing the fiscal years 1998 to 2003. (See fn. 2, *ante.*) These audits are invalidated to the extent they used this CSDR.

IV. Declaratory and Related Writ of Mandate Relief

The trial court declared that the Controller's CSDR, as applied to the audits of the Intradistrict Attendance and Collective Bargaining Programs for the 1998 to 2003 period of fiscal years, was an invalid and void underground regulation under the APA. Correspondingly, the trial court issued a peremptory writ of mandate (traditional mandamus) invalidating these CSDR-based audits to the extent they were not final audit determinations for more than ***808** three years before the School Districts filed their respective lawsuits on May 23, 2006 (Clovis et al.) and March 2, 2007 (San Juan). This three-year period is the applicable three-year statute of limitations under Code of Civil Procedure section 338, subdivision (a), for enforcing a statutory liability like state-mandated reimbursement. We are affirming this part of the trial court's judgment.

However, the trial court refused to provide, in parallel fashion, declaratory and writ of mandate relief for the CSDR-based audits involving the SDC and EPEPD Programs. The School Districts contend the trial court erred in this respect. We agree.

In refusing to provide this relief, the trial court reasoned that, since the Commission had incorporated the Controller's CSDR into the Commission's regulatory P & G's for the SDC and EPEPD Programs, there was no longer an actual and ongoing controversy upon which to grant declaratory and related mandate relief concerning the CSDR's invalidity as an underground regulation in this context; and the Commission could administratively determine, pursuant to the Incorrect Reduction Claim process, the past audits that had used the CSDR before its incorporation into the SDC and EPEPD Programs' P & G's. This is where we part company with the trial court.

Our departure is based on section 11350 of the APA and the legal principles set forth in *Californians for Native Salmon etc. Assn. v. Department of Forestry* (1990) 221 Cal.App.3d 1419, 271 Cal.Rptr. 270 (*Native Salmon*) and its progeny.

Section 11350 of the APA specifies that "[a]ny interested person may obtain a judicial declaration as to the validity of any regulation ... by bringing an action for declaratory relief...." (§ 11350, subd. (a).)

In *Native Salmon,* the plaintiffs sought declaratory relief against the state forestry department, alleging that it was department policy, with respect to timber harvest plans: (1) to delay responses to public comments, and (2) to not evaluate the cumulative ****45** impact of logging activities in the plans. The *Native Salmon* court concluded that declaratory relief was appropriate in this context, stating: "[Plaintiffs] ... challenge not a specific [administrative] order or decision [which is generally subject to review only pursuant to a writ of *administrative* mandate, rather than traditional mandate], or even a series thereof, but an overarching, quasi-legislative policy set by an administrative agency. Such a policy is subject to review in an action for declaratory relief.... [¶] ... [R]eview of specific, discretionary administrative decisions [must not be confused] with review of a generalized agency policy. Declaratory relief directed to *policies* of administrative agencies is not an unwarranted control of discretionary, specific agency decisions." (*Native Salmon,* ***809** *supra,* 221 Cal.App.3d at p. 1429, 271 Cal.Rptr. 270, citations omitted; accord, *Venice Town Council, Inc. v. City of Los Angeles* (1996) 47 Cal.App.4th 1547, 1566, 55 Cal.Rptr.2d 465; see also *Simi Valley Adventist Hospital v. Bontá* (2000) 81 Cal.App.4th 346, 354–355, 96 Cal.Rptr.2d 633.)

[9] **[10]** **[11]** Similarly, here, the School Districts have challenged "an overarching, quasi-legislative policy set by an administrative agency" (*Native Salmon, supra,* 221 Cal.App.3d at p. 1429, 271 Cal.Rptr. 270) rather

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than a specific, discretionary administrative decision: i.e., the Controller's policy of using the (underground) CSDR to conduct audits in the SDC and EPEPD Programs for the period straddling the fiscal years 1998 to 2003. Declaratory and accompanying traditional mandate relief is appropriate in this context; this is an ongoing controversy limited by the three-year statute of limitations noted above. [5]

And there is no adequate administrative remedy. The trial court made a finding—supported by substantial evidence—that the Commission "consistently refuses to rule on underground regulation claims on the basis of an opinion that it lacks jurisdiction to decide such claims." (The trial court made this finding in discussing the Intradistrict Attendance and Collective Bargaining Programs, but the finding applies equally to the SDC and EPEPD Programs.)

We conclude that declaratory and accompanying traditional mandate relief applies not only to the Intradistrict Attendance and Collective Bargaining Programs, but also to the SDC and EPEPD Programs for the fiscal years at issue. [6]

*810 V. Health Fee Elimination Program

[12] In 1986, and again in 1989 (after statutory amendment), the Commission determined ****46** that the Health Fee Elimination Program imposed a reimbursable state-mandated cost on those community college districts that provide health services, by requiring those districts to maintain in the future the level of service they had provided in the 1986–1987 fiscal year (termed, the "maintenance of effort" requirement); this "maintenance of effort" had to take place even if the districts, as they were and are permitted to do under the relevant statute, eliminated their nominal statutory student health fee ($7.50 per semester maximum (former Ed.Code, § 72246, Stats.1984, 2d Ex.Sess., ch. 1, p. 6642)); $10 per semester maximum (current Ed.Code, § 76355, subd. (a)(1)). [7]

The College Districts contend that the Controller's Claiming Instruction for the Health Fee Elimination Program is an underground regulation under the APA and beyond the Controller's authority. Specifically, the College Districts argue that the Controller's Health Fee Rule misapplies the Commission's Health Fee Elimination Program P & G's by automatically reducing reimbursement claims by the amount that districts are statutorily authorized to charge students for health fees, even when a district chooses not to charge its students those fees.

Since 1989, the Commission's Health Fee Elimination Program P & G's have stated in pertinent part:

"Any offsetting savings the claimant experiences as a direct result of this statute [i.e., the health fee statutes—formerly Ed.Code, § 72246; now Ed.Code, § 76355] must be deducted from the [reimbursement] costs claimed. In addition, reimbursement for this mandate received from any source, e.g., federal, state, etc., shall be identified and deducted from this claim. This shall include the amount of $7.50 per full-time student per semester, $5.00 per full-time student for summer school, or $5.00 per full-time student per quarter, as authorized by Education Code section 72246[, subdivision] (a). This shall also include payments (fees) received from individuals other than students who are not covered by Education Code Section 72246 for health services."

***811** The Controller's Health Fee Rule (i.e., its Health Fee Elimination Program-specific Claiming Instruction) states in pertinent part:

"Eligible claimants will be reimbursed for health service costs at the level of service provided in the 1986/87 fiscal year. The reimbursement will be reduced by the amount of student health fees authorized per the Education Code [section] 76355."

The College Districts maintain that the Controller's Health Fee Rule constitutes an invalid, underground regulation—i.e., one not adopted pursuant to the APA—because it meets the two-part test of a "regulation": (1) the Controller generally applies it; and (2) the rule implements, interprets or makes specific the Commission's Health Fee Elimination Program P & G's. ****47** (*Morning Star, supra,* 38 Cal.4th at pp. 333–334, 42 Cal.Rptr.3d 47, 132 P.3d 249.)

There is no quibble with part (1)—general application. The real issue is with part (2) of the test—defining a "regulation" as implementing, interpreting, or making specific the Health Fee Elimination Program P & G's.

The College Districts argue that those P & G's require that the mandate claimant have actually "experience[d]" or "received" an amount of health service money for that amount to be deducted from the reimbursement claim. That is, if a college district does not charge its students a health service fee, as the district is statutorily permitted to do, then the district has not "experienced" or "received" that fee, and that amount cannot be deducted. The College Districts note that the Health Fee Rule, by contrast, states flatly that "reimbursement will be reduced by the amount of student health fees authorized per the Education Code [section] 76355."

The College Districts' argument carries some weight, especially when viewed solely within the prism of comparing the Health Fee Elimination Program P & G's to the Health Fee Rule semantically. But the argument falters when exposed to the broader context of the nature of state-mandated costs and common sense.

As for the nature of state-mandated costs, section 17514 defines "costs mandated by the state" to mean "any *increased costs* which a local agency or school district is *required to incur* after July 1, 1980, as a result of any statute enacted on or after January 1, 1975, or any executive order implementing any statute enacted on or after January 1, 1975, which mandates a new program or higher level of service of an existing program within the meaning of Section 6 of Article XIIIB of the California Constitution." (Italics added.) And section 17556 reflects this definition by stating that costs are not deemed mandated by the state to the extent the "local agency or school district *has the authority* to levy service charges, fees, or assessments sufficient to pay for the mandated program or increased level of service." (§ 17556, subd. (d), italics added.)

[13] ***812** The College Districts point out, though, in a series of overlapping arguments, that sections 17514 and 17556 govern the *Commission's* determination of whether a program is a state-mandated program, not the *Controller's* determination as to audit reductions; and the Commission has already found the Health Fee Elimination Program to be a state-mandated program. This observation, however, does not diminish the basic principle underlying the state mandate process that sections 17514 and 17566, subdivision (d) embody: To the extent a local agency or school district "has the authority" to charge for the mandated program or increased level of service, that charge cannot be recovered as a state-mandated cost. [8] (See *Connell v. Superior Court* (1997) 59 Cal.App.4th 382, 401, 69 Cal.Rptr.2d 231 ["the plain language of [section 17556, subdivision (d)] precludes reimbursement where the local agency has the authority, i.e., the right or the power, to levy fees sufficient to cover the costs of the state-mandated program"]; see *Connell,* at pp. 397–398, 69 Cal.Rptr.2d 231.)

And this basic principle flows from common sense as well. As the Controller succinctly ****48** puts it, "Claimants can choose not to require these fees, but not at the state's expense."

[14] The College Districts also argue that the Controller lacks the authority to rely on these Government Code sections to uphold its Health Fee Rule. The argument is that, since the Health Fee Rule is a claiming instruction, its validity must be determined *solely* through the Commission's P & G's. To accept this argument, though, we would have to ignore, and so would the Controller, the fundamental legal principles underlying state-mandated costs. We conclude the Health Fee Rule is valid.

DISPOSITION

We direct the trial court to issue a peremptory writ of mandate that invalidates the Controller's audits of the School Districts' SDC and EPEPD Program reimbursement claims for the applicable periods identified in footnote 2, *ante,* encompassing the fiscal years 1998 to 2003, to the extent those audits were based on the CSDR and did not become final audit determinations prior to the applicable three-year statute of limitations. If it chooses to do so, the Controller may re-audit the relevant reimbursement claims based on the documentation requirements of the P & G's and claiming ***813** instructions when the mandate costs were incurred (i.e., not using the CSDR). In all other respects, the judgment is affirmed.

The parties shall each bear their own costs on appeal. (Cal. Rules of Court, rule 8.278(a)(3).)

We concur: SCOTLAND, P.J., and NICHOLSON, J.

All Citations

188 Cal.App.4th 794, 116 Cal.Rptr.3d 33, 260 Ed. Law Rep. 877, 10 Cal. Daily Op. Serv. 12,281, 2010 Daily Journal D.A.R. 14,831

Footnotes

1 Undesignated statutory references are to the Government Code.

2 Because of the large number of school districts and program audits involved, as well as the slightly varying fiscal years at issue corresponding to these districts and program audits, we will use the general phrasing "applicable periods roughly encompassing the fiscal years 1998 to 2003" to describe the audits at issue. The parties are well aware of the particular audits being challenged for this period. Regardless, the School Districts must meet the applicable three-year statute of limitations that governs lawsuits based on statutory liability (like state-mandated reimbursement) for any audits of the four programs that have been determined on the basis of the invalidated CSDR. (Code Civ. Proc., § 338; *Union of American Physicians & Dentists v. Kizer* (1990) 223 Cal.App.3d 490, 504, fn. 5, 272 Cal.Rptr. 886.) San Juan School District filed its petition and complaint on March 2, 2007. The rest of the School Districts, together, filed their petition and complaint on May 23, 2006. The trial court consolidated these two petitions and complaints on March 27, 2007.

The School Districts made challenges to other programs as well, but these challenges are not at issue on appeal.

3 On May 27, 2004, the Commission validly amended its SDC Program P & G's to adopt this CSDR language.

4 As a related aside, it is interesting to note that the Controller's SDC-specific Claiming Instructions that were in place during the pre–2004 P & G's stated that, "[f]or audit purposes, all supporting documents must be retained [by claimant] [only] for a period of two years after the end of the calendar year in which the reimbursement claim was filed or last amended, whichever is later"; but the Controller had three years in which to conduct a reimbursement audit "after the date that the actual reimbursement claim is filed or last amended, whichever is later." (§ 17558.5, subd. (a).)

5 The Controller had requested that, at a minimum, we stay this appeal in light of the Commission's pending decision to incorporate the Controller's CSDR into the Commission's P & G's for the Intradistrict Attendance and Collective Bargaining Programs, as the Commission has done for the SDC and EPEPD Programs. In a subsequent request for judicial notice, the Controller has now noted that the Commission, on January 29, 2010, amended its P & G's for the Intradistrict Attendance and Collective Bargaining Programs to adopt the CSDR for each program. We deny this request for judicial notice. This is because the central issue in the present appeal concerns the Controller's policy of using the CSDR *during the 1998 to 2003 fiscal years,* when the CSDR was an underground regulation. This issue is not resolved by the Commission's *subsequent* incorporation of the CSDR into its Intradistrict Attendance and Collective Bargaining Programs' P & G's.

Also, we deny the School Districts' request for judicial notice of the Commission's Incorrect Reduction Claim caseload summary and the Controller's list of final audit reports for California school districts and community college districts.

6 In light of our resolution, we need not consider the School Districts' alternative claim that the Controller's CSDR constitutes an unlawful retroactive rule, or the School Districts' additional claim that regardless whether an actual controversy exists for purposes of declaratory relief, the requested writ relief is not moot.

7 As Education Code section 76355, subdivision (a)(1) states: "The governing board of a district maintaining a community college may require community college students to pay a fee in the total amount of not more than ten dollars ($10) for each semester, seven dollars ($7) for summer school, seven dollars ($7) for each intersession of at least four weeks, or seven dollars ($7) for each quarter for health supervision and services, including direct or indirect medical and hospitalization services, or the operation of a student health center or centers, or both." (An inflationary adjustment is provided for in subdivision (a)(2) of § 76355.)

8 In light of sections 17514 and 17556, subdivision (d), the Commission found the Health Fee Elimination Program to be a reimbursable state-mandated program to the extent the cost to community college districts of maintaining their level of health services at the 1986–1987 level, as required by the Health Fee Elimination Program mandate, is not covered by the nominal health fee authorized by section 76355, subdivision (a)(1) ($10 maximum per semester per student).

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ATTACHMENT
15

KeyCite Yellow Flag - Negative Treatment
Distinguished by Pajaro Valley Water Mgmt. Agency v. Amrhein, Cal.App. 6 Dist., May 21, 2007

24 Cal.4th 830, 14 P.3d 930, 102 Cal.Rptr.2d 719, 01 Cal. Daily Op. Serv. 209, 2001 Daily Journal D.A.R. 237

APARTMENT ASSOCIATION OF LOS ANGELES COUNTY, INC., et al., Plaintiffs and Appellants,
v.
CITY OF LOS ANGELES,
Defendant and Respondent.

No. S082645.
Supreme Court of California
Jan. 8, 2001.

SUMMARY

A city council, seeking to establish and fund a program to remedy substandard housing conditions, adopted an ordinance that required the owners of all residential rental properties subject to inspection under the program to pay a fee. An apartment association and other groups with similar interests brought an action for declaratory and injunctive relief against the city, alleging that the fee ordinance was unconstitutional and therefore void as a charge upon real property under Prop. 218 (Cal. Const., art. XIII D). The trial court sustained the city's demurrer without leave to amend, finding that the fee was not subject to the constitutional requirements, and entered judgment for the city. (Superior Court of Los Angeles County, No. BC195216, Charles W. McCoy, Jr., Judge.) The Court of Appeal, Second Dist., Div. One, No. B130243, reversed.

The Supreme Court reversed the judgment of the Court of Appeal. The court held that this ordinance did not fall within the scope of Cal. Const., art. XIII D, which only restricts fees imposed directly on property owners in their capacity as such. The inspection fee was not imposed on landlords in their capacity as property owners, but rather in their capacity as business owners. This constitutional provision does not refer to fees imposed on an incident of property ownership, but rather to fees imposed on a parcel or a person as an incident of property ownership; this distinction was crucial to this case. According to its plain meaning, Cal. Const., art. XIII D applies only to exactions levied solely by virtue of property ownership. This inspection fee was imposed because the property was being rented; it ceased along with the business operation, whether or not ownership remained in the same hands. (Opinion by Mosk, J., with George, C. J., Kennard, Werdegar, and Chin, JJ., concurring. Dissenting opinion by Brown, J., with Baxter, J., concurring (see p. 845).)

HEADNOTES

Classified to California Digest of Official Reports

(1)
Appellate Review § 145--Scope of Review--Questions of Law and Fact-- Interpretation of Constitutional Provision.
The interpretation of a constitutional provision, passed by voter initiative, is a question of law for the appellate courts to decide on independent review of the facts.

(2a, 2b, 2c)
Property Taxes § 7.6--Real Property Tax Limitation-- Proposition 218--Construction--In Context of Proposition 13.
Prop. 218, which added Cal. Const., art. XIII C and art. XIII D, can best be understood against its historical background, which began in 1978 with the adoption of Prop. 13, the purpose of which was to cut local property taxes. Prop. 218 buttressed the limitations in Prop. 13 on ad valorem property taxes and special taxes by placing analogous restrictions on assessments, fees, and charges. Prop. 218 must be construed in the context of Prop. 13. Prop. 218 focuses on exactions, whether they be called taxes, fees, or charges, that are directly associated with property ownership.

(3a, 3b, 3c, 3d, 3e)
Property Taxes § 7.6--Real Property Tax Limitation--Proposition 218:Municipalities § 54--Ordinances--Fee Imposed on Owners of Residential Rental Properties--Validity.
A city ordinance that required payment of a fee by the owners of all residential rental properties subject to inspection under a program designed to remedy substandard housing conditions did not fall within the scope of Prop. 218 (Cal. Const., art. XIII D), which only restricts fees imposed directly on property owners in their capacity as such. The inspection fee was not imposed on

landlords in their capacity as property owners, but rather in their capacity as business owners. This constitutional provision does not refer to fees imposed on an incident of property ownership, but rather to fees imposed on a parcel or a person as an incident of property ownership. That distinction was crucial to this case. According to its plain meaning, Cal. Const., art. XIII D applies only to exactions levied solely by virtue of property ownership. This inspection fee was imposed because the property was being rented; it ceased along with the business operation, whether or not ownership remained in the same hands.

[See 9 Witkin, Summary of Cal. Law (9th ed. 1989) Taxation, §§ 110A, 110B.]

(4)
Real Property § 4--Incidents of Ownership--Right of Alienation.
Ownership of property in fee simple absolute is the greatest possible estate. Among the panoply of lesser estates are such nonfreehold chattels real as leases for a specific term and periodic tenancies-in common parlance, rentals or leases of limited duration. Among the incidents of estates in land are the so-called bundle of rights that flow from such tenure. Among them is the fundamental right to alienate one's property held in fee simple. That incident, or right, has been called inseparable, indispensable, and necessary. The power to alienate property or a property right is not limited to the right to sell or assign it. It means generally the power to transfer or convey it to another. The conveyance need not be of the whole fee. The right of alienation applies when fee holders seek to convey lesser estates. The power or right of alienation incident to the ownership of an estate in fee simple includes the power or right to dispose of property held in fee by lease, mortgage, or other mode of conveyance.

(5)
Taxation § 3--Construction--Distinguished from Regulatory Fees.
Regulatory fees are those charged in connection with regulatory activities, which do not exceed the reasonable cost of providing services necessary to the activity for which the fee is charged, and which are not levied for unrelated revenue purposes.

(6)
Statutes § 27--Construction--Liberality:Constitutional Law § 11-- Construction--Liberality.
As a rule, a command that a constitutional provision or a statute be liberally construed does not license either enlargement or restriction of the evident meaning of the provision.

COUNSEL
California Apartment Law Information Foundation, Trevor Grimm and Craig Mordoh for Plaintiffs and Appellants.
Sharon L. Browne and Stephen R. McCutcheon, Jr., for Pacific Legal Foundation as Amicus Curiae on behalf of Plaintiffs and Appellants.
James K. Hahn, City Attorney, Pedro B. Echeverria, Chief Assistant City Attorney, Ronald Tuller, Assistant City Attorney, and Miguel A. Dager, Deputy City Attorney, for Defendant and Respondent.
Hart, King & Coldren, Robert S. Coldren and C. William Dahlin for Western Manufactured Housing Communities Association as Amicus Curiae on behalf of Defendant and Respondent. ***833**
Gibson, Dunn & Crutcher, James P. Clark, Joel M. Tantalo; Western Center on Law & Poverty, Richard Rothschild; Bet Tzedek Legal Services and Lauren Saunders for the Los Angeles Blue Ribbon Citizens' Committee on Slum Housing, Bet Tzedek Legal Services, the Inner City Law Center, Los Angeles Center for Law and Justice, Legal Aid Foundation of Los Angeles, Legal Services of Northern California, Los Angeles Housing Law Project, Public Counsel, San Fernando Valley Neighborhood Legal Services, Western Center on Law and Poverty, Esperanza Community Housing Corporation, Southern California Association of Non-Profit Housing, Southern California Mutual Housing Association, the Coalition for Economic Survival, Inquilinos Unidos, the St. Francis Center, the Fair Housing Congress of Southern California and SEIU Local 347 as Amici Curiae on behalf of Defendant and Respondent.
Richard Doyle, City Attorney (San Jose), George Rios, Assistant City Attorney, and Robert Fabela, Deputy City Attorney, for the City of San Jose, 89 Additional California Cities, the California State Association of Counties and the California Association of Sanitation Agencies as Amici Curiae on behalf of Defendant and Respondent.

MOSK, J.

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We granted review to decide whether a city ordinance imposing an inspection fee on private landlords violates article XIII D of the California Constitution (article XIII D), added by initiative measure, Proposition 218, in 1996. We conclude that it does not.

In July 1998, the City of Los Angeles put into effect the Los Angeles Housing Code. It is codified as article 1 of chapter XVI of the Los Angeles Municipal Code (§ 161.101 et seq.). Later that month, plaintiffs sued the city for declaratory and injunctive relief, alleging that Los Angeles Municipal Code section 161.352, imposing an inspection fee on private landlords, is unenforceable because it was enacted without complying with section 6 of article XIII D. The city demurred. The trial court sustained the demurrer without leave to amend, finding that the fee was not subject to the constitutional requirements. It entered judgment for the city.

In its statement of decision, the trial court recognized that the inspection fee "appears arguably to fall within the wide range of assessments which Proposition 218 was apparently written to encompass." But it added, "In *Pennell v. City of San Jose* (1986) 42 Cal.3d 365, 375 [***834** 228 Cal.Rptr. 726, 721 P.2d 1111], the California Supreme Court held that a fee charged to cover the costs of operating San Jose's rent control ordinances, and not used to raise general revenue, is not subject to Article XIII A of the California Constitution. The City's ordinance here fits squarely within both the reason and rule of *Pennell*. The ordinance levies only property used for residential apartment rentals, and the money is used only to pay for regulat[ing such] rentals to insure, among other things, that they do not degenerate into what is commonly called 'slum conditions.' The assessment is not imposed on all property owners-only a subset of owners who rent apartments."

The Court of Appeal reversed, holding that the state constitutional provision invalidated the city ordinance. The court wrote: "There is nothing in Proposition 218 that exempts regulatory fees imposed on residential rental properties. It thus adds nothing to say, as does the City, that the fees are not 'imposed upon property owners in general, but only those who voluntarily engage in the business of renting, generate the risks of slum housing, and specially benefit from regular inspections as they contribute to the overall reputability and safety of the housing provided.' Quite plainly, Proposition 218 applies to any 'fee' or 'charge,' both of which are defined to mean 'any levy other than an ad valorem tax, a special tax, or an assessment, imposed by an agency upon a parcel or upon a person as an incident of property ownership, including a user fee or charge for a property-related service.' (Art. XIII D, § 2, subd. (e) ....) However well intentioned the City's program to abolish slum housing may be, we find it impossible to say that a fee imposed upon the owners of rental units so the City can locate and eradicate substandard housing is anything other than a user fee or charge for a property-related service." (Italics and fn. omitted.)

I.

A.

Section 161.102 of the Los Angeles Municipal Code states the reason for enacting the Los Angeles Housing Code: "It is found and declared that there exist in the City of Los Angeles substandard and unsanitary residential buildings and dwelling units the physical conditions and characteristics of which render them unfit or unsafe for human occupancy and habitation, and which conditions and characteristics are such as to be detrimental to or jeopardize the health, safety and welfare of their occupants and of the public.

"It is further found and declared that the existence of such substandard buildings as dwelling units threatens the physical, social and economic stability of sound residential buildings and areas, and of their supporting ***835** neighborhood facilities and institutions; necessitates disproportionate expenditures of public funds for remedial action; impairs the efficient and economical exercise of governmental powers and functions; and destroys the amenity of residential areas and neighborhoods and of the community as a whole."

Los Angeles Municipal Code section 161.301, entitled Scope, declares that the Los Angeles Housing Code applies to "all residential rental properties with two or more dwelling units on the same lot, the land, buildings and structures appurtenant thereto," but not to owner-occupied units, on-campus dormitory housing, hotels, motels, or certain other types of housing also specifically exempted.

Division 3.5 of the Los Angeles Housing Code (§ 161.351 et seq.) is entitled Housing Inspection Fees. Section

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161.351 limits the scope of division 3.5 to "residential rental properties with two or more dwellings subject to the provisions of this Code." Those properties "will be subject to regular inspection by the General Manager or an authorized representative. Inspections may also be complaint-based." (*Ibid.*)

Section 161.352 of the Los Angeles Municipal Code, at issue here, sets forth the inspection fee schedule. It provides, in its entirety: "Owners of all buildings subject to inspection shall pay a service fee of $12.00 per unit per year. The fee will be used to finance the cost of inspection and enforcement by the Housing Department. Should the owner fail to pay the required fee, the City of Los Angeles will recover it, plus accrued interest, utilizing any remedies provided by law including nuisance abatement or municipal tax lien procedures established by ordinance or state law. This fee shall be known as the 'Systematic Code Enforcement Program Fee.' " (*Ibid.*, boldface omitted.)

B.

In November 1996 the voters approved Proposition 218, the Right to Vote on Taxes Act. (Ballot Pamp., Gen. Elec. (Nov. 5, 1996) text of Prop. 218, § 1, p. 108; reprinted as Historical Notes, 2A West's Ann. Cal. Const. (2001 supp.) foll. art. XIII C, § 1, p. 33.) The proposition amended the California Constitution, adding article XIII D. Section 3, subdivision (a)(3) of article XIII D provides that, with certain exceptions not relevant here, "No tax, assessment, fee, or charge shall be assessed by any agency upon any parcel of property or upon any person as an incident of property ownership except: [¶] ... [¶] ... as provided by this article." An agency is a local or regional governmental entity. (*Id.*, § 2, subd. (a); Cal. Const., art. XIII C, § 1, subd. (b).) ***836**

Section 1 of article XIII D provides that it applies to "all assessments, fees and charges, whether imposed pursuant to state statute or local government charter authority." Fees and charges are defined in subdivision (e) of section 2 thereof. " 'Fee' or 'charge' means any levy other than an ad valorem tax, a special tax, or an assessment, imposed by an agency upon a parcel or upon a person as an incident of property ownership, including a user fee or charge for a property-related service." (*Ibid.*)

"Property-related service" is further defined. It "means a public service having a direct relationship to property ownership." (Art. XIII D, § 2, subd. (h).)

Thus, and in summary, article XIII D applies, with certain exceptions not relevant here, to "any levy ... upon a parcel or upon a person as an incident of property ownership, including a user fee or charge for a property-related service." (Art. XIII D, § 2, subd. (e).) As will appear, the outcome of this case turns on the meaning of this language.

C.

([1]) Before us is "a question of law for the appellate courts to decide on independent review of the facts." (*Sinclair Paint Co. v. State Bd. of Equalization* (1997) 15 Cal.4th 866, 874 [64 Cal.Rptr.2d 447, 937 P.2d 1350].) Though our reasoning turns on the language of the constitutional stricture, it may be helpful to explain, as did the Court of Appeal in *Howard Jarvis Taxpayers Assn. v. City of Riverside* (1999) 73 Cal.App.4th 679 [86 Cal.Rptr.2d 592] (*Howard Jarvis*), the reasons that led to placing Proposition 218 on the ballot.

([2a]) "Proposition 218 can best be understood against its historical background, which begins in 1978 with the adoption of Proposition 13. 'The purpose of Proposition 13 was to cut local property taxes. [Citation.]' [Citation.] Its principal provisions limited ad valorem property taxes to 1 percent of a property's assessed valuation and limited increases in the assessed valuation to 2 percent per year unless and until the property changed hands. (Cal. Const., art. XIII A, §§ 1, 2.)

"To prevent local governments from subverting its limitations, Proposition 13 also prohibited counties, cities, and special districts from enacting any special tax without a two-thirds vote of the electorate. (Cal. Const., art. XIII A, § 4; *Rider v. County of San Diego* (1991) 1 Cal.4th 1, 6-7 [2 Cal.Rptr.2d 490, 820 P.2d 1000].) It has been held, however, that a special assessment is not a special tax within the meaning of Proposition 13. (*Knox v. City of* ***837** *Orland* (1992) 4 Cal.4th 132, 141 [14 Cal.Rptr.2d 159, 841 P.2d 144], and cases cited.) Accordingly, a special assessment could be imposed without a two-thirds vote.

"In November 1996, in part to change this rule, the electorate adopted Proposition 218, which added articles XIII C and XIII D to the California Constitution. Proposition 218 allows only four types of local property taxes: (1) an ad valorem property tax; (2) a special tax; (3) an assessment; and (4) a fee or charge. (Cal. Const., art.

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XIII D, § 3, subd. (a)(1)-(4); see also [*id.*], § 2, subd. (a).) It buttresses Proposition 13's limitations on ad valorem property taxes and special taxes by placing analogous restrictions on assessments, fees, and charges." (*Howard Jarvis*, *supra*, 73 Cal.App.4th 679, 681-682.)

D.

([3a]) The Court of Appeal explained the parties' differing views of the effect of article XIII D on the city ordinance. "As viewed by [plaintiffs], the fee is imposed 'upon a parcel or upon a person as an incident of property ownership' and is, therefore, subject to the procedural requirements of Proposition 218. As viewed by the City, the fee is imposed upon a business activity (the rental of residential dwellings), separate and apart from property ownership, and purely for regulatory purposes, and it is therefore not subject to Proposition 218." (Italics omitted.)

Adhering before us to their point of view, plaintiffs contend that "nothing in Proposition 218 ... support[s] the contention that [it] was not meant to affect the ability of local governments to impose and collect business 'regulatory fees.' " The city also adheres to its position, devoting much of its briefing to an argument that because its inspection fee is a regulatory fee on business operations, it falls outside the purview of article XIII D. Examining the ballot arguments for and against Proposition 218 and the Legislative Analyst's analysis of the measure, the city also contends that article XIII D was intended only to restrict fees imposed directly on property owners in their capacity as such. A regulatory fee imposed on residential rental businesses, the city argues, necessarily falls outside article XIII D's ambit, even if the fee bears some relation to ownership of real property. [1]

As will appear, neither party is entirely correct. The relevant language of article XIII D does not compel a conclusion in plaintiffs' favor; rather, it ***838** compels the opposite. The city also misses the mark when it contends (or at least implies) that a regulatory fee or a levy on the operation of a business necessarily falls outside the scope of article XIII D.

But both parties are partly correct. Plaintiffs accurately state that the constitutional provision does not speak of regulatory fees or levies on business operations. Hence, the mere fact that a levy is regulatory (as this inspection fee clearly is) or touches on business activities (as it clearly does) is not enough, by itself, to remove it from article XIII D's scope. But the city is correct that article XIII D only restricts fees imposed directly on property owners in their capacity as such. The inspection fee is not imposed solely because a person owns property. Rather, it is imposed because the property is being rented. It ceases along with the business operation, whether or not ownership remains in the same hands. For that reason, the city must prevail.

II.

Section 2 of Proposition 218 stated the measure's purpose. "The people of the State of California hereby find and declare that Proposition 13 was intended to provide effective tax relief and to require voter approval of tax increases. However, local governments have subjected taxpayers to excessive tax, assessment, fee and charge increases that not only frustrate the purposes of voter approval for tax increases, but also threaten the economic security of all Californians and the California economy itself. This measure protects taxpayers by limiting the methods by which local governments exact revenue from taxpayers without their consent." (Ballot Pamp., Gen. Elec., *supra*, text of Prop. 218, § 2, p. 108; reprinted as Historical Notes, 2A West's Ann. Cal. Const., *supra*, foll. art. XIII C, § 1, p. 33.)

The repeated references to taxes and taxpayers suggest an intent to prohibit unratified exactions imposed on property owners as such, rather than on the business of renting or leasing apartments-i.e., "residential rental properties with two or more dwellings" (L.A. Mun. Code, § 161.351).

([2b]) As explained in *Howard Jarvis*, *supra*, 73 Cal.App.4th 679, Proposition 218 is Proposition 13's progeny. Accordingly, it must be construed in that context. (***839** *People ex rel. Lungren v. Superior Court* (1996) 14 Cal.4th 294, 301 [58 Cal.Rptr.2d 855, 926 P.2d 1042].) Specifically, because Proposition 218 was designed to close government-devised loopholes in Proposition 13, the intent and purpose of the latter informs our interpretation of the former. Proposition 13 was directed at taxes imposed on property owners, in particular homeowners. The text of Proposition 218, the ballot arguments (both in favor and against), the Legislative Analyst's analysis, and the annotations of the Howard Jarvis Taxpayers Association, which drafted Proposition 218, all focus on exactions, whether they are called taxes,

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fees, or charges, that are directly associated with property ownership.

([3b]) The Legislative Analyst's analysis, printed in the November 1996 ballot pamphlet, is illustrative. It explained that Proposition 218 "would constrain local governments' ability to impose fees, assessments, and taxes," meaning "property-related" fees, including fees for water, sewer and refuse collection, but excluding gas and electricity charges (see Cal. Const., art. XIII D, § 3, subd. (b)) and development fees (see *id.*, § 1, subd. (b)). (Ballot Pamp., Gen. Elec., *supra*, Legis. Analyst's analysis, p. 73.) It did not refer to levies linked more indirectly to property ownership.

([2c]) The ballot arguments for Proposition 218 are also illustrative. "Proposition 218 guarantees your right to vote on local tax increases-even when they are called something else, like 'assessments' or 'fees' and imposed on homeowners." (Ballot Pamp., Gen. Elec., *supra*, argument in favor of Prop. 218, p. 76.) "After voters passed Proposition 13, politicians created a loophole in the law that allows them to raise taxes without voter approval by calling taxes 'assessments' and 'fees.' " (*Ibid.*) "There are now over 5,000 local districts which can impose fees and assessments without the consent of local voters. Special districts have increased assessments by over 2400% over 15 years. Likewise, cities have increased utility taxes 415% and raised benefit assessments 976%, a ten-fold increase." (*Ibid.*) "To confirm the impact of fees and assessments on you, look at your property tax bill. You will see a growing list of assessments imposed without voter approval. The list will grow even longer unless Proposition 218 passes." (*Ibid.*)

([3c]) The ballot arguments identify what was perhaps the drafter's main concern: tax increases disguised via euphemistic relabeling as "fees," "charges," or "assessments." But in fairness to plaintiffs, it cannot be denied that the text of article XIII D does not limit its scope to taxes and taxpayers. We turn to the definitive language: restrictions on *any* levy imposed "upon a parcel or upon a person as an incident of property ownership." (Art. XIII D, § 2, subd. (e).)

The foregoing language means that a levy may not be imposed on a property owner as such-i.e., in its capacity as property owner-unless it ***840** meets constitutional prerequisites. In this case, however, the fee is imposed on landlords not in their capacity as landowners, but in their capacity as business owners. The exaction at issue here is more in the nature of a fee for a business license than a charge against property. It is imposed only on those landowners who choose to engage in the residential rental business, and only while they are operating the business.

The contrary reasoning of the Court of Appeal, and of plaintiffs, stems from a reliance on the word "incident," leaving aside that the constitutional provision does not refer to fees imposed *on* an incident of property ownership, but on a parcel or a person *as* an incident of property ownership. As amicus curiae for the city persuasively argue, the distinction is crucial.

Were the principal words *parcel* and *person* missing, and were *as* replaced with *on*, so that article XIII D restricted the city's ability to impose fees "on an incident of property ownership," plaintiffs' argument might have merit. ([4]) For among the incidents [2] of estates in land are the so-called bundle of rights that flow from such tenure. (31 C.J.S. (1996) Estates § 12, pp. 28-30; *id.*, § 14, pp. 32, 34; *id.*, § 31, p. 58.) Among them is the fundamental right to alienate one's property held in fee simple. (E.g., *id.*, § 12, p. 30; *Holien v. Trydahl* (N.D. 1965) 134 N.W.2d 851, 856; *Davis v. Geyer* (1942) 151 Fla. 362, 369 [9 So.2d 727, 728]; ***841** *Hardy v. Galloway* (1892) 111 N.C. 519, 523 [15 S.E. 890]; see also *Yee v. City of Escondido* (1992) 503 U.S. 519, 528 [112 S.Ct. 1522, 1528-1529, 118 L.Ed.2d 153].) That incident, or right, has been called "inseparable" (*Holien, supra*, 134 N.W.2d at p. 856; *Hardy, supra*, 15 S.E. at p. 890), "indispensable" (*Dukes v. Crumpton* (1958) 233 Miss. 611, 620 [103 So.2d 385, 388]), and "necessary" (*Re Collier* (Nfld. 1966) 60 D.L.R.2d 70, 75 [52 M.P.R. 211, 216] (per Puddester, J.)).

The power to alienate property or a property right is not limited to the right to sell or assign it. It means generally the power "to transfer or convey [it] to another." (Black's Law Dict., *supra*, p. 73, col. 1.) The conveyance need not be the whole fee. The right of alienation applies when fee holders seek to convey lesser estates. [3] " '[T]he power or right of alienation' " " 'incident to the ownership of an estate in fee-simple' " " 'include[s] the power or right to dispose of property held in fee ... by *lease*, mortgage, or other mode of conveyance ....' " (*Porter v. Barrett* (1925) 233 Mich. 373, 379-380 [206 N.W. 532, 535], quoting *Manierre v. Welling* (1911) 32 R.I. 104, 140 [78 A. 507, 522], italics added here.)

([3d]) Accordingly, *if* article XIII D restricted the city's ability to impose a "tax, assessment, fee, or charge on an incident of property ownership" (cf. *id.*, §§ 2, subd. (e), 3), plaintiffs' argument might be persuasive. The business of renting apartments is an incident of owning them, an activity necessarily dependent on that ownership but not vice versa. One can own apartments without renting them, but no one can rent them without owning them. (See fn. 2, *ante*, at p. 840.) [4]

But the language of article XIII D is materially dissimilar. As stated, article XIII D, section 3 provides that "[n]o tax, assessment, fee, or charge ***842** shall be assessed by any agency upon any parcel of property or upon any person as an incident of property ownership except ... [¶] ... [¶] ... as provided by this article." (See also *id.*, § 2, subd. (e).) In other words, taxes, assessments, fees, and charges are subject to the constitutional strictures when they burden landowners *as landowners*. The ordinance does not do so: it imposes a fee on its subjects by virtue of their ownership of a business-i.e., because they are landlords. [5] What plaintiffs ask us to do is to alter the foregoing language-changing "as an incident of property ownership" to "on an incident of property ownership." But to do so would be to ignore its plain meaning-namely, that it applies only to exactions levied solely by virtue of property ownership. We may not interpret article XIII D as if it had been rewritten. (Accord, *People ex rel. Lungren v. Superior Court*, *supra*, 14 Cal.4th 294, 301.)

The language of article XIII D, sections 2, subdivision (e), and 3, shows that it applies to levies imposed on a person or on property strictly as an incident of property ownership. Had the law included levies imposed on incidents of the ownership or use of residential real property (as relevant ***843** here, the exercise of the right to rent one's property), its text would have said so. But it did not. And although the plain language of the relevant constitutional provisions requires us not to consider extrinsic evidence of the voters' intent, we reiterate, purely as an aside, that neither the ballot arguments nor the Legislative Analyst's analysis suggested that article XIII D was intended to encompass fees of the type at issue here.

The subordinate clause in section 2, subdivision (e), of article XIII D, as clarified in section 2, subdivision (h), supports our conclusion. It may be recalled that among the fees or charges covered by article XIII D, section 2, subdivision (e), is "a user fee or charge for a property-related service." Such a service "means a public service having a direct relationship to property ownership." (*Id.*, § 2, subd. (h).) In this case, the relationship between the city's inspection fee and property ownership is indirect-it is overlain by the requirement that the landowner be a landlord.

As stated, the foregoing clause is subordinate. It does not include all possible fees and charges that fall within the ambit of article XIII D. ([5])**(See fn. 6.)** But it does provide additional evidence of the scope of the constitutional provision. [6]

([3e]) At oral argument, plaintiffs emphasized article XIII D's exemptions for existing development fees and all charges to provide gas and electrical ***844** service. (Art. XIII D, §§ 1, subd. (b), 3, subd. (b).) They assert that a developer fee is a fee on an incident of property-the right to improve it-and that there would have been no need to exempt such fees if other fees imposed on incidents of property did not fall within article XIII D's scope. Similarly, they argue that one can own property without having utility service, and that if article XIII D applied strictly to levies that are imposed solely on the basis of property ownership, there would have been no need to exempt such utility charges in the constitutional provision.

We note, however, that the provision regarding development fees refers only to those existing at the time of article XIII D's enactment. Moreover, it is unclear to us whether a fee to provide gas or electricity service is the same as a fee imposed on the consumption of electricity or gas. In any event, we believe that the aforementioned exemptions may have been included in an abundance of caution in case court interpretations of article XIII D similar to the Court of Appeal's should prevail. Finally, we do not believe that any incongruity can trump the plain language we have discussed herein. In short, we are unpersuaded.

Similarly unpersuasive is plaintiffs' contention, also emphasized at oral argument, that the city's ability to enforce payment of the inspection fee by imposing a lien on the property shows that the fee is property-related, not business-related. The fact is that the city is simply availing itself of all possible means to collect the fee. Property liens may be precipitated by at least one cause unconnected to land ownership (except ownership of the land on which the

lien is imposed): the cost of removing graffiti. (Gov. Code, § 38772.) A lien may be imposed on parents' land to defray the cost of removing graffiti their child has scrawled on that belonging to another. (*Id.*, subd. (b).)

Plaintiffs also advert to section 5 of Proposition 218, which requires that "[t]he provisions of this act shall be liberally construed to effectuate its purposes of limiting local government revenue and enhancing taxpayer consent." (Ballot Pamp., Gen. Elec., *supra*, text of Prop. 218, § 5, p. 109; reprinted as Historical Notes, 2A West's Ann. Cal. Const., *supra*, foll. art. XIII C, p. 33.) But "[l]iberal construction cannot overcome the plain language of Proposition 218 limiting [its] scope ... to [levies] based on real property." (*Howard Jarvis Taxpayers Assn. v. City of San Diego* (1999) 72 Cal.App.4th 230, 237-238 [84 Cal.Rptr.2d 804].) ([6]) As a rule, a command that a constitutional provision or a statute be liberally construed "does not license either enlargement or restriction of its evident meaning" (*People v. Cruz* (1974) 12 Cal.3d 562, 566 [116 Cal.Rptr. 242, 526 P.2d 250]). Thus, ***845** given that article XIII D's scope is, as we have explained, unambiguously limited to burdens on landowners as such, " 'no resort to this command [of liberal construction] is required' " (*Howard Jarvis*, *supra*, 73 Cal.App.4th 679, 687, quoting *Buhlert Trucking v. Workers' Comp. Appeals Bd.* (1988) 199 Cal.App.3d 1530, 1533, fn. 4 [247 Cal.Rptr. 190]) or even permitted.

III.

The Court of Appeal's judgment is reversed.

George, C. J., Kennard, J., Werdegar, J., and Chin, J., concurred.

BROWN, J.

I respectfully dissent.

Under the provisions of Proposition 218, affected property owners must approve the imposition of any new or increased fee, which is "any levy other than an ad valorem tax, a special tax, or an assessment, imposed by an agency upon a parcel or upon a person as an incident of property ownership, including a user fee or charge for a property-related service." (Cal. Const., art. XIII D, § 2, subd. (e) (article XIII D).) The dispositive determination in this case is whether a rental inspection fee is imposed "upon a person as an incident of property ownership." (*Ibid.*) To find that it is not, the majority concludes the Court of Appeal erroneously substituted "on" for "as." It is the majority that errs, however, in assuming "incident" denotes "the so-called bundle of rights that flow from [estates in land]." (Maj. opn., *ante*, at p. 840; see maj. opn., *ante*, at pp. 840-841.) In my view, the voters did not intend the courts to look any further than a standard dictionary in applying the terms of article XIII D.

"A constitutional amendment should be construed in accordance with the natural and ordinary meaning of its words. [Citation.]" (*Amador Valley Joint Union High Sch. Dist. v. State Bd. of Equalization* (1978) 22 Cal.3d 208, 245 [149 Cal.Rptr. 239, 583 P.2d 1281]; *People ex rel. Lungren v. Superior Court* (1996) 14 Cal.4th 294, 302 [58 Cal.Rptr.2d 855, 926 P.2d 1042].) Nothing in the ballot arguments in favor of or against Proposition 218 or in the Legislative Analyst's analysis implies that a different rule should obtain with respect to "incident," or that the voters intended it to have other than a plain meaning. The dictionary defines an "incident" as "something incident to something else," that is, "dependent upon or involved in something else." (Webster's New World Dict. (3d college ed. 1988) p. 682; see also Black's Law Dict. (4th ed. 1968) p. 904, col. 2 ["Used as a noun, [incident] denotes anything which inseparably belongs to, or is connected with, or inherent in, another thing .... Also, less strictly, it denotes anything which is usually ***846** connected with another, or connected for some purposes, though not inseparably"].) In other words, if the imposition of a fee depends upon one's ownership of property, it comes within the purview of article XIII D unless otherwise excepted.

The fee at issue here plainly meets this definition. Pursuant to its police powers, the City of Los Angeles (City) enacted a Housing Code (L.A. Mun. Code, § 161.101 et seq.), which provides that residential rental properties are subject to regular inspection for substandard and unsanitary conditions. Under the Housing Code, funding for these inspections devolves to a particular class of property owners, the landlords of the rental units, who must pay a $12 fee for every unit owned. (*Id.*, § 161.352.)[1] As the majority acknowledges, "no one can rent [apartments] without owning them." (Maj. opn., *ante*, at p. 841; see also *Nash v. City of Santa Monica* (1984) 37 Cal.3d 97, 105 [207 Cal.Rptr. 285, 688 P.2d 894].) And no

one is subject to the rental inspection fee without owning them. This exaction is thus imposed "as an incident of property ownership" (art. XIII D, § 2, subd. (e)); that is, it is dependent upon such ownership. (Cf. Off. of Legis. Analyst, Understanding Proposition 218 (Dec. 1996) p. 30 ["Generally, we think these fees would be considered property-related if there were no practical way that the owner could avoid the fee, short of selling the property or fundamentally changing its use"].) Moreover, "[s]hould the owner fail to pay the required fee, the City of Los Angeles will recover it, plus accrued interest, utilizing any remedies provided by law including nuisance abatement or municipal tax lien procedures established by ordinance or state law." (L.A. Mun. Code, § 161.352.) The use of tax lien procedures is a typical enforcement mechanism for delinquent levies imposed against property.

The majority avoids this result in part by finding the City "imposes a fee on its subjects by virtue of their ownership of a business-i.e., because they are landlords." (Maj. opn., *ante*, at p. 842.) The last portion of this statement proves too much: Landlords are property owners. Imposition of the fee is an incident of, i.e., depends upon, that status and thereby runs afoul of article XIII D. As for the first portion of the statement, it ignores or disregards what the majority elsewhere concedes, that the business at issue is inseparable from property ownership. No amount of parsing can change that ineluctable fact. ***847**

The majority also concludes "neither the ballot arguments nor the Legislative Analyst's analysis suggested that article XIII D was intended to encompass fees of the type at issue here." (Maj. opn., *ante*, at p. 843.) Ultimately, the terms of the measure as enacted control our interpretation (see *Kopp v. Fair Pol. Practices Com.* (1995) 11 Cal.4th 607, 673 [47 Cal.Rptr.2d 108, 905 P.2d 1248] (conc. opn. of Mosk, J.)); and their plain meaning does not support the majority's reasoning. But the ballot materials also belie the majority's conclusion. While those materials do not specifically mention rental inspection fees, such an intention is readily discernable from any fair reading. The Legislative Analyst warned generally that "[t]his measure would constrain local governments' ability to impose fees" and "[r]educe the amount of fees ... businesses pay." (Ballot Pamp., Gen. Elec. (Nov. 5, 1996), analysis of Prop. 218 by the Legis. Analyst, p. 73 (Ballot Pamphlet).) More particularly, the Legislative Analyst's list of "most likely fees and assessments affected by these provisions" (*id.* at p. 74) easily encompasses this type of exaction: "park and recreation programs, fire protection, lighting, ambulance, business improvement programs, library, and water service." (*Ibid.*) The argument in favor of Proposition 218 reminded the electorate that "[a]fter voters passed Proposition 13, politicians created a loophole in the law that allows them to raise taxes without voter approval by calling taxes 'assessments' and 'fees.' " (Ballot Pamp., *supra*, argument in favor of Prop. 218, p. 76.) "Proposition 218 guarantees your right to vote on local tax increases-even when they are called something else, like 'assessments' or 'fees' ...." (*Ibid.*) The argument did not limit the type of "fee" that would be subject to a vote under article XIII D but instead promised, "Proposition 218 ... stops politicians' end-runs around Proposition 13." (Ballot Pamp., *supra*, rebuttal to argument against Prop. 218, p. 77.) Particularly in light of its timing, the City's rental inspection fee appears to be just the kind of evasive maneuver at which proponents aimed Proposition 218. (See generally *Huntington Park Redevelopment Agency v. Martin* (1985) 38 Cal.3d 100, 105 [211 Cal.Rptr. 133, 695 P.2d 220] [purpose, in part, of Prop. 13 was "to prevent the government from recouping its losses from decreased property taxes by imposing or increasing other taxes"].)

In this regard, the majority also fails to accord any significance to two important provisions of Proposition 218. In any action challenging imposition of a new or increased fee or charge, the initiative assigns to the agency "the burden ... to demonstrate compliance with this article" (art. XIII D, § 6, subd. (b)(5)), thereby reversing the usual deference accorded governmental action in such matters and making it more difficult to defend its legitimacy. (See Ballot Pamp., *supra*, analysis of Prop. 218 by the Legis. ***848** Analyst, p. 74; see also art. XIII D, § 4, subd. (f) [imposing same burden for assessments].) The voters also expressly provided that Proposition 218 "shall be liberally construed to effectuate its purposes of limiting local government revenue and enhancing taxpayer consent." (Ballot Pamp., *supra*, text of Prop. 218, § 5, p. 109, also reprinted as Historical Notes, 2A West's Ann. Cal. Const. (2000 supp.) foll. art. XIII C, § 1, p. 25.) The majority's construction frustrates both these goals.

The City argues that conditioning imposition of its rental inspection fee on compliance with the procedures set forth in article XIII D would allow landlords to defeat regulation of their businesses. This argument misses two critical points: First and generally, since the City has

decided its rental inspections are necessary to eradicate "substandard and unsanitary residential buildings and dwelling units the physical conditions and characteristics of which ... are such as to be detrimental to or jeopardize the health, safety and welfare of their occupants and of the public" (L.A. Mun. Code, § 161.102), it can reasonably expect the public to pay for the program.

Second and specifically, the Los Angeles Municipal Code already provides substantial enforcement authority to prosecute landlords who violate the City's Housing Code. If a property owner fails to correct violations, the City may recover its administrative as well as abatement costs (L.A. Mun. Code, § 161.206.2), may seek criminal penalties including fines and imprisonment (*id.*, § 161.206.3), and may pursue civil remedies as provided in the Health and Safety Code (L.A. Mun. Code, § 161.206.4).

When the voters passed Proposition 13 in 1978, they sought to restrict the ability of government to impose taxes and other charges on property owners without their approval. For almost two decades, however, they witnessed politicians evade this constitutional limitation. The message of Proposition 218 is that they meant what they said. With the majority turning a deaf ear to that message, we may well expect a future effort to "stop[] politicians' end-runs around Proposition 13." (Ballot Pamp., *supra*, rebuttal to argument against Prop. 218, p. 77.)

Baxter, J., concurred. ***849**

Footnotes

1 We have also received several amicus curiae briefs. Along with one of them is a request to judicially notice three purported local mobilehome park rent control ordinances and two other documents regarding that topic. The request is denied. The five documents have no bearing on the question before us.
Amici curiae also include a printed discussion issued by the Legislative Analyst in December 1996 and entitled Understanding Proposition 218. This document contains material relevant to the question at bench, and we grant the request for judicial notice regarding it. (Evid. Code, §§ 452, subd. (c), 459, subd. (a).)

2 Over time, "incident" has meant many things. As a noun, the meanings include the burden of the risk of a diminution of the value of real property during condemnation proceedings (*Agins v. City of Tiburon* (1980) 447 U.S. 255, 263, fn. 9 [100 S.Ct. 2138, 2143, 65 L.Ed.2d 106]), the " 'burdens and disabilities' " of slavery prohibited by the Thirteenth Amendment to the United States Constitution (*Jones v. Mayer Co*. (1968) 392 U.S. 409, 441 [88 S.Ct. 2186, 2204, 20 L.Ed.2d 1189]), or, in earlier times, the monetary obligations imposed by the king or a mesne lord (McPherson, *Revisiting the Manor of East Greenwich* (1998) 42 Am. J. Legal Hist. 35, 39; see also 2 Coke (1641) Institutes of the Lawes of England (Butler & Hargrave's Notes ed.) 69a, § 95, fn. 7). And, in a more general sense, the meanings of "incident" include benefits or duties that appertain to some greater right or interest, i.e., the principal. (Civ. Code, §§ 662, 1084, 3540; *Owsley v. Hamner* (1951) 36 Cal.2d 710, 716-717 [227 P.2d 263, 24 A.L.R.2d 112]; *Fender v. Waller* (1941) 139 Neb. 612, 616 [298 N.W. 349, 351]; *Harris v. Elliott* (1836) 35 U.S. (10 Pet.) 25, 54 [9 L.Ed. 333].) In its fourth edition (1897), Bouvier's Law Dictionary defined "incident" as a term "used both substantively and adjectively of a thing which, either usually or naturally and inseparably depends upon, appertains to, or follows another that is more worthy. For example, ... the right of alienation is necessarily incident to a fee-simple at common law ...." (*Id.* at p. 1006, col. 1.) Many cases have followed the Bouvier's Law Dictionary definition, or ones similar to it. (E.g., *Watts v. Copeland* (1933) 170 S.C. 449, 452 [170 S.E. 780]; *Moccasin State Bank v. Waldron* (1928) 81 Mont. 579, 586 [264 P. 940].) "Thus, timber trees are incident to the freehold, and so is a right of way." (*In re Estate of Bellesheim* (N.Y. Surr. 1888) 1 N.Y.S. 276, 278 [dictum]; accord, *Harris v. Elliott*, *supra*, 35 U.S. (10 Pet.) at p. 54 [9 L.Ed. at p. 344] [easements]; Black's Law Dict. (7th ed. 1999) p. 765, col. 1 ["the utility easement is incident to the ownership of the tract"].)

3 It is, of course, axiomatic in Anglo-American law that ownership of real property in fee simple absolute is the greatest possible estate (1 Coke (1628) Institutes of the Lawes of England (Butler & Hargrave's Notes ed.) 18a, § 11), and among the panoply of lesser estates are such nonfreehold chattels real as leases for a specific term and periodic tenancies (*Pacific Southwest Realty Co. v. County of Los Angeles* (1991) 1 Cal.4th 155, 162 [2 Cal.Rptr.2d 536, 820 P.2d 1046])-in common parlance, rentals or leases of limited duration. (1 Tiffany, The Law of Real Property (3d ed. 1939) § 76, pp. 112-113; *Wilgus v. Commonwealth* (1873) 72 Ky. (9 Bush.) 556, 557 [1873 WL 6660], citing 2 Blackstone, Commentaries 143 [" 'An estate for years in land is regarded in law as inferior to an estate for life or an inheritance' "]; *Brydges v.*

Millionair Club (1942) 15 Wash.2d 714, 719 [132 P.2d 188, 190]; see also *Williams v. R. R.* (1921) 182 N.C. 267, 272 [108 S.E. 915, 918].)

4 In *Acme Freight Lines v. City of Vidalia* (1942) 193 Ga. 334 [18 S.E.2d 540] (*Acme Freight*), similar statutory language favored an analogous argument-that a tax on an incident of the trucking business was a tax on a trucking company's ancillary delivery business.

In *Acme Freight*, a trucking company sought an injunction against a city's practice of imposing a business tax on those ancillary operations. The firm relied on this law: " 'No subdivision of this State ... shall levy any excise, license, or occupation tax of any nature *on* ... *any incidents* of said motor carrier business, or on a motor common carrier.' " (*Acme Freight, supra*, 193 Ga. 334, 335 [18 S.E.2d 540, 541], italics added.)

The city, Vidalia, acknowledged "its lack of authority to levy any tax against the plaintiff in reference to its transportation of freight as a motor common carrier .... Justification for the tax is founded upon the fact that, in addition to the operation of trucks for the transportation of freight ..., the plaintiff carries on ... a 'pick-up and delivery service' in and around the city. The trial judge ruled that this 'is not a *necessary* incident to the operation of a common carrier,' and that as to it 'the plaintiff is not a motor common carrier, but is engaged in a special and distinct business in the City of Vidalia, and is taxable as such.' This formula interpolates before the word 'incidents,' used in the statute, the word 'necessary' so as to require, as a condition of tax immunity, that the operation be a necessary incident of the business of a motor common carrier. This appears to us to be erroneous. [Rather,] ... an incident of the business of a motor common carrier of freight would be something naturally associated as pertinent to such transportation and necessarily dependent upon it, but without which the business of transportation might nevertheless be carried on. In other words, the incidental operation would be necessarily dependent upon the transportation, but the business of transportation would not be necessarily dependent upon the incidental operation.... As we understand the evidence adduced in this case, the plaintiff's operations against which the tax is said to be levied is of the above-described character; and accordingly we conclude that the tax is illegal, and should have been enjoined." (*Acme Freight*, *supra*, 193 Ga. 334, 335-336 [18 S.E.2d 540, 541].)

5 We acknowledge that landlords may rent because they wish to keep the property occupied in their absence, for philanthropic reasons, or to a family member for a nominal charge. Such arrangements are not rare, and may lie within the province of the ordinance, which refers to "residential rental properties." But even nonprofit or charitable purposes are business purposes under broad constructions of the term, and we believe that as long as the property is being rented for consideration, it is being conveyed for a business purpose. (Cf. *Marin Municipal Water Dist. v. Chenu* (1922) 188 Cal. 734, 738 [207 P. 251] [" 'business' " has "a narrower meaning applicable to occupation or employment for livelihood or gain, and to mercantile or commercial enterprises or transactions"].)

6 We turn to discuss briefly the authorities on which the city chiefly relies. They consist of two cases: *Sinclair Paint Co. v. State Bd. of Equalization*, *supra*, 15 Cal.4th 866; and *Pennell v. City of San Jose* (1986) 42 Cal.3d 365 [228 Cal.Rptr. 726, 721 P.2d 1111] (affd. *sub nom*. *Pennell v. San Jose* (1988) 485 U.S. 1 [108 S.Ct. 849, 99 L.Ed.2d 1]). They are inapposite. In *Sinclair* we held that an exaction on sources of lead contamination to remediate the effects of lead poisoning was a fee, not a tax. In *Pennell*, we held that a $3.75 charge on each residential rental unit, imposed by a rent control ordinance to fund its hearing process, also was a fee, not a tax. In *Sinclair* and *Pennell*, we defined such fees, which are similar to the city's inspection charge, as regulatory in nature. Regulatory fees are those " ' "charged in connection with regulatory activities[,] which fees do not exceed the reasonable cost of providing services necessary to the activity for which the fee is charged and which are not levied for unrelated revenue purposes." ' " (*Sinclair Paint Co. v. State Bd. of Equalization*, *supra*, 15 Cal.4th 866, 876, quoting *Pennell v. City of San Jose*, *supra*, 42 Cal.3d 365, 375, in turn quoting *Mills v. County of Trinity* (1980) 108 Cal.App.3d 656, 659-660 [166 Cal.Rptr. 674], bracketed material added here.)

We have stated that the city's inspection fee is a regulatory fee. And we have concluded that it does not fall within article XIII D's ambit. But *Sinclair* and *Pennell* do not concern themselves with the issue we confront here. Indeed, in *Sinclair* we cautioned that "We are not here concerned with issues arising under constitutional amendments effected by a recent initiative measure (Proposition 218) adopted at the November 5, 1996, General Election. That measure contains new restrictions on local agencies' power to impose fees and assessments." (*Sinclair Paint Co. v. State Bd. of Equalization*, *supra*, 15 Cal.4th 866, 873, fn. 2.) In *Pennell v. City of San Jose, supra*, 42 Cal.3d 365, we could not have written a similar caveat, for article XIII D did not exist at the time. But it applies just as well.

1 Los Angeles Municipal Code section 161.352 provides: "*Owners* of all buildings subject to inspection shall pay a service fee of $12.00 per unit per year. The fee will be used to finance the cost of inspection and enforcement by the Housing Department. Should the *owner* fail to pay the required fee, the City of Los Angeles will recover it, plus accrued interest, utilizing any remedies provided by law including nuisance abatement or municipal tax lien procedures established by ordinance or state law. This fee shall be known as the 'Systematic Code Enforcement Program Fee.' " (Italics added.)

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ATTACHMENT 16

See: California Regional Water Quality Control Board, *Water Quality Control Plan for the San Diego Region (Basin Plan)* at http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/

124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 04 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492
(Cite as: 124 Cal.App.4th 866, 22 Cal.Rptr.3d 128)

H

Court of Appeal, Fourth District, Division 1, California.
BUILDING INDUSTRY ASSOCIATION OF SAN DIEGO COUNTY et al., Plaintiffs and Appellants,
v.
STATE WATER RESOURCES CONTROL BOARD et al., Defendants and Respondents,
San Diego Baykeeper et al., Interveners and Respondents.

No. D042385.
Dec. 7, 2004.
Certified for Partial Publication.[FN1]

FN1. Pursuant to California Rules of Court, rule 976.1, this opinion is certified for publication with the exception of Discussion parts III, IV, V, VI and VII.

As Modified on Denial of Rehearing Jan. 4, 2005.
Review Denied March 30, 2005.[FN*]

FN* Baxter, J., and Brown, J., dissented.

Background: Building industry association filed petition for writ of mandate against regional and state water control boards, challenging issuance of comprehensive municipal stormwater sewer permit, as including water quality standard provisions which allegedly were too stringent and impossible to satisfy, and so violative of federal Clean Water Act standard. Environmental groups intervened as defendants. The Superior Court, San Diego County, Wayne L. Peterson, J., denied petition. Association appealed.

Holding: The Court of Appeal, Haller, J., held that water boards were not prohibited by Clean Water Act "maximum extent practicable" standard of stormwater pollutant abatement from including provisions in permit which required that municipalities comply with state water quality standards.

Affirmed.

West Headnotes

[1] Administrative Law and Procedure 15A 749

15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions
15AV(D) Scope of Review in General
15Ak749 k. Presumptions. Most Cited Cases

Administrative Law and Procedure 15A 750

15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions
15AV(D) Scope of Review in General
15Ak750 k. Burden of Showing Error. Most Cited Cases

In exercising its independent judgment when reviewing an administrative proceeding, a trial court must afford a strong presumption of correctness concerning the administrative findings, and the party challenging the administrative decision bears the burden of convincing the court that the administrative findings are contrary to the weight of the evidence.

[2] Administrative Law and Procedure 15A 683

15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions
15AV(A) In General
15Ak681 Further Review
15Ak683 k. Scope. Most Cited Cases

On review of a trial court's determination of a challenge to an administrative ruling, the Court of Appeal applies a substantial evidence standard when reviewing the trial court's factual determinations on the administrative record.

[3] Administrative Law and Procedure 15A

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124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 04 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492
(Cite as: 124 Cal.App.4th 866, 22 Cal.Rptr.3d 128)

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15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions
15AV(A) In General
15Ak681 Further Review
15Ak683 k. Scope. Most Cited Cases

On review of a trial court's determination of a challenge to an administrative ruling, an appellate court conducts a de novo review of the trial court's legal determinations, and is also not bound by the legal determinations made by the agency.

[4] Statutes 361 219(1)

361 Statutes
361VI Construction and Operation
361VI(A) General Rules of Construction
361k213 Extrinsic Aids to Construction
361k219 Executive Construction
361k219(1) k. In General. Most Cited Cases

Court of Appeal gives appropriate consideration to an administrative agency's expertise underlying its interpretation of an applicable statute.

[5] Statutes 361 219(6.1)

361 Statutes
361VI Construction and Operation
361VI(A) General Rules of Construction
361k213 Extrinsic Aids to Construction
361k219 Executive Construction
361k219(6) Particular Federal Statutes
361k219(6.1) k. In General. Most Cited Cases

In determining the meaning of the Clean Water Act and its amendments, federal courts generally defer to the construction of a statutory provision by the Environmental Protection Agency (EPA) if the disputed portion of the statute is ambiguous. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., 33 U.S.C.A. § 1251 et seq.

[6] Statutes 361 219(6.1)

361 Statutes
361VI Construction and Operation
361VI(A) General Rules of Construction
361k213 Extrinsic Aids to Construction
361k219 Executive Construction
361k219(6) Particular Federal Statutes
361k219(6.1) k. In General. Most Cited Cases

Court of Appeal considers and gives due deference to statutory interpretations of Clean Water Act by regional and state water control boards. Federal Water Pollution Control Act Amendments of 1972, § 101 et seq., 33 U.S.C.A. § 1251 et seq.

[7] Environmental Law 149E 197

149E Environmental Law
149EV Water Pollution
149Ek194 Permits and Certifications
149Ek197 k. Conditions and Limitations. Most Cited Cases

Regional and state water control boards, in issuing comprehensive municipal stormwater sewer permit, were not prohibited by Clean Water Act "maximum extent practicable" standard of stormwater pollutant abatement from including provisions in permit which required that municipalities comply with state water quality standards; language of pertinent statute communicated basic principle that boards, which had been federally approved to issue permit, retained discretion to impose appropriate water pollution controls in addition to those that came within definition of "maximum extent practicable," this principle was consistent with legislative history and purpose of Act, and there was no showing that applicable water quality standards were unattainable. Federal Water Pollution Control Act Amendments of 1972, § 402(p)(3)(B)(iii), 33 U.S.C.A. § 1342(p)(3)(B)(iii).
See 4 Witkin, Summary of Cal. Law (9th ed. 1987) Real Property, §§ 66-69; Cal. Jur. 3d, Pollution and Conservation Laws, § 113 et seq.

[8] Statutes 361 200

361 Statutes
361VI Construction and Operation
361VI(A) General Rules of Construction
361k187 Meaning of Language

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124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 04 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492
(Cite as: 124 Cal.App.4th 866, 22 Cal.Rptr.3d 128)

361k200 k. Mistakes in Writing; Grammar, Spelling, or Punctuation. Most Cited Cases

While punctuation and grammar should be considered in interpreting a statute, neither is controlling unless the result is in harmony with the clearly expressed intent of the Legislature.

[9] Statutes 361 214

361 Statutes
361VI Construction and Operation
361VI(A) General Rules of Construction
361k213 Extrinsic Aids to Construction
361k214 k. In General. Most Cited Cases

If the statutory language is susceptible to more than one reasonable interpretation, a court must look to a variety of extrinsic aids to interpreting the statute, including the ostensible objects to be achieved, the evils to be remedied, the legislative history, public policy, contemporaneous administrative construction, and the statutory scheme of which the statute is a part.

[10] Appeal and Error 30 900

30 Appeal and Error
30XVI Review
30XVI(G) Presumptions
30k900 k. Nature and Extent in General. Most Cited Cases

Appeal and Error 30 901

30 Appeal and Error
30XVI Review
30XVI(G) Presumptions
30k901 k. Burden of Showing Error. Most Cited Cases

All lower court judgments and orders are presumed correct, and persons challenging them on appeal must affirmatively show reversible error.

[11] Appeal and Error 30 757(3)

30 Appeal and Error
30XII Briefs
30k757 Statement of Case or of Facts
30k757(3) k. Statement of Evidence. Most Cited Cases

A party challenging the sufficiency of evidence to support a judgment on appeal must summarize, and cite to, all of the material evidence, not just the evidence favorable to his or her appellate positions.

[12] Administrative Law and Procedure 15A 750

15A Administrative Law and Procedure
15AV Judicial Review of Administrative Decisions
15AV(D) Scope of Review in General
15Ak750 k. Burden of Showing Error. Most Cited Cases

The party challenging the scope of an administrative permit has the burden of showing the agency abused its discretion or its findings were unsupported by the facts.

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HALLER, J.

***871** This case concerns the environmental regulation of municipal storm sewers that carry excess water runoff to lakes, lagoons, rivers, bays, and the ocean. The waters flowing through these sewer systems have accumulated numerous harmful pollutants that are then discharged into the water body without receiving any treatment. To protect against the resulting water quality impairment, federal and state laws impose regulatory controls on storm sewer discharges. In particular, municipalities and other public entities are required to obtain, and comply with, a regulatory permit limiting the quantity and quality of water runoff that can be discharged from these storm sewer systems.

In this case, the California Regional Water Control Board, San Diego Region, (Regional Water Board) conducted numerous public hearings and then issued a comprehensive municipal storm sewer permit governing 19 local public entities. Although these entities did not bring an administrative challenge to the permit, one business organization, the Building Industry Association of San Diego County (Building Industry), filed an administrative appeal with the State Water Resources Control Board (State Water Board). After making some modifications to the permit, the State Water Board denied the appeal. Building Industry then petitioned for a writ of mandate in the superior court, asserting numerous claims, including that the permit violates state and federal law because the permit provisions are too stringent and impossible to satisfy. Three environmental groups intervened as defendants in the action. After a hearing, the trial court found Building Industry failed to prove its claims and entered judgment in favor of the administrative agencies (the Water Boards) and the intervener environmental groups.

On appeal, Building Industry's main contention is that the regulatory permit violates federal law because it allows the Water Boards to impose municipal storm sewer control measures more stringent than a federal standard known as "maximum extent practicable." (****131**33 U.S.C. § 1342(p)(3)(B)(iii).) [FN2] In the published portion of this opinion, we reject this contention, and conclude the Water Boards had the authority to include a permit provision requiring compliance with state water quality standards. In the unpublished portion of the opinion, we find Building Industry's additional contentions to be without merit. We affirm the judgment.

FN2. Further statutory references are to title 33 of the United States Code, unless otherwise specified.

***872** RELEVANT BACKGROUND INFORMATION

I. *Summary of Relevant Clean Water Act Provisions*

Before setting forth the factual background of this particular case, it is helpful to summarize the federal and state statutory schemes for regulating municipal storm sewer discharges.[FN3]

FN3. The systems that carry untreated urban water runoff to receiving water bodies are known as "[m]unicipal separate storm sewer" systems (40 C.F.R. § 122.26(b)(8)), and are often referred to as "MS4s" (40 C.F.R. § 122.30). For readability, we will identify these systems as municipal storm sewers. To avoid confusion in this case, we will generally use descriptive names, rather than initials or acronyms, when referring to parties and concepts.

A. *Federal Statutory Scheme*

When the United States Congress first enacted the Federal Water Pollution Control Act in 1948, the Congress relied primarily on state and local enforcement efforts to remedy water pollution problems. (*Middlesex Cty. Sewerage Auth. v. Sea Clammers* (1981) 453 U.S. 1, 11, 101 S.Ct. 2615, 69 L.Ed.2d 435; *Tahoe–Sierra Preservation Council v. State Water Resources Control Bd.* (1989) 210 Cal.App.3d 1421, 1433, 259 Cal.Rptr. 132.) However, by the early 1970's, it became apparent that this reliance on local enforcement was ineffective and had resulted in the "accelerating environmental degradation of rivers, lakes, and streams...." (*Natural Resources Defense Council, Inc. v. Costle* (D.C.Cir.1977) 568 F.2d 1369, 1371 (*Costle*); see *EPA v. State Water Resources Control Board* (1976) 426 U.S. 200, 203, 96 S.Ct. 2022, 48 L.Ed.2d 578.) In response, in 1972 Congress substantially amended this law by mandating compliance with various minimum technological effluent standards established by the federal government and creating a comprehensive regulatory scheme to implement these laws. (See *EPA v. State Water Resources Control Board*, *supra*, 426 U.S. at pp.

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204–205, 96 S.Ct. 2022.) The objective of this law, now commonly known as the Clean Water Act, was to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." (§ 1251(a).)

The Clean Water Act employs the basic strategy of prohibiting pollutant emissions from "point sources" [FN4] unless the party discharging the pollutants obtains a permit, known as an NPDES [FN5] permit. (See *EPA v. State Water Resources Control Board, supra,* 426 U.S. at p. 205, 96 S.Ct. 2022.) It is "unlawful ***873** for any person to discharge a pollutant without obtaining a permit and complying with its terms." (*Ibid.;* § 1311(a); see ****132***Costle, supra,* 568 F.2d at p. 1375.) An NPDES permit is issued by the United States Environmental Protection Agency (EPA) or by a state that has a federally approved water quality program. (§ 1342(a), (b); *EPA v. State Water Resources Control Board, supra,* 426 U.S. at p. 209, 96 S.Ct. 2022.) Before an NPDES is issued, the federal or state regulatory agency must follow an extensive administrative hearing procedure. (See 40 C.F.R. §§ 124.3, 124.6, 124.8, 124.10; see generally Wardzinski et al., *National Pollutant Discharge Elimination System Permit Application and Issuance Procedures,* in The Clean Water Act Handbook (Evans edit., 1994) pp. 72–74 (Clean Water Act Handbook).) NPDES permits are valid for five years. (§ 1342(b)(1)(B).)

> FN4. The Clean Water Act defines a "point source" to be "any discernible, confined and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged." (§ 1362(14).)

> FN5. NPDES stands for National Pollution Discharge Elimination System.

Under the Clean Water Act, the proper scope of the controls in an NPDES permit depends on the applicable state water quality standards for the affected water bodies. (See *Communities for a Better Environment v. State Water Resources Control Bd.* (2003) 109 Cal.App.4th 1089, 1092, 1 Cal.Rptr.3d 76.) Each state is required to develop water quality standards that establish " 'the desired condition of a waterway.' " (*Ibid.*) A water quality standard for any given water segment has two components: (1) the designated beneficial uses of the water body; and (2) the water quality criteria sufficient to protect those uses. (*Ibid.*) As enacted in 1972, the Clean Water Act mandated that an NPDES permit require compliance with state water quality standards and that this goal be met by setting forth a specific "effluent limitation," which is a restriction on the amount of pollutants that may be discharged at the point source. (§§ 1311, 1362(11).)

Shortly after the 1972 legislation, the EPA promulgated regulations exempting most municipal storm sewers from the NPDES permit requirements. (*Costle, supra,* 568 F.2d at p. 1372; see *Defenders of Wildlife v. Browner* (9th Cir.1999) 191 F.3d 1159, 1163 (*Defenders of Wildlife*).) When environmental groups challenged this exemption in federal court, the Ninth Circuit held a storm sewer is a point source and the EPA did not have the authority to exempt categories of point sources from the Clean Water Act's NPDES permit requirements. (*Costle, supra,* 568 F.2d at pp. 1374–1383.) The *Costle* court rejected the EPA's argument that effluent-based storm sewer regulation was administratively infeasible because of the variable nature of storm water pollution and the number of affected storm sewers throughout the country. (*Id.* at pp. 1377–1382.) Although the court acknowledged the practical problems relating to storm sewer regulation, the court found the EPA had the flexibility under the Clean Water Act to design regulations that would overcome these problems. (*Id.* at pp. 1379–1383.)

***874** During the next 15 years, the EPA made numerous attempts to reconcile the statutory requirement of point source regulation with the practical problem of regulating possibly millions of diverse point source discharges of storm water. (*Defenders of Wildlife, supra,* 191 F.3d at p. 1163; see Gallagher, *Clean Water Act* in Environmental Law Handbook (Sullivan edit., 2003) p. 300 (Environmental Law Handbook); Eisen, *Toward a Sustainable Urbanism: Lessons from Federal Regulation of Urban Stormwater Runoff* (1995) 48 Wash. U.J. Urb. & Contemp. L. 1, 40–41 (*Regulation of Urban Stormwater Runoff*).)

Eventually, in 1987, Congress amended the Clean Water Act to add provisions that specifically con-

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cerned NPDES permit requirements for storm sewer discharges. (§ 1342(p); see ****133***Defenders of Wildlife, supra*, 191 F.3d at p. 1163; *Natural Resources Defense Council v. U.S. E.P.A.* (1992) 966 F.2d 1292, 1296.) In these amendments, enacted as part of the Water Quality Act of 1987, Congress distinguished between industrial and municipal storm water discharges. With respect to *industrial* storm water discharges, Congress provided that NPDES permits "shall meet all applicable provisions of this section and section 1311 [requiring the EPA to establish effluent limitations under specific timetables] ...." (§ 1342(p)(3)(A).) With respect to *municipal* storm water discharges, Congress clarified that the EPA had the authority to fashion NPDES permit requirements to meet water quality standards without specific numerical effluent limits and instead to impose "controls to reduce the discharge of pollutants to the maximum extent practicable ...." (§ 1342(p)(3)(B)(iii); see *Defenders of Wildlife, supra*, 191 F.3d at p. 1163.) Because the statutory language pertaining to municipal storm sewers is at the center of this appeal, we quote the relevant portion of the statute in full:

> "(B) Permits for discharges from municipal storm sewers—
>
> "(i) may be issued on a system- or jurisdiction-wide basis;
>
> "(ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and
>
> "(iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." (§ 1342(p)(3)(B).)

To ensure this scheme would be administratively workable, Congress placed a moratorium on many new types of required stormwater permits until 1994 (§ 1342(p)(1)), and created a phased approach to necessary municipal ***875** stormwater permitting depending on the size of the municipality (§ 1342(p)(2)(D)). (See *Environmental Defense Center, Inc. v. U.S. E.P.A.* (9th Cir.2003) 344 F.3d 832, 841–842.)

B. *State Statutory Scheme*

Three years before the 1972 Clean Water Act, the California Legislature enacted its own water quality protection legislation, the Porter–Cologne Water Quality Control Act (Porter–Cologne Act), seeking to "attain the highest water quality which is reasonable...." (Wat.Code, § 13000.) The Porter–Cologne Act created the State Water Board to formulate statewide water quality policy and established nine regional boards to prepare water quality plans (known as basin plans) and issue permits governing the discharge of waste. (Wat.Code, §§ 13100, 13140, 13200, 13201, 13240, 13241, 13243.) The Porter–Cologne Act identified these permits as "waste discharge requirements," and provided that the waste discharge requirements must mandate compliance with the applicable regional water quality control plan. (Wat.Code, §§ 13263, subd. (a), 13377, 13374.)

Shortly after Congress enacted the Clean Water Act in 1972, the California Legislature added chapter 5.5 to the Porter–Cologne Act, for the purpose of adopting the necessary federal requirements to ensure it would obtain EPA approval to issue NPDES permits. (Wat.Code, § 13370, subd. (c).) As part of these amendments, the Legislature provided that the state and regional water boards "shall, as required or authorized by the [Clean Water Act], issue waste discharge requirements ... which apply and ensure compliance with all applicable provisions ****134** [of the Clean Water Act], together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance." (Wat.Code, § 13377.) Water Code section 13374 provides that "[t]he term 'waste discharge requirements' as referred to in this division is the equivalent of the term 'permits' as used in the [Clean Water Act]."

California subsequently obtained the required approval to issue NPDES permits. (*WaterKeepers Northern California v. State Water Resources Control Bd.* (2002) 102 Cal.App.4th 1448, 1453, 126 Cal.Rptr.2d 389.) Thus, the waste discharge requirements issued by the regional water boards ordinarily also serve as NPDES permits under federal law. (Wat.Code, § 13374.)

II. *The NPDES Permit at Issue in this Case*

Under its delegated authority and after numerous

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public hearings, in February 2001 the Regional Water Board issued a 52–page NPDES permit ***876** and Waste Discharge Requirements (the Permit) governing municipal storm sewers owned by San Diego County, the San Diego Unified Port District, and 18 San Diego-area cities (collectively, "Municipalities").[FN6] The first 10 pages of the Permit contain the Regional Water Board's detailed factual findings. These findings describe the manner in which San Diego-area water runoff absorbs numerous harmful pollutants and then is conveyed by municipal storm sewers into local waters without any treatment. The findings state that these storm sewer discharges are a leading cause of water quality impairment in the San Diego region, endangering aquatic life and human health. The findings further state that to achieve applicable state water quality objectives, it is necessary not only to require municipalities to comply with existing pollution-control technologies, but also to require compliance with applicable "receiving water limits" (state water quality standards) and to employ an "iterative process" of "development, implementation, monitoring, and assessment" to improve existing technologies.

> FN6. Under the Clean Water Act, entities responsible for NPDES permit conditions pertaining to their own discharges are referred to as "copermittees." (40 C.F.R. § 122.26(b)(1).) For clarity and readability, we shall refer to these entities as Municipalities.

Based on these factual findings, the Regional Water Board included in the Permit several overall prohibitions applicable to municipal storm sewer discharges. Of critical importance to this appeal, these prohibitions concern two categories of restrictions. First, the Municipalities are prohibited from discharging those pollutants "which have not been reduced to the *maximum extent practicable.... "* [FN7] (Italics added). Second, the Municipalities are ****135** prohibited from discharging pollutants "which cause or contribute to exceedances of receiving water quality objectives ..." and/or that "cause or contribute to the violation of water quality standards...." This second category of restrictions (referred to in this opinion as the "Water Quality Standards provisions") essentially provide that a Municipality may not discharge pollutants if those pollutants would cause the receiving water body to exceed the applicable water quality standard. It is these latter restrictions that are challenged by Building Industry in this appeal.

> FN7. The Permit does not precisely define this phrase, and instead, in its definition section, contains a lengthy discussion of the variable nature of the maximum extent practicable concept, referred to as MEP. A portion of this discussion is as follows: "[T]he definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their [local storm sewer plan]. Their total collective and individual activities conducted pursuant to the [plan] becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for municipal separate storm sewer maintenance). In the absence of a proposal acceptable to the [Regional Water Board], the [Regional Water Board] defines MEP." The definition also identifies several factors that are "useful" in determining whether an entity has achieved the maximum extent practicable standard, including "Effectiveness," "Regulatory Compliance," "Public Acceptance," "Cost," and "Technical Feasibility."

***877** Part C of the Permit (as amended) qualifies the Water Quality Standards provisions by detailing a procedure for enforcing violations of those standards through a step-by-step process of "timely implementation of control measures ...," known as an "iterative" process. Under this procedure, when a municipality "caus[es] or contribute[s] to an exceedance of an applicable water quality standard," the municipality must prepare a report documenting the violation and describing a process for improvement and prevention of further violations. The municipality and the regional water board must then work together at improving methods and monitoring progress to achieve compliance. But the final provision of Part C states that "Nothing in this section shall prevent the [Regional Water Board] from enforcing any provision of this Order while the [municipality] prepares and implements the above report."

In addition to these broad prohibitions and enforcement provisions, the Permit requires the Municipalities to implement, or to require businesses and

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residents to implement, various pollution control measures referred to as "best management practices," which reflect techniques for preventing, slowing, retaining or absorbing pollutants produced by storm-water runoff. These best management practices include structural controls that minimize contact between pollutants and flows, and non-structural controls such as educational and public outreach programs. The Permit also requires the Municipalities to regulate discharges associated with new development and redevelopment and to ensure a completed project will not result in significantly increased discharges of pollution from storm water runoff.

III. *Administrative and Trial Court Challenges*

After the Regional Water Board issued the Permit, the Building Industry, an organization representing the interests of numerous construction-related businesses, filed an administrative challenge with the State Water Board. Although none of the Municipalities joined in the administrative appeal, Building Industry claimed its own independent standing based on its assertion that the Permit would impose indirect obligations on the regional building community. (See Wat.Code, § 13320 [permitting any "aggrieved person" to challenge regional water board action].) Among its numerous contentions, Building Industry argued that the Water Quality Standards provisions in the Permit require strict compliance with state water quality standards beyond what is "practicable" and therefore violate federal law.

In November 2001, the State Water Board issued a written decision rejecting Building Industry's appeal after making certain modifications to the Permit. (Cal. Wat. Resources Control Bd. Order WQ2001–15 (Nov. 15, 2001).) Of particular relevance here, the State Water Board modified the Permit to make clear that the iterative enforcement process applied to the Water Quality Standards provisions in the Permit. But ***878** the State Water Board did not delete the Permit's provision stating****136** that the Regional Water Board retains the authority to enforce the Water Quality Standards provisions even if a Municipality is engaged in this iterative process.

Building Industry then brought a superior court action against the Water Boards, challenging the Regional Board's issuance of the Permit and the State Water Board's denial of Building Industry's administrative challenge.[FN8] Building Industry asserted numerous legal claims, including that the Water Boards: (1) violated the Clean Water Act by imposing a standard greater than the "maximum extent practicable" standard; (2) violated state law by failing to consider various statutory factors before issuing the Permit; (3) violated the California Environmental Quality Act (CEQA) by failing to prepare an environmental impact report (EIR); and (4) made findings that were factually unsupported.

> FN8. Several other parties were also named as petitioners: Building Industry Legal Defense Foundation, California Business Properties Association, Construction Industry Coalition for Water Quality, San Diego County Fire Districts Association, and the City of San Marcos. However, because these entities were not parties in the administrative challenge, the superior court properly found they were precluded by the administrative exhaustion doctrine from challenging the administrative agencies' compliance with the federal and state water quality laws. Although these entities were named as appellants in the notice of appeal, they are barred by the exhaustion doctrine from asserting appellate contentions concerning compliance with federal and state water quality laws. However, as to any other claims (such as CEQA), these entities are proper appellants. For ease of reference and where appropriate, we refer to the appellants collectively as Building Industry.

Three environmental organizations, San Diego BayKeeper, Natural Resources Defense Council, and California CoastKeeper (collectively, Environmental Organizations), requested permission to file a complaint in intervention, seeking to uphold the Permit and asserting a direct and substantial independent interest in the subject of the action. Over Building Industry's objections, the trial court permitted these organizations to file the complaint and enter the action as parties-interveners.

After reviewing the lengthy administrative record and the parties' briefs, and conducting an oral hearing, the superior court ruled in favor of the Water Boards and Environmental Organizations (collectively, respondents). Applying the independent judgment test, the court found Building Industry failed to meet its

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burden to establish the State Water Board abused its discretion in approving the Permit or that the administrative findings are contrary to the weight of the evidence. In particular, the court found Building Industry failed to establish the Permit requirements were "impracticable under federal law or unreasonable under state law," and noted that there was evidence showing the Regional Water Board considered many practical aspects of the regulatory ***879** controls before issuing the Permit. Rejecting Building Industry's legal arguments, the court also stated that under federal law the Water Boards had the discretion "to require strict compliance with water quality standards" or "to require less than strict compliance with water quality standards." The court also sustained several of respondents' evidentiary objections, including to documents relating to the legislative history of the Clean Water Act.

Building Industry appeals, challenging the superior court's determination that the Permit did not violate the federal Clean Water Act. In its appeal, Building Industry does not reassert its claim that the Permit violates state law, except for its contentions pertaining to CEQA.

DISCUSSION

I. *Standard of Review*

[1] A party aggrieved by a final decision of the State Water Board may obtain review of the decision by filing a timely ****137** petition for writ of mandate in the superior court. (Wat.Code, § 13330, subd. (a).) Code of Civil Procedure section 1094.5 governs the proceedings, and the superior court must exercise its independent judgment in examining the evidence and resolving factual disputes. (Wat.Code, § 13330, subd. (d).) "In exercising its independent judgment, a trial court must afford a strong presumption of correctness concerning the administrative findings, and the party challenging the administrative decision bears the burden of convincing the court that the administrative findings are contrary to the weight of the evidence." (*Fukuda v. City of Angels* (1999) 20 Cal.4th 805, 817, 85 Cal.Rptr.2d 696, 977 P.2d 693.)

[2][3][4][5][6] In reviewing the trial court's factual determinations on the administrative record, a Court of Appeal applies a substantial evidence standard. (*Fukuda v. City of Angels, supra,* 20 Cal.4th at p. 824, 85 Cal.Rptr.2d 696, 977 P.2d 693.) However, in reviewing the trial court's legal determinations, an appellate court conducts a de novo review. (See *Alliance for a Better Downtown Millbrae v. Wade* (2003) 108 Cal.App.4th 123, 129, 133 Cal.Rptr.2d 249.) Thus, we are not bound by the legal determinations made by the state or regional agencies or by the trial court. (See *Yamaha Corp. of America v. State Bd. of Equalization* (1998) 19 Cal.4th 1, 7–8, 78 Cal.Rptr.2d 1, 960 P.2d 1031.) But we must give appropriate consideration to an administrative agency's expertise underlying its interpretation of an applicable statute.[FN9] (*Ibid.*)

> FN9. We note that in determining the meaning of the Clean Water Act and its amendments, federal courts generally defer to the EPA's statutory construction if the disputed portion of the statute is ambiguous. (See *Chevron U.S.A. v. Natural Res. Def. Council, Inc.* (1984) 467 U.S. 837, 842–844, 104 S.Ct. 2778, 81 L.Ed.2d 694 (*Chevron*).) However, the parties do not argue this same principle applies to a *state agency's* interpretation of the Clean Water Act. Nonetheless, under governing state law principles, we do consider and give due deference to the Water Boards' statutory interpretations in this case. (See *Yamaha Corp. of America v. State Bd. of Equalization, supra,* 19 Cal.4th at pp. 7–8, 78 Cal.Rptr.2d 1, 960 P.2d 1031.)

***880** II. *Water Boards' Authority to Enforce Water Quality Standards in NPDES Permit*

Building Industry's main appellate contention is very narrow. Building Industry argues that two provisions in the Permit (the Water Quality Standards provisions) violate federal law because they prohibit the Municipalities from discharging runoff from storm sewers if the discharge would cause a water body to exceed the applicable water quality standard established under state law.[FN10] Building Industry contends that under federal law the "maximum extent practicable" standard is the "exclusive" measure that may be applied to municipal storm sewer discharges and a regulatory agency may not require a Municipality to comply with a state water quality standard if the required controls exceed a "maximum extent practicable" standard.

> FN10. These challenged Permit provisions state "Discharges from [storm sewers] which cause or contribute to exceedances of re-

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> ceiving water quality objectives for surface water or groundwater are prohibited" (Permit, § A.2), and "Discharges from [storm sewers] that cause or contribute to the violation of water quality standards ... are prohibited" (Permit, § C.1).

In the following discussion, we first reject respondents' contentions that Building Industry waived these arguments by failing to raise a substantial evidence challenge to the court's factual findings and/or ****138** to reassert its state law challenges on appeal. We then focus on the portion of the Clean Water Act (§ 1342(p)(3)(B)(iii)) that Building Industry contends is violated by the challenged Permit provisions. On our de novo review of this legal issue, we conclude the Permit's Water Quality Standards provisions are proper under federal law, and Building Industry's legal challenges are unsupported by the applicable statutory language, legislative purpose, and legislative history.

A. *Building Industry Did Not Waive the Legal Argument*

Respondents (the Water Boards and Environmental Organizations) initially argue that Building Industry waived its right to challenge the Permit's consistency with the maximum extent practicable standard because Building Industry did not challenge the trial court's *factual* findings that Building Industry failed to prove any of the Permit requirements were "impracticable" or "unreasonable."

In taking this position, respondents misconstrue the nature of Building Industry's appellate contention challenging the Water Quality Standards provisions. Building Industry's contention concerns the scope of the authority given to the Regional Water Board under the Permit terms. Specifically, ***881** Building Industry argues that the Regional Water Board does not have the authority to require the Municipalities to adhere to the applicable water quality standards because federal law provides that the "maximum extent practicable" standard is the exclusive standard that may be applied to storm sewer regulation. This argument—concerning the proper scope of a regulatory agency's authority—presents a purely legal issue, and is not dependent on the court's factual findings regarding the practicality of the specific regulatory controls identified in the Permit.

Respondents alternatively contend that Building Industry waived its right to challenge the propriety of the Water Quality Standards provisions under federal law because the trial court found the provisions were valid under state law and Building Industry failed to reassert its state law challenges on appeal. Under the particular circumstances of this case, we conclude Building Industry did not waive its rights to challenge the Permit under federal law.

Although it is well settled that the Clean Water Act authorizes states to impose water quality controls that are more stringent than are required under federal law (§ 1370; see *PUD No. 1 of Jefferson Cty. v. Washington Dept. of Ecology* (1994) 511 U.S. 700, 705, 114 S.Ct. 1900, 128 L.Ed.2d 716; *Northwest Environmental Advocates v. Portland* (9th Cir.1995) 56 F.3d 979, 989), and California law specifically allows the imposition of controls more stringent than federal law (Wat.Code, § 13377), the Water Boards made a tactical decision in the superior court to assert the Permit's validity based solely on federal law, and repeatedly made clear they were not seeking to justify the Permit requirements based on the Boards' independent authority to act under state law. On appeal, the Water Boards continue to rely primarily on federal law to uphold the Permit requirements, and their assertions that we may decide the matter based solely on state law are in the nature of asides rather than direct arguments. On this record, it would be improper to rely solely on state law to uphold the challenged Permit provisions.

B. *The Water Quality Standards Requirement Does Not Violate Federal Law*

[7] We now turn to Building Industry's main substantive contention on appeal—****139** that the Permit's Water Quality Standards provisions (fn.10, *ante*) violate federal law. Building Industry's contention rests on its interpretation of the 1987 Water Quality Act amendments containing NPDES requirements for municipal storm sewers. The portion of the relevant statute reads: "(B) Permits for discharges from municipal storm sewers ... [¶] ... [¶] (iii) shall require controls to reduce the discharge of pollutants to the *maximum extent practicable, including* management practices, control techniques and ***882** system, design and engineering methods, and such other provisions as the [EPA] Administrator or the State determines appropriate for the control of such pollutants." (§ 1342(p)(3)(B)(iii), italics added.)

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124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 04 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492
(Cite as: 124 Cal.App.4th 866, 22 Cal.Rptr.3d 128)

1. *Statutory Language*

Focusing on the first 14 words of subdivision (iii), Building Industry contends the statute means that the maximum extent practicable standard sets the upper limit on the type of control that can be used in an NPDES permit, and that each of the phrases following the word "*including* " identify examples of "maximum extent practicable" controls. (§ 1342(p)(3)(B)(iii), italics added.) Building Industry thus reads the final "and such other provisions" clause as providing the EPA with the authority only to include *other* types of "maximum extent practicable" controls in an NPDES storm sewer permit.

Respondents counter that the term "including" refers only to the three identified types of pollution control procedures—(1) "management practices"; (2) "control techniques"; and (3) "system, design and engineering methods"—and that the last phrase, "*and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants,*" provides the EPA (or the approved state regulatory agency) the specific authority to go beyond the maximum extent practicable standard to impose effluent limitations or water-quality based standards in an NPDES permit. In support, respondents argue that because the word "system" in section 1342(p)(3)(B)(iii) is singular, it necessarily follows from parallel-construction grammar principles that the word "system" is part of the phrase "system, design and engineering methods" rather than the phrase "control techniques and system." Under this view and given the absence of a comma after the word "techniques," respondents argue that the "and such other provisions" clause cannot be fairly read as restricted by the "maximum extent practicable" phrase, and instead the "and such other provisions" clause is a separate and distinct clause that acts as a second direct object to the verb "require" in the sentence. (§ 1342(p)(3)(B)(iii).)

Building Industry responds that respondents' proposed statutory interpretation is "not logical" because if the "and such other provisions" phrase is the direct object of the verb "require," the sentence would not make sense. Building Industry states that "permits" do not generally "require" provisions; they "include" or "contain" them.

As a matter of grammar and word choice, respondents have the stronger position. The second part of Building Industry's proposed interpretation—"control techniques and system, design, and engineering methods"—without a comma after the word "techniques" does not logically serve as a ***883** parallel construct with the "and such other provisions" clause. Moreover, we disagree that the "and such other provisions" clause cannot be a direct object to the word "require." (§ 1342(p)(3)(B)(iii).) Although it is not the clearest way of articulating the concept, the language of section 1342(p)(3)(B)(iii) does communicate the basic****140** principle that the EPA (and/or a state approved to issue the NPDES permit) retains the discretion to impose "appropriate" water pollution controls in addition to those that come within the definition of " 'maximum extent practicable.' " (*Defenders of Wildlife, supra,* 191 F.3d at pp. 1165–1167.) We find unpersuasive Building Industry's reliance on several statutory interpretation concepts, *ejusdem generis, noscitur a sociis,* and *expressio unius est exclusion alterius,* to support its narrower statutory construction.

2. *Purpose and History of Section 1342(p)(3)(B)(iii)*

[8][9] Further, "[w]hile punctuation and grammar should be considered in interpreting a statute, neither is controlling unless the result is in harmony with the clearly expressed intent of the Legislature." (*In re John S.* (2001) 88 Cal.App.4th 1140, 1144, fn. 1, 106 Cal.Rptr.2d 476; see *Estate of Coffee* (1941) 19 Cal.2d 248, 251, 120 P.2d 661.) If the statutory language is susceptible to more than one reasonable interpretation, a court must also "look to a variety of extrinsic aids, including the ostensible objects to be achieved, the evils to be remedied, the legislative history, public policy, contemporaneous administrative construction, and the statutory scheme of which the statute is a part." (*Nolan v. City of Anaheim* (2004) 33 Cal.4th 335, 340, 14 Cal.Rptr.3d 857, 92 P.3d 350.)

The legislative purpose underlying the Water Quality Act of 1987, and section 1342(p) in particular, supports that Congress intended to provide the EPA (or the regulatory agency of an approved state) the discretion to require compliance with water quality standards in a municipal storm sewer NPDES permit, particularly where, as here, that compliance will be achieved primarily through an iterative process.

Before section 1342(p) was enacted, the courts had long recognized that the EPA had the authority to require a party to comply with a state water quality

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124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 04 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492
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standard even if that standard had not been translated into an effluent limitation. (See *EPA v. State Water Resources Control Board, supra*, 426 U.S. at p. 205, fn. 12, 96 S.Ct. 2022; *PUD No. 1 of Jefferson Cty. v. Washington Dept. of Ecology, supra*, 511 U.S. at p. 715, 114 S.Ct. 1900; *Northwest Environmental Advocates v. Portland* (9th Cir.1995) 56 F.3d 979, 987; *Natural Resources Defense Council v. U.S.E.P.A.* (9th Cir.1990) 915 F.2d 1314, 1316.) Specifically, section 1311(b)(1)(C) gave the regulatory agency the authority to impose "any more stringent limitation including those necessary to meet water quality standards," and section 1342(a)(2) provided that "[t]he [EPA] Administrator shall ***884** prescribe conditions for [NPDES] permits to assure compliance" with requirements identified in section 1342(a)(1), which encompass state water quality standards. The United States Supreme Court explained that when Congress enacted the 1972 Clean Water Act, it retained "[w]ater quality standards ... as a supplementary basis for effluent limitations, ... so that numerous point sources despite individual compliance with effluent limitations, may be further regulated to prevent water quality from falling below acceptable levels...." (*EPA v. State Water Resources Control Board, supra*, 426 U.S. at p. 205, fn. 12, 96 S.Ct. 2022; see also *Arkansas v. Oklahoma* (1992) 503 U.S. 91, 101, 112 S.Ct. 1046, 117 L.Ed.2d 239.)

There is nothing in section 1342(p)(3)(B)(iii)'s statutory language or legislative history showing that Congress intended to eliminate this discretion when it amended the Clean Water Act in 1987. ****141** To the contrary, Congress added the NPDES storm sewer requirements to strengthen the Clean Water Act by making its mandate correspond to the practical realities of municipal storm sewer regulation. As numerous commentators have pointed out, although Congress was reacting to the physical differences between municipal storm water runoff and other pollutant discharges that made the 1972 legislation's blanket effluent limitations approach impractical and administratively burdensome, the primary point of the legislation was to address these administrative problems while giving the administrative bodies the tools to meet the fundamental goals of the Clean Water Act in the context of stormwater pollution. (See *Regulation of Urban Stormwater Runoff, supra*, 48 Wash.U.J. Urb. & Contemp. L. at pp. 44–46; Environmental Law Handbook, *supra*, at p. 300; Clean Water Act Handbook, *supra*, at pp. 62–63.) In the 1987 congressional debates, the Senators and Representatives emphasized the need to prevent the widespread and escalating problems resulting from untreated storm water toxic discharges that were threatening aquatic life and creating conditions dangerous to human health. (See Remarks of Sen. Durenberger, 133 Cong. Rec. 1279 (Jan. 14, 1987); Remarks of Sen. Chaffee, 133 Cong. Rec. S738 (daily ed. Jan 14, 1987); Remarks of Rep. Hammerschmidt, 133 Cong. Rec. 986 (Jan. 8, 1987); Remarks of Rep. Roe, 133 Cong. Rec. 1006, 1007 (Jan. 8, 1987); Remarks of Sen. Stafford, 132 Cong. Rec. 32381, 32400 (Oct. 16, 1986).) This legislative history supports that in identifying a maximum extent practicable standard Congress did not intend to substantively bar the EPA/state agency from imposing a more stringent water quality standard if the agency, based on its expertise and technical factual information and after the required administrative hearing procedure, found this standard to be a necessary and workable enforcement mechanism to achieving the goals of the Clean Water Act.

To support a contrary view, Building Industry relies on comments by Minnesota Senator David Durenberger during the lengthy congressional ***885** debates on the 1987 Water Quality Act amendments.[FN11] (132 Cong. Rec. 32400 (Oct. 16, 1986); 133 Cong. Rec. S752 (daily ed. Jan. 14, 1987).) In the cited portions of the Congressional Record, Senator Durenberger states that NPDES permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable. Such controls include management practices, control techniques and systems, design and engineering methods, and such other provisions, as the Administrator determines appropriate for the control of pollutants in the stormwater discharge." (*Ibid.*) When viewing these statements in context, it is apparent that the Senator was merely paraphrasing the words of the proposed statute and was not intending to address the issue of whether the maximum extent practicable standard was a regulatory ceiling or whether he believed the proposed amendments limited the EPA's existing discretion.[FN12]

> FN11. We agree with Building Industry that the trial court's refusal to consider this legislative history on the basis that it was not presented to the administrative agencies was improper. However, this error was not prejudicial because we apply a de novo review standard in interpreting the relevant statutes.

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> FN12. In the cited remarks, Senator Durenberger in fact expressed his dissatisfaction with the EPA's prior attempts to regulate municipal storm sewers. He pointed out, for example, that "[r]unoff from municipal separate storm sewers and industrial sites contain significant values of both toxic and conventional pollutants," and that despite the Clean Water Act's "clear directive," the EPA "has failed to require most stormwater point sources to apply for permits which would control the pollutants in their discharge." (133 Cong. Rec. 1274, 1279–1280 (daily ed. Jan. 14, 1987).)

****142** Building Industry's reliance on comments made by Georgia Representative James Rowland, who participated in drafting the 1987 Water Quality Act amendments, is similarly unhelpful. During a floor debate on the proposed amendments, Representative Rowland noted that cities have "millions of" stormwater discharge points and emphasized the devastating financial burden on cities if they were required to obtain a permit for each of these points. (133 Cong. Rec. 522 (daily ed. Feb. 3, 1987).) Representative Rowland then explained that the amendments would address this problem by "allow[ing] communities to obtain far less costly single jurisdictionwide permits." (*Ibid.*) Viewed in context, these comments were directed at the need for statutory provisions permitting the EPA to issue jurisdiction-wide permits thereby preventing unnecessary administrative costs to the cities, and do not reflect a desire to protect cities from the cost of complying with strict water quality standards when deemed necessary by the regulatory agency.

3. Interpretations by the EPA and Other Courts

Our conclusion that Congress intended section 1342(p)(3)(B)(iii) to provide the regulatory agency with authority to impose standards stricter than a "maximum extent practicable" standard is consistent with interpretations by ***886** the EPA and the Ninth Circuit. In its final rule promulgated in the Federal Register, the EPA construed section 1342(p)(3)(B)(iii) as providing the administrative agency with the authority to impose water-quality standard controls in an NPDES permit if appropriate under the circumstances. Specifically, the EPA stated this statutory provision requires "controls to reduce the discharge of pollutants to the maximum extent practicable, *and where necessary water quality-based controls ....*" (55 Fed.Reg. 47990, 47994 (Nov. 16, 1990), italics added.) We are required to give substantial deference to this administrative interpretation, which occurred after an extensive notice and comment period. (See *ibid.; Chevron, supra,* 467 U.S. at pp. 842–844, 104 S.Ct. 2778.)

The only other court that has interpreted the "such other provisions" language of section 1342(p)(3)(B)(iii) has reached a similar conclusion. (*Defenders of Wildlife, supra*, 191 F.3d at pp. 1166–1167.) In *Defenders of Wildlife*, environmental organizations brought an action against the EPA, challenging provisions in an NPDES permit requiring several Arizona localities to adhere to various best management practice controls without requiring numeric effluent limitations. (*Id.* at p. 1161.) The environmental organizations argued that section 1342(p) did not allow the EPA to issue NPDES permits without requiring strict compliance with effluent limitations. (*Defenders of Wildlife, supra,* at p. 1161.) Rejecting this argument, the Ninth Circuit found section 1342(p)(3)(B)(iii)'s statutory language "unambiguously demonstrates that Congress did not require municipal storm-sewer discharges to comply strictly" with effluent limitations. (*Defenders of Wildlife, supra,* at p. 1164.)

But in a separate part of the opinion, the *Defenders of Wildlife* court additionally rejected the reverse argument made by the affected municipalities (who were the interveners in the action) that "the EPA may not, under the [Clean Water Act], require strict compliance with state water-quality standards, through numerical limits or otherwise." (*Defenders of Wildlife, supra,* 191 F.3d at p. 1166.) The court stated: "Although Congress did not require****143** municipal storm-sewer discharges to comply strictly with [numerical effluent limitations], § 1342(p)(3)(B)(iii) states that '[p]ermits for discharges from municipal storm sewers ... shall require ... *such other provisions as the Administrator ... determines appropriate for the control of such pollutants.*' (Emphasis added.) That provision gives the EPA discretion to determine what pollution controls are appropriate.... [¶] *Under that discretionary provision, the EPA has the authority to determine that ensuring strict compliance with state water-quality standards is necessary to control pollutants.* The EPA also has the authority to require less than strict compliance with state water-quality stand-

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ards.... Under 33 U.S.C. § 1342(p)(3)(B)(iii), the EPA's choice to include either management practices or numeric limitations in the permits was within its discretion. [Citations.]" (*Defenders of Wildlife, supra*, 191 F.3d at pp. 1166–1167, second italics added.) Although dicta, this ***887** conclusion reached by a federal court interpreting federal law is persuasive and is consistent with our independent analysis of the statutory language.[FN13]

> FN13. Building Industry's reliance on two other Ninth Circuit decisions to support a contrary statutory interpretation is misplaced. (See *Natural Res. Def. Council, Inc. v. U.S.E.P.A., supra*, 966 F.2d at p. 1308; *Environmental Defense Center, Inc. v. U.S.E.P.A.* (9th Cir.2003) 344 F.3d 832.) Neither of these decisions addressed the issue of the scope of a regulatory agency's authority to exceed the maximum extent practicable standard in issuing NPDES permits for municipal storm sewers.

To support its interpretation of section 1342(p)(3)(B)(iii), Building Industry additionally relies on the statutory provisions addressing nonpoint source runoff (a diffuse runoff not channeled through a particular source), which were also part of the 1987 amendments to the Clean Water Act. (§ 1329.) In particular, Building Industry cites to section 1329(a)(1)(C), which states, "The Governor of each State shall ... prepare and submit to the [EPA] Administrator for approval, a report which ... [¶] ... [¶] describes the process ... for identifying best management practices and measures to control each [identified] category ... of nonpoint sources and ... to reduce, to the *maximum extent practicable*, the level of pollution resulting from such category...." (Italics added.) Building Industry argues that because this "nonpoint source" statutory language expressly identifies only the maximum extent practicable standard, we must necessarily conclude that Congress meant to similarly limit the storm sewer point source pollution regulations to the maximum extent practicable standard.

The logic underlying this analogy is flawed because the critical language in the two statutory provisions is different. In the nonpoint source statute, Congress chose to include only the maximum extent practicable standard (§ 1329(a)(1)(C)); whereas in the municipal storm sewer provisions, Congress elected to include the "and such other provisions" clause (§ 1342(p)(3)(B)(iii)). This difference leads to the reasonable inference that Congress had a different intent when it enacted the two statutory provisions. Moreover, because of a fundamental difference between point and nonpoint source pollution, Congress has historically treated the two types of pollution differently and has subjected each type to entirely different requirements. (See *Pronsolino v. Nastri* (9th Cir.2002) 291 F.3d 1123, 1126–1127.) Given this different treatment, it would be improper to presume Congress intended to apply the same standard in both statutes. Building Industry's citation to comments during the 1987 congressional debates regarding nonpoint source regulation does ****144** not support Building Industry's contentions.

***888** 4. *Contention that it is "Impossible" for Municipalities to Meet Water Quality Standards*

We also reject Building Industry's arguments woven throughout its appellate briefs, and emphasized during oral arguments, that the Water Quality Standards provisions violate federal law because compliance with those standards is "impossible." The argument is not factually or legally supported.

[10][11] First, there is no showing on the record before us that the applicable water quality standards are unattainable. The trial court specifically concluded that Building Industry failed to make a factual showing to support this contention, and Building Industry does not present a proper appellate challenge to this finding sufficient to warrant our reexamining the evidence. All judgments and orders are presumed correct, and persons challenging them must affirmatively show reversible error. (*Walling v. Kimball* (1941) 17 Cal.2d 364, 373, 110 P.2d 58.) A party challenging the sufficiency of evidence to support a judgment must summarize (and cite to) *all* of the material evidence, not just the evidence favorable to his or her appellate positions. (*In re Marriage of Fink* (1979) 25 Cal.3d 877, 887–888, 160 Cal.Rptr. 516, 603 P.2d 881; *People v. Dougherty* (1982) 138 Cal.App.3d 278, 282, 188 Cal.Rptr. 123.) Building Industry has made no attempt to comply with this well established appellate rule in its briefs.

In a supplemental brief, Building Industry attempted to overcome this deficiency by asserting that "[t]he record clearly establishes that [the Water Quality Standards provisions] are unattainable during the

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period the permit is in effect." This statement, however, is not supported by the proffered citation or by the evidence viewed in the light most favorable to the respondents. Further, the fact that many of the Municipalities' storm sewer discharges currently violate water quality standards does not mean that the Municipalities cannot comply with the standards during the five-year term of the Permit. Additionally, Building Industry's assertions at oral argument that the trial court never reached the "impossibility" issue and/or that respondents' counsel conceded the issue below are belied by the record, including the trial court's rejection of Building Industry's specific challenge to the proposed statement of decision on this very point.[FN14]

> FN14. Because we are not presented with a proper appellate challenge, we do not address the trial court's factual determinations in this case concerning whether it is possible or practical for a Municipality to achieve any specific Permit requirement.

[12] We reject Building Industry's related argument that it was respondents' burden to affirmatively show it is feasible to satisfy each of the applicable Water Quality Standards provisions. The party challenging the scope of an administrative permit, such as an NPDES, has the burden of ***889** showing the agency abused its discretion or its findings were unsupported by the facts. (See *Fukuda v. City of Angels, supra,* 20 Cal.4th at p. 817, 85 Cal.Rptr.2d 696, 977 P.2d 693; *Huntington Park Redevelopment Agency v. Duncan* (1983) 142 Cal.App.3d 17, 25, 190 Cal.Rptr. 744.) Thus, it was not respondents' burden to affirmatively demonstrate it was possible for the Municipalities to meet the Permit's requirements.

Building Industry alternatively contends it was not required to challenge the facts underlying the trial court's determination that the Permit requirements were feasible****145** because the court's determination was wrong as a matter of law. Specifically, Building Industry asserts that a Permit requirement that is more stringent than a "maximum extent practicable" standard is, by definition, "not practicable" and therefore "technologically impossible" to achieve under any circumstances. Building Industry relies on a dictionary definition of "practicable," which provides that the word means " 'something that can be done; feasible,' " citing the 1996 version of "Webster's Encyclopedic Unabridged Dictionary."

This argument is unpersuasive. The federal maximum extent practicable standard it is not defined in the Clean Water Act or applicable regulations, and thus the Regional Water Board properly included a detailed description of the term in the Permit's definitions section. (See *ante,* fn. 7.) As broadly defined in the Permit, the maximum extent practicable standard is a highly flexible concept that depends on balancing numerous factors, including the particular control's technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. This definition conveys that the Permit's maximum extent practicable standard is a term of art, and is not a phrase that can be interpreted solely by reference to its everyday or dictionary meaning. Further, the Permit's definitional section states that the maximum extent practicable standard "considers economics and is generally, but not necessarily, *less* stringent than BAT." (Italics added.) BAT is an acronym for "best available technology economically achievable," which is a technology-based standard for industrial storm water dischargers that focuses on reducing pollutants by treatment or by a combination of treatment and best management practices. (See *Texas Oil & Gas Ass'n v. U.S. E.P.A.* (5th Cir.1998) 161 F.3d 923, 928.) If the maximum extent practicable standard is generally "less stringent" than another Clean Water Act standard that relies on available technologies, it would be unreasonable to conclude that anything more stringent than the maximum extent practicable standard is necessarily impossible. In other contexts, courts have similarly recognized that the word "practicable" does not necessarily mean the most that can possibly be done. (See *Nat. Wildlife Federation v. Norton* (E.D.Cal.2004) 306 F.Supp.2d 920, 928, fn. 12 ["[w]hile the meaning of the term 'practicable' in the [Endangered Species Act] is not entirely clear, the term does not simply equate to 'possible' "]; ***890***Primavera Familienstiftung v. Askin* (S.D.N.Y.1998) 178 F.R.D. 405, 409 [noting that "impracticability does not mean impossibility, but rather difficulty or inconvenience"].)

We additionally question whether many of Building Industry's "impossibility" arguments are premature on the record before us. As we have explained, the record does not support that any required control is, or will be, impossible to implement. Further, the Permit allows the Regional Water Board to enforce water quality standards during the iterative

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process, but does not impose any obligation that the Board do so. Thus, we cannot determine with any degree of certainty whether this obligation would ever be imposed, particularly if it later turns out that it is not possible for a Municipality to achieve that standard.

Finally, we comment on Building Industry's repeated warnings that if we affirm the judgment, all affected Municipalities will be in immediate violation of the Permit because they are not now complying with applicable water quality standards, subjecting them to immediate and substantial civil penalties, and leading to a potential "shut down" of public operations. These doomsday arguments are unsupported. The Permit makes clear that Municipalities****146** are required to adhere to numerous specific controls (none of which are challenged in this case) and to comply with water quality standards through "timely implementation of control measures" by engaging in a cooperative iterative process where the Regional Water Board and Municipality work together to identify violations of water quality standards in a written report and then incorporate approved modified best management practices. Although the Permit allows the regulatory agencies to enforce the water quality standards during this process, the Water Boards have made clear in this litigation that they envision the ongoing iterative process as the centerpiece to achieving water quality standards. Moreover, the regulations provide an affected party reasonable time to comply with new permit requirements under certain circumstances. (See 40 C.F.R. § 122.47.) There is nothing in this record to show the Municipalities will be subject to immediate penalties for violation of water quality standards.

We likewise find speculative Building Industry's predictions that immediately after we affirm the judgment, citizens groups will race to the courthouse to file lawsuits against the Municipalities and seek penalties for violation of the Water Quality Standards provisions.[FN15] As noted, the applicable laws provide time for an affected entity to comply with new standards. Moreover, although we do not reach the enforcement issue in this case, we note the ***891** Permit makes clear that the iterative process is to be used for violations of water quality standards, and gives the Regional Water Board the discretionary authority to enforce water quality standards during that process. Thus, it is not at all clear that a citizen would have standing to compel a municipality to comply with a water quality standard despite an ongoing iterative process. (See § 1365(a)(1)(2).)

> FN15. The Clean Water Act allows a citizen to sue a discharger to enforce limits contained in NPDES permits, but requires the citizen to notify the alleged violator, the state, and the EPA of its intention to sue at least 60 days before filing suit, and limits the enforcement to nondiscretionary agency acts. (See § 1365(a)(1)(2).)

III.–VII. [FN*]

FN* See footnote 1, *ante*.

DISPOSITION

Judgment affirmed. Appellants to pay respondents' costs on appeal.

WE CONCUR: BENKE, Acting P.J., and AARON, J.

Cal.App. 4 Dist.,2004.
Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.
124 Cal.App.4th 866, 22 Cal.Rptr.3d 128, 34 Envtl. L. Rep. 20,149, 04 Cal. Daily Op. Serv. 10,694, 2004 Daily Journal D.A.R. 14,492

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ATTACHMENT
17

1999 WL 458768 (Cal.St.Wat.Res.Bd.)

State Water Resources Control Board
State of California
Division of Water Rights

***1** OWN MOTION REVIEW OF THE PETITION OF ENVIRONMENTAL HEALTH COALITION TO REVIEW WASTE DISCHARGE REQUIREMENTS ORDER NO. 96-03, NPDES PERMIT NO. CAS0108740 FOR STORM WATER AND URBAN RUNOFF FROM THE ORANGE COUNTY FLOOD CONTROL DISTRICT AND THE INCORPORATED CITIES OF ORANGE COUNTY WITHIN THE SAN DIEGO REGION, ISSUED BY THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SAN DIEGO REGION

Order: WQ 99 - 05
SWRCB/OCC File A-1041

June 17, 1999

BY THE BOARD:
In Order WQ 98-01, the State Water Resources Control Board (State Water Board) ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Water Quality Control Boards (Regional Water Boards) for Vallejo and Riverside respectively, the United States Environmental Protection Agency (EPA) objected to the permits. The EPA objection was based on the receiving water limitation language. The EPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.

In light of EPA's objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the State Water Board is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the EPA language. Based on the reasons stated here, and as a precedent decision,[FN1] the following receiving water limitation language shall be included in future municipal storm water permits.[FN2]

RECEVING WATER LIMITATIONS
The permittees shall comply with Discharge Prohibitions [ ][FN3] and Receiving Water Limitations [ ] through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this permit including any modifications. The SWMP shall be designed to achieve compliance with Receiving Water Limitations [ ]. If exceedance(s) of water quality objectives or water quality standards (collectively, WQS) persist notwithstanding implementation of the SWMP and other requirements of this permit, the permittees shall assure compliance with Discharge Prohibitions [ ] and Receiving Water Limitations [[ ] by complying with the following procedure:

a. Upon a determination by either the permittees or the Regional Water Board that discharges are causing or contributing to an exceedance of an applicable WQS, the permittees shall promptly notify and thereafter submit a report to the Regional Water Board that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of WQSs. The report may be incorporated in the annual update to the SWMP unless the Regional Water Board directs an earlier submittal. The report shall include an implementation schedule. The Regional Water

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Board may require modifications to the report.
***2** b. Submit any modifications to the report required by the Regional Water Board within 30 days of notification.
c. Within 30 days following approval of the report described above by the Regional Water Board, the permittees shall revise the SWMP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, implementation schedule, and any additional monitoring required.
d. Implement the revised SWMP and monitoring program in accordance with the approved schedule.

So long as the permittees have complied with the procedures set forth above and are implementing the revised SWMP, the permittees do not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Water Board to develop additional BMPs.

ORDER

IT IS ORDERED that Order WQ 98-01 is revised as discussed above.

AYE:

James M. Stubchaer

Mary Jane Forster

John W. Brown

Arthur G. Baggett, Jr.

NO:

None

ABSENT:

None

ABSTAIN:

None

FN1. In SWRCB Order WR 96-1, the State Water Board determined that water quality orders are precedent decisions. (See Gov. Code §11425.60.)

FN2. This language may be revised as necessary to ensure that terminology conforms with the rest of the permit.

FN3. Insert appropriate numbers for prohibitions and limitations that implement water quality objectives and water quality standards.

1999 WL 458768 (Cal.St.Wat.Res.Bd.)
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ATTACHMENT
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2001 WL 1651932 (Cal.St.Wat.Res.Bd.)

State Water Resources Control Board
State of California
Division of Water Rights

***1** IN THE MATTER OF THE PETITIONS OF BUILDING INDUSTRY ASSOCIATION OF SAN DIEGO COUNTY
AND
WESTERN STATES PETROLEUM ASSOCIATION

Order WQ 2001-15
SWRCB/OCC Files A-1362, A-1362(a)

November 15, 2001

For Review Of Waste Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County [NPDES No. CAS0108758] Issued by the California Water Quality Control Board, San Diego Region

BY THE BOARD:
On February 21, 2001, the San Diego Regional Water Quality Control Board (Regional Water Board) issued a revised national pollutant discharge elimination system (NPDES) permit in Order No. 2001-01 (permit) to the County of San Diego (County), the 18 incorporated cities within the County, and the San Diego Unified Port District. The permit covers storm water discharges from municipal separate storm sewer systems (MS4) throughout the County. The permit is the second MS4 permit issued for the County, although the first permit was issued more than ten years earlier.[FN1]

The permit includes various programmatic and planning requirements for the permittees, including construction and development controls, controls on municipal activities, controls on runoff from industrial, commercial, and residential sources, and public education. The types of controls and requirements included in the permit are similar to those in other MS4 permits, but also reflect the expansion of the storm water program since the first MS4 permit was adopted for San Diego County 11 years ago.[FN2]

On March 23, 2001, the State Water Resources Control Board (State Water Board or Board) received petitions for review of the permit from the Building Industry Association of San Diego County (BIA) and from the Western States Petroleum Association (WSPA).[FN3] The petitions are legally and factually related, and have therefore been consolidated for purposes of review.[FN4] None of the municipal dischargers subject to the permit filed a petition, nor did they file responses to the petitions.

I. BACKGROUND

MS4 permits are adopted pursuant to Clean Water Act section 402(p). This federal law sets forth specific requirements for permits for discharges from municipal storm sewers. One of the requirements is that permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable [MEP]." States establish appropriate requirements for the control of pollutants in the permits.

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This Board very recently reviewed the need for controls on urban runoff in MS4 permits, the emphasis on best management practices (BMPs) in lieu of numeric effluent limitations, and the expectation that the level of effort to control urban runoff will increase over time.[FN5] We pointed out that urban runoff is a significant contributor of impairment to waters throughout the state, and that additional controls are needed. Specifically, in Board Order WQ 2000-11 (hereinafter, LA SUSMP order), we concluded that the Los Angeles Regional Water Board acted appropriately in determining that numeric standards for the design of BMPs to control runoff from new construction and redevelopment constituted controls to the MEP.[FN6]

***2** The San Diego permit incorporates numeric design standards for runoff from new construction and redevelopment similar to those considered in the LA SUSMP order.[FN7] In addition, the permit addresses programmatic requirements in other areas. The LA SUSMP order was a precedential decision,[FN8] and we will not reiterate our findings and conclusions from that decision.[FN9]

The petitioners make numerous contentions, mostly concerning requirements that they claim the dischargers will not be able to, or should not be required to, comply with. We note that none of the dischargers has joined in these contentions. We further note that BIA raises contentions that were already addressed in the LA SUSMP order. In this Order, we have attempted to glean from the petition issues that are not already fully addressed in Board Order Board Order WQ 2000-11, and which may have some impact on BIA and its members. WSPA restated the contentions it made in the petition it filed challenging the LA SUSMP order. We will not address those contentions again.[FN10] But we will address whether the Regional Water Board followed the precedent established there as it relates to retail gasoline outlets.[FN11]

II. CONTENTIONS AND FINDINGS[FN12]

Contention: BIA contends that the discharge prohibitions contained in the permit are “absolute” and “inflexible,” are not consistent with the standard of “maximum extent practicable” (MEP), and financially cannot be met.

Finding: The gist of BIA's contention concerns Discharge Prohibition A.2, concerning exceedance of water quality objectives for receiving waters: ““Discharges from MS4s which cause or contribute to exceedances of receiving water quality objectives for surface water or groundwater are prohibited.” BIA generally contends that this prohibition amounts to an inflexible “zero contribution” requirement.

BIA advances numerous arguments regarding the alleged inability of the dischargers to comply with this prohibition and the impropriety of requiring compliance with water quality standards in municipal storm water permits. These arguments mirror arguments made in earlier petitions that required compliance with water quality objectives by municipal storm water permittees. (See, e.g., Board Orders WQ 91-03, WQ 98-01, and WQ **99-05**.) This Board has already considered and upheld the requirement that municipal storm water discharges must not cause or contribute to exceedances of water quality objectives in the receiving water. We adopted an iterative procedure for complying with this requirement, wherein municipalities must report instances where they cause or contribute to exceedances, and then must review and improve BMPs so as to protect the receiving waters. The language in the permit in Receiving Water Limitation C.1 and 2 is consistent with the language required in Board Order WQ **99-05**, our most recent direction on this issue.[FN13]

While the issue of the propriety of requiring compliance with water quality objectives has been addressed before in several orders, BIA does raise one new issue that was not addressed previously. In 1999, the Ninth Circuit Court of Appeals issued an opinion addressing whether municipal storm water permits must require “strict compliance” with water quality standards.[FN14] (*Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159.) The court in *Browner* held that the Clean Water Act provisions regarding storm water permits do not require that municipal storm-sewer discharge permits ensure strict compliance with water quality standards, unlike other permits.[FN15] The court deter-

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mined that: “Instead, [the provision for municipal storm water permits] *replaces* the requirements of [section 301] with the requirement that municipal storm-sewer dischargers ‘reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator ... determines appropriate for the control of such pollutants'.’ D' (191 F.3d at 1165.) The court further held that the Clean Water Act does grant the permitting agency discretion to determine what pollution controls are appropriate for municipal storm water discharges. (*Id.* at 1166.) Specifically, the court stated that U.S. EPA had the authority either to require “strict compliance” with water quality standards through the imposition of numeric effluent limitations, or to employ an iterative approach toward compliance with water quality standards, by requiring improved BMPs over time. (*Id.*) The court in *Browner* upheld the EPA permit language, which included an iterative, BMP-based approach comparable to the language endorsed by this Board in Order WQ **99-05**.

***3** In reviewing the language in this permit, and that in Board Order WQ **99-05**, we point out that our language, similar to U.S. EPA's permit language discussed in the *Browner* case, does not require strict compliance with water quality standards. Our language requires that storm water management plans be designed to achieve compliance with water quality standards. Compliance is to be achieved over time, through an iterative approach requiring improved BMPs. As pointed out by the *Browner* court, there is nothing inconsistent between this approach and the determination that the Clean Water Act does not mandate strict compliance with water quality standards. Instead, the iterative approach is consistent with U.S. EPA's general approach to storm water regulation, which relies on BMPs instead of numeric effluent limitations.

It is true that the holding in *Browner* allows the issuance of municipal storm water permits that limit their provisions to BMPs that control pollutants to the maximum extent practicable (MEP), and which do not require compliance with water quality standards. For the reasons discussed below, we decline to adopt that approach. The evidence in the record before us is consistent with records in previous municipal permits we have considered, and with the data we have in our records, including data supporting our list prepared pursuant to Clean Water Act section 303(d). Urban runoff is causing and contributing to impacts on receiving waters throughout the state and impairing their beneficial uses. In order to protect beneficial uses and to achieve compliance with water quality objectives in our streams, rivers, lakes, and the ocean, we must look to controls on urban runoff. It is not enough simply to apply the technology-based standards of controlling discharges of pollutants to the MEP; where urban runoff is causing or contributing to exceedances of water quality standards, it is appropriate to require improvements to BMPs that address those exceedances.

While we will continue to address water quality standards in municipal storm water permits, we also continue to believe that the iterative approach, which focuses on timely improvement of BMPs, is appropriate. We will generally not require “strict compliance” with water quality standards through numeric effluent limitations and we will continue to follow an iterative approach, which seeks compliance over time.[FN16] The iterative approach is protective of water quality, but at the same time considers the difficulties of achieving full compliance through BMPs that must be enforced throughout large and medium municipal storm sewer systems.[FN17]

We have reviewed the language in the permit, and compared it to the model language in Board Order WQ **99-05**. The language in the Receiving Water Limitations is virtually identical to the language in Board Order WQ **99-05**. It sets a limitation on discharges that cause or contribute to violation of water quality standards, and then it establishes an iterative approach to complying with the limitation. We are concerned, however, with the language in Discharge Prohibition A.2, which is challenged by BIA. This discharge prohibition is similar to the Receiving Water Limitation, prohibiting discharges that cause or contribute to exceedance of water quality objectives. The difficulty with this language, however, is that it is not modified by the iterative process. To clarify that this prohibition also must be complied with through the iterative process, Receiving Water Limitation C.2 must state that it is also applicable to Discharge Prohibition A.2. The permit, in Discharge Prohibition A.5, also incorporates a list of Basin Plan prohibitions, one of which also prohibits discharges that are not in compliance with water quality objectives. (See, Attachment A, prohibition 5.) Language clarifying that the iterative approach applies to that prohibition is also neces-

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sary.[FN18]

***4** BIA also objects to Discharge Prohibition A.3, which appears to require that treatment and control of discharges must always occur prior to entry into the MS4: "Discharges into and from MS4s containing pollutants which have not been reduced to the [MEP] are prohibited."[FN19] An NPDES permit is properly issued for "discharge of a pollutant" to waters of the United States.[FN20] (Clean Water Act § 402(a).) The Clean Water Act defines "discharge of a pollutant" as an "addition" of a pollutant to waters of the United States from a point source. (Clean Water Act section 502(12).) Section 402(p)(3)(B) authorizes the issuance of permits for discharges "from municipal storm sewers."

We find that the permit language is overly broad because it applies the MEP standard not only to discharges "from" MS4s, but also to discharges "into" MS4s. It is certainly true that in most instances it is more practical and effective to prevent and control pollution at its source. We also agree with the Regional Water Board's concern, stated in its response, that there may be instances where MS4s use "waters of the United States" as part of their sewer system, and that the Board is charged with protecting all such waters. Nonetheless, the specific language in this prohibition too broadly restricts all discharges "into" an MS4, and does not allow flexibility to use regional solutions, where they could be applied in a manner that fully protects receiving waters.[FN21] It is important to emphasize that dischargers into MS4s continue to be required to implement a full range of BMPs, including source control. In particular, dischargers subject to industrial and construction permits must comply with all conditions in those permits prior to discharging storm water into MS4s.

Contention: State law requires the adoption of wet weather water quality standards, and the permit improperly enforces water quality standards that were not specifically adopted for wet weather discharges.

Finding: This contention is clearly without merit. There is no provision in state or federal law that mandates adoption of separate water quality standards for wet weather conditions. In arguing that the permit violates state law, BIA states that because the permit applies the water quality objectives that were adopted in its Basin Plan, and those objectives were not specifically adopted for wet weather conditions only, the Regional Water Board violated Water Code section 13241. These allegations appear to challenge water quality objectives that were adopted years ago. Such a challenge is clearly inappropriate as both untimely, and because Basin Plan provisions cannot be challenged through the water quality petition process. (See Wat. Code § 13320.) Moreover, there is nothing in section 13241 that supports the claim that Regional Water Boards must adopt separate wet weather water quality objectives. Instead, the Regional Water Board's response indicates that the water quality objectives were based on all water conditions in the area. There is nothing in the record to support the claim that the Regional Water Board did not in fact consider wet weather conditions when it adopted its Basin Plan. Finally, Water Code section 13263 mandates the Regional Water Board to implement its Basin Plan when adopting waste discharge requirements. The Regional Water Board acted properly in doing so.

***5** BIA points to certain federal policy documents that authorize states to promulgate water quality standards specific to wet-weather conditions.[FN22] Each Regional Water Board considers revisions to its Basin Plan in a triennial review. That would be the appropriate forum for BIA to make these comments.

Contention: BIA contends that the permit improperly classifies urban runoff as "waste" within the meaning of the Water Code.

Finding: BIA challenges Finding 2, which states that urban runoff is a waste, as defined in the Water Code, and that it is a "discharge of pollutants from a point source" under the federal Clean Water Act. BIA contends that the legislative history of section 13050(d) supports its position that "waste" should be interpreted to exclude urban runoff. The Final Report of the Study Panel to the California State Water Resources Control Board (March, 1969) is the definitive document describing the legislative intent of the Porter-Cologne Water Quality Control Act. In discussing

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the definition of "waste," this document discusses its broad application to "current drainage, flow, or seepage into waters of the state of harmful concentrations" of materials, including eroded earth and garbage.

As we stated in Board Order WQ 95-2, the requirement to adopt permits for urban runoff is undisputed, and Regional Water Boards are not required to obtain any information on the impacts of runoff prior to issuing a permit. (At page 3.) It is also undisputed that urban runoff contains "waste" within the meaning of Water Code section 13050(d), and that the federal regulations define "discharge of a pollutant" to include "additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man." (40 C.F.R. § 122.2.) But it is the waste or pollutants in the runoff that meet these definitions of "waste" and "pollutant," and not the runoff itself.[FN23] The finding does create some confusion, since there are discharge prohibitions that have been incorporated into the permit that broadly prohibit the discharge of "waste" in certain circumstances. (See Attachment A to the permit.) The finding will therefore be amended to state that urban runoff contains waste and pollutants.

Contention: BIA contends that the Regional Water Board violated California Environmental Quality Act (CEQA).

Finding: As we have stated in several prior orders, the provisions of CEQA requiring adoption of environmental documents do not apply to NPDES permits.[FN24] BIA contends that the exemption from CEQA contained in section 13389 applies only to the extent that the specific provisions of the permit are required by the federal Clean Water Act. This contention is easily rejected without addressing whether federal law mandated all of the permit provisions. The plain language of section 13389 broadly exempts the Regional Water Board from the requirements of CEQA to prepare environmental documents when adopting ""any waste discharge requirement" pursuant to Chapter 5.5 (§§ 13370 et seq., which applies to NPDES permits).[FN25] BIA cites the decision in *Committee for a Progressive Gilroy v. State Water Resources Control Board* (1987) 192 Cal.App.3d 847. That case upheld the State Water Board's view that section 13389 applies only to NPDES permits, and not to waste discharge requirements that are adopted pursuant only to state law. The case did not concern an NPDES permit, and does not support BIA's argument.

***6 Contention**: WSPA contends that the Regional Water Board did not follow this Board's precedent for retail gasoline outlets (RGOs) established in the LA SUSMP order.

Finding: In the LA SUSMP order, this Board concluded that construction of RGOs is already heavily regulated and that owners may be limited in their ability to construct infiltration facilities. We also noted that, in light of the small size of many RGOs and the proximity to underground tanks, it might not always be feasible or safe to employ treatment methodologies. We directed the Los Angeles Regional Water Board to mandate that RGOs employ the BMPs listed in a publication of the California Storm Water Quality Task Force. (*Best Management Practice Guide - Retail Gasoline Outlets* (March 1997).) We also concluded that RGOs should not be subject to the BMP design standards at this time. Instead, we recommended that the Regional Water Board undertake further consideration of a threshold relative to size of the RGO, number of fueling nozzles, or some other relevant factor. The LA SUSMP order did not preclude inclusion of RGOs in the SUSMP design standards, with proper justification, when the permit is reissued.

The permit adopted by the Regional Water Board did not comply with the directions we set forth in the LA SUSMP order for the regulation of RGOs. The permit contains no findings specific to the issues discussed in our prior order regarding RGOs, and includes no threshold for inclusion of RGOs in SUSMPs. Instead, the permit requires the dischargers to develop and implement SUSMPs within one year that include requirements for "Priority Development Project Categories," including "retail gasoline outlets." While other priority categories have thresholds for their inclusion in SUSMPs, the permit states: ""Retail Gasoline Outlet is defined as any facility engaged in selling gasoline."[FN26]

The Regional Water Board responded that it did follow the directions in the LA SUSMP order. First, it points to findings that vehicles and pollutants they generate impact receiving water quality. But the only finding that even mentions RGOs is finding 4, which simply lists RGOs among the other priority development project categories as

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land uses that generate more pollutants. The Regional Water Board staff also did state some justifications for the inclusion of RGOs in two documents. The Draft Fact Sheet explains that RGOs contribute pollutants to runoff, and opines that there are appropriate BMPs for RGOs. The staff also prepared another document after the public hearing, which was distributed to Board Members prior to their vote on the permit, and which includes similar justifications and references to studies.[FN27] The LA SUSMP order called for some type of threshold for inclusion of RGOs in SUSMPs. The permit does not do so. Also, justifications for permit provisions should be stated in the permit findings or the final fact sheet, and should be subject to public review and debate.[FN28] The discussion in the document submitted after the hearing did not meet these criteria. There was some justification in the ""Draft Fact Sheet," but the fact sheet has not been finalized.[FN29] In light of our concerns over whether SUSMP sizing criteria should apply to RGOs, it was incumbent on the Regional Water Board to justify the inclusion of RGOs in the permit findings or in a final fact sheet, and to consider an appropriate threshold, addressing the concerns we stated. The Regional Water Board also responded that when the dischargers develop the SUSMPs, the dischargers might add specific BMPs and a threshold as directed in the LA SUSMP order. But the order specifically directed that any threshold, and the justification therefore, should be included in the permit. The Regional Water Board did not comply with these directions.

III. CONCLUSIONS

***7** Based on the discussion above, the Board concludes that:

1. The Regional Water Board appropriately required compliance with water quality standards and included requirements to achieve reduction of pollutants to the maximum extent practicable. The permit must be clarified so that the reference to the iterative process for achieving compliance applies not only to the receiving water limitation, but also to the discharge prohibitions that require compliance with water quality standards. The permit should also be revised so that it requires that MEP be achieved for discharges "from" the municipal sewer system, and for discharges "to" waters of the United States, but not for discharges "into" the sewer system.

2. The Regional Water Board was not required to adopt wet-weather specific water quality objectives.

3. The Regional Water Board inappropriately defined urban runoff as "waste."

4. The Regional Water Board did not violate the California Environmental Quality Act.

5. The permit will be revised to delete retail gasoline outlets from the Priority Development Project Categories for Standard Urban Storm Water Mitigation Plans. The Regional Water Board may consider adding retail gasoline outlets, upon inclusion of appropriate findings and a threshold describing which outlets are included in the requirements.

IV. ORDER

IT IS HEREBY ORDERED that the Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems in San Diego County (Order No. 2001-01) are revised as follows:

1. Part A.3: The words "into and" are deleted.

2. Part C.2: Throughout the first paragraph, the words ", Part A.2, and Part A.5 as it applies to Prohibition 5 in Attachment A" shall be inserted following "Part C.1."

3. Finding 2: Revise the finding to read: **URBAN RUNOFF CONTAINS "WASTE" AND ""POLLUTANTS"**:

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Urban runoff contains waste, as defined in the California Water Code, and pollutants, as defined in the federal Clean Water Act, and adversely affects the quality of the waters of the State.

4. Part F.1.b(2)(a): Delete section "x."

In all other respects the petitions are dismissed.

AYE:

Arthur G. Baggett, Jr.

Peter S. Silva

Richard Katz

NO:

None

ABSENT:

None

ABSTAIN:

None

FN1. NPDES permits generally expire after five years, but can be extended administratively where the Regional Water Board is unable to issue a new permit prior to the expiration date. As the record in this matter amply demonstrates, the Regional Water Board engaged in an extensive process of issuing draft permits, accepting comments, and holding workshops and hearings since at least 1995.

FN2. For a discussion of the evolution of the storm water program, consistent with guidance from the United States Environmental Protection Agency (U.S. EPA), see Board Order WQ 2000-11.

FN3. On March 23, the State Water Board also received brief letters from the Ramona Chamber of Commerce, the North San Diego County Association of Realtors, the San Diego County Apartment Association, the National Association of Industrial and Office Properties, and the California Building Industry Association. All of these letters state that they are "joining in" the petition filed by BIA. None of the letters contain any of the required information for petitions, which is listed at Cal. Code of Regs., tit. 23, section 2050. These letters will be treated as comments on the BIA petition. To the extent the authors intended the letters be considered petitions, they are dismissed.

FN4. Cal. Code of Regs., tit. 23, section 2054.

FN5. Board Order WQ 2000-11.

FN6. As explained in that Order, numeric design standards are not the same as numeric effluent limitations. While BIA contends that the permit under review includes numeric effluent limitations, it does not. A numeric design

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standard only tells the dischargers how much runoff must be treated or infiltrated; it does not establish numeric effluent limitations proscribing the quality of effluent that can be discharged following infiltration or treatment.

FN7. The San Diego permit also includes provisions that are different from those approved in the LA SUSMP Order, but which were not the subject of either petition. Such provisions include the inclusion of non-discretionary projects. We do not make any ruling in this Order on matters that were not addressed in either petition.

FN8. Government Code section 11425.60; State Board Order WR 96-1 (Lagunitas Creek), at footnote 11.

FN9. BIA restates some of the issues this Board considered in the LA SUSMP order. For instance, BIA contends that it is inappropriate for the permit to regulate erosion control. While this argument was not specifically addressed in our prior Order, it is obvious that the most serious concern with runoff from construction is the potential for increased erosion. It is absurd to contend that the permit should have ignored this impact from urban runoff.

FN10. On November 8, 2001, following the October 31 workshop meeting that was held to discuss the draft order, BIA submitted a "supplemental brief" that includes many new contentions raised for the first time. (Interested persons who were not petitioners filed comments on the draft order asking the State Water Board to address some of these.) The State Water Board will not address these contentions, as they were not timely raised. (Wat. Code § 13320; Cal. Code of Regs., tit. 23, § 2050(a).) Specific contentions that are not properly subject to review under Water Code section 13320 are objections to findings 16, 17, and 38 of the permit, the contention that permit provisions constitute illegal unfunded mandates, challenges to the permit's inspection and enforcement provisions, objections to permit provisions regarding construction sites, the contention that post-construction requirements should be limited to ""discretionary" approvals, the challenge to the provisions regarding local government compliance with the California Environmental Quality Act, and contentions regarding the term "discharge" in the permit. BIA did not meet the legal requirements for seeking review of these portions of the permit.

FN11. On November 8, 2001, the State Water Board received eight boxes of documents from BIA, along with a "Request for Entry of Documents into the Administrative Record." BIA failed to comply with Cal. Code of Regs., tit. 23, section 2066(b), which requires such requests be made "prior to or during the workshop meeting." The workshop meeting was held on October 31, 2001. The request will therefore not be considered. BIA also objected in this submittal that the Regional Water Board did not include these documents in its record. The Regional Water Board's record was created at the time the permit was adopted, and was submitted to the State Water Board on June 11, 2001. BIA's objection is not timely.

FN12. This Order does not address all of the issues raised by the petitioners. The Board finds that the issues that are not addressed are insubstantial and not appropriate for State Water Board review. (See *People v. Barry* (1987) 194 Cal.App.3d 158 [239 Cal.Rptr. 349]; Cal. Code Regs., tit. 23, § 2052.) We make no determination as to whether we will address the same or similar issues when raised in future petitions.

FN13. In addition to Discharge Prohibition A.2, quoted above, the permit includes Receiving Water Limitation C.1, with almost identical language: ""Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited." Receiving Water Limitation C.2 sets forth the iterative process for compliance with C.1, as required by Board Order WQ **99-05**.

FN14. "Water quality objectives" generally refers to criteria adopted by the state, while "water quality standards" generally refers to criteria adopted or approved for the state by the U.S. EPA. Those terms are used interchangeably for purposes of this Order.

FN15. Clean Water Act § 301(b)(1)(C) requires that most NPDES permits require strict compliance with quality

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standards.

FN16. Exceptions to this general rule are appropriate where site-specific conditions warrant. For example, the Basin Plan for the Lake Tahoe basin, which protects an outstanding national resource water, includes numeric effluent limitations for storm water discharges.

FN17. While BIA argues that the permit requires "zero contribution" of pollutants in runoff, and "in effect" contains numeric effluent limitations, this is simply not true. The permit is clearly BMP-based, and there are no numeric effluent limitations. BIA also claims that the permit will require the construction of treatment plants for storm water similar to the publicly-owned treatment works for sanitary sewage. There is no basis for this contention; there is no requirement in the permit to treat all storm water. The emphasis is on BMPs.

FN18. The iterative approach is not necessary for all Discharge Prohibitions. For example, a prohibition against pollution, contamination or nuisance should generally be complied with at all times. (See, Discharge Prohibition A.1.) Also, there may be discharge prohibitions for particularly sensitive water bodies, such as the prohibition in the Ocean Plan applicable to Areas of Special Biological Significance.

FN19. Discharge Prohibition A.1 also refers to discharges into the MS4, but it only prohibits pollution, contamination, or nuisance that occurs "in waters of the state." Therefore, it is interpreted to apply only to discharges to receiving waters.

FN20. Since NPDES permits are adopted as waste discharge requirements in California, they can more broadly protect "waters of the state," rather than being limited to "waters of the United States." In general, the inclusion of ""waters of the state" allows the protection of groundwater, which is generally not considered to be "water of the United States."

FN21. There are other provisions in the permit that refer to restrictions ""into" the MS4. (See, e.g., Legal Authority D.1.) Those provisions are appropriate because they do not apply the MEP standard to the permittees, but instead require the permittees to demand appropriate controls for discharges into their system. For example, the federal regulations require that MS4s have a program "to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system ...." (40 C.F.R. § 122.26(d)(2)(iv)(D).)

FN22. These documents do not support the claim that U.S. EPA and the Clinton Administration indicated that the absence of such regulations "is a major problem that needs to be addressed," as claimed in BIA's Points and Authorities, at page 18.

FN23. The Regional Water Board is appropriately concerned not only with pollutants in runoff but also the volume of runoff, since the volume of runoff can affect the discharge of pollutants in the runoff. (See Board Order WQ 2000-11, at page 5.)

FN24. Water Code section 13389; see, e.g., Board Order WQ 2000-11.

FN25. The exemption does have an exception for permits for "new sources" as defined in the Clean Water Act, which is not applicable here.

FN26. Permit at F.1.b(2)(a)(x).

FN27. See "Comparison Between Tentative Order No. 2001-01 SUSMP Requirements and LARWQCB SUSMP Requirements (as Supported by SWRCB Order WQ 2000-11)."

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FN28. See 40 C.F.R. sections 124.6(e) and 124.8.

FN29. U.S. EPA regulations require that there be a fact sheet accompanying the permit. (40 C.F.R. § 124.8.) The record contains only a draft fact sheet, which was never published or distributed in final form. The Regional Water Board should finalize the fact sheet, accounting for any revisions made in the final permit, and publish it on its web site as a final document.

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ATTACHMENT
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WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA

2015

STATE WATER RESOURCES CONTROL BOARD

CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

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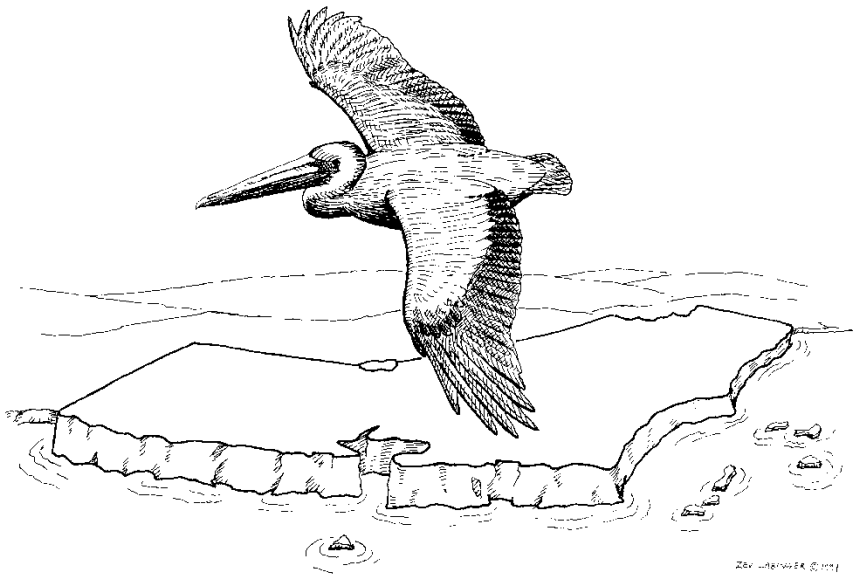

2015

CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN

OCEAN WATERS OF CALIFORNIA

Amendments to the Water Quality Control Plan for the Ocean Waters of California

Name	Date Adopted	Resolution Number	Effective Date
1. Amendment to the statewide for the Ocean Plan of California addressing desalination facility intakes, brine discharges, and to incorporate other non-substantive changes	5/06/2015	2015-0033	1/28/2016
2. Amendment to the Water Quality Control Plan for Ocean Waters of California to control trash and part 1 trash provisions of the Water Quality Control Plan for inland surface waters, enclosed bays, and estuaries in California	4/7/2015	2015-0019	1/12/2016
3. Adoption of the California Ocean Plan Amendments regarding model monitoring, vessel discharges, and non-substantive changes	10/16/2012	2012-0057	7/01/2013
4. Adopting the California Ocean Plan Amendment implementing State Water Board resolutions 2010-0057 and 2011-013 regarding State Water Quality Protection Areas and Marine Protected Areas	10/16/2012	2012-0056	7/01/2013
5. Adoption of Proposed Amendments to the California Ocean Plan regarding total recoverable metals, compliance schedules, toxicity definitions, and the list of exceptions	9/15/2009	2009-0072	3/10/2010
6. Amendment to the California Ocean Plan: (1) Reasonable Potential, Determining When California Ocean Plan Water Quality-Based Effluent Limitations are Required, and (2) Minor Changes to the Areas of Special Biological Significance, and Exception Provisions	4/21/2005	2005-0035	10/12/2005
7. Amendment to California Ocean Plan Water Contact Bacterial Standards	1/20/2005	2005-0013	10/12/2005
8. Adoption of the Proposed Amendments to the California Ocean Plan regarding Table A, chemical water quality objectives, provisions of compliance, special protection for water quality and designated uses, and administrative changes	11/16/2000	2000-108	12/03/2001
9. Adoption of an Amendment to the Water Quality Control Plan for Ocean Waters of California regarding revisions to the list of critical life stage protocols used in testing the toxicity of waste discharges	3/20/1997	97-026	7/23/1997
10. Approval of Amendment to the Water Quality Control Plan for Ocean Waters of California regarding new water quality objectives in Table B	3/22/1990	90-027	3/22/1990

11. Water Quality Control Plan for Ocean Waters of California, California Ocean Plan	9/22/1988	88-111	9/22/1988
12. Water Quality Control Plan for Ocean Waters of California	11/17/1983	83-087	11/17/1983
13. Water Quality Control Plan for Ocean Waters of California	1/19/1978	78-002	1/19/1978
14. Water Quality Control Plan for Ocean Waters of California	7/06/1972	72-045	7/06/1972

CALIFORNIA OCEAN PLAN

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CALIFORNIA OCEAN PLAN

WATER QUALITY CONTROL PLAN FOR OCEAN WATERS OF CALIFORNIA

INTRODUCTION

A. Purpose and Authority

1. In furtherance of legislative policy set forth in section 13000 of Division 7 of the California Water Code (CWC) (Stats. 1969, Chap. 482) pursuant to the authority contained in section 13170 and 13170.2 (Stats. 1971, Chap. 1288) the State Water Resources Control Board (State Water Board) hereby finds and declares that protection of the quality of the ocean* waters for use and enjoyment by the people of the State requires control of the discharge of waste* to ocean* waters and control of intake seawater* in accordance with the provisions contained herein. The Board finds further that this plan shall be reviewed at least every three years to guarantee that the current standards are adequate and are not allowing degradation* to marine species or posing a threat to public health.

B. Principles

1. Harmony Among Water Quality Control Plans and Policies.

   a. In the adoption and amendment of water quality control plans, it is the intent of this Board that each plan will provide for the attainment and maintenance of the water quality standards of downstream waters.*

   b. To the extent there is a conflict between a provision of this plan and a provision of another statewide plan or policy, or a regional water quality control plan (basin plan), the more stringent provision shall apply except where pursuant to Chap. III.J of this Plan, the State Water Board has approved an exception to the Plan requirements, and except in chapter III.M, in which the provisions of this plan shall govern.

C. Applicability

1. This plan is applicable, in its entirety, to point source discharges to the ocean.* Nonpoint sources of waste* discharges to the ocean* are subject to Chapter I Beneficial Uses, Chapter II - WATER QUALITY OBJECTIVES (wherein compliance with water quality objectives shall, in all cases, be determined by direct measurements in the receiving waters*) and Chapter III - PROGRAM OF IMPLEMENTATION Parts A.2, D, E, and I.

2. This plan is not applicable to discharges to enclosed* bays and estuaries* or inland waters or the control of dredged material.*

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* See Appendix I for definition of terms.

3. Provisions regulating the thermal aspects of waste* discharged to the ocean* are set forth in the Water Quality Control Plan for the Control of Temperature in the Coastal and Interstate Waters and Enclosed* Bays and Estuaries* of California.

4. Provisions regulating the intake of seawater* for desalination facilities* are established pursuant to the authority contained in section 13142.5 subdivision (b) of the California Water Code (Stats. 1976, Chap. 1330).

5. Within this Plan, references to the State Board or State Water Board shall mean the State Water Resources Control Board. References to a Regional Board or Regional Water Board shall mean a California Regional Water Quality Control Board. References to the Environmental Protection Agency, USEPA, or EPA shall mean the federal Environmental Protection Agency.

* See Appendix I for definition of terms.

I. BENEFICIAL USES

A. The beneficial uses of the ocean* waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture*; preservation and enhancement of designated Areas* of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish* harvesting.

* See Appendix I for definition of terms.

II. WATER QUALITY OBJECTIVES

A. General Provisions

1. This chapter sets forth limits or levels of water quality characteristics for ocean* waters to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharge of waste* shall not cause violation of these objectives.

2. The Water Quality Objectives and Effluent Limitations are defined by a statistical distribution when appropriate. This method recognizes the normally occurring variations in treatment efficiency and sampling and analytical techniques and does not condone poor operating practices.

3. Compliance with the water quality objectives of this chapter shall be determined from samples collected at stations representative of the area within the waste* field where initial* dilution is completed.

B. Bacterial Characteristics

1. Water-Contact Standards

Both the State Water Board and the California Department of Public Health (CDPH) have established standards to protect water contact recreation in coastal waters from bacterial contamination. Subsection a of this section contains bacterial objectives adopted by the State Water Board for ocean* waters used for water contact recreation. Subsection b describes the bacteriological standards adopted by CDPH for coastal waters adjacent to public beaches and public water contact sports areas in ocean waters.

a. State Water Board Water-Contact Standards

(1) Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., waters designated as REC-1), but including all kelp beds,* the following bacterial objectives shall be maintained throughout the water column:

30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:

i. Total coliform density shall not exceed 1,000 per 100 mL;
ii. Fecal coliform density shall not exceed 200 per 100 mL; and
iii. Enterococcus density shall not exceed 35 per 100 mL.

Single Sample Maximum:

i. Total coliform density shall not exceed 10,000 per 100 mL;
ii. Fecal coliform density shall not exceed 400 per 100 mL;
iii. Enterococcus density shall not exceed 104 per 100 mL; and

* See Appendix I for definition of terms.

iv. Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1.

(2) The "Initial Dilution* Zone" of wastewater outfalls shall be excluded from designation as kelp beds* for purposes of bacterial standards, and Regional Boards should recommend extension of such exclusion zone where warranted to the State Water Board (for consideration under chapter III. J). Adventitious assemblages of kelp on waste discharge structures (e.g.,outfall pipes and multiport diffusers*) do not constitute kelp beds* for purposes of bacterial standards.

b. CDPH Standards

CDPH has established minimum protective bacteriological standards for coastal waters adjacent to public beaches and for public water-contact sports areas in ocean* waters. These standards are found in the California Code of Regulations, title 17, section 7958, and they are identical to the objectives contained in subsection a. above. When a public beach or public water-contact sports area fails to meet these standards, CDPH or the local public health officer may post with warning signs or otherwise restrict use of the public beach or public water-contact sports area until the standards are met. The CDPH regulations impose more frequent monitoring and more stringent posting and closure requirements on certain high-use public beaches that are located adjacent to a storm drain that flows in the summer.

For beaches not covered under AB 411 regulations, CDPH imposes the same standards as contained in Title 17 and requires weekly sampling but allows the county health officer more discretion in making posting and closure decisions.

2. Shellfish* Harvesting Standards

a. At all areas where shellfish* may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

(1) The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

C. Physical Characteristics

1. Floating particulates and grease and oil shall not be visible.

2. The discharge of waste* shall not cause aesthetically undesirable discoloration of the ocean* surface.

3. Natural light* shall not be significantly* reduced at any point outside the initial* dilution zone as the result of the discharge of waste.*

4. The rate of deposition of inert solids and the characteristics of inert solids in ocean* sediments shall not be changed such that benthic communities are degraded.*

* See Appendix I for definition of terms.

5. Trash* shall not be present in ocean waters, along shorelines or adjacent areas in amounts that adversely affect beneficial uses or cause nuisance.

D. Chemical Characteristics

1. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste* materials.*
2. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
3. The dissolved sulfide concentration of waters in and near sediments shall not be significantly* increased above that present under natural conditions.
4. The concentration of substances set forth in chapter II, Table 1, in marine sediments shall not be increased to levels which would degrade* indigenous biota.
5. The concentration of organic materials* in marine sediments shall not be increased to levels that would degrade* marine life.
6. Nutrient materials* shall not cause objectionable aquatic growths or degrade* indigenous biota.
7. Numerical Water Quality Objectives

   a. Table 1 water quality objectives apply to all discharges within the jurisdiction of this Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations.

   b. Table 1 Water Quality Objectives

* See Appendix I for definition of terms.

TABLE 1 (formerly TABLE B)
WATER QUALITY OBJECTIVES

	Units of Measurement	Limiting Concentrations 6-Month Median	Daily Maximum	Instantaneous Maximum
OBJECTIVES FOR PROTECTION OF MARINE AQUATIC LIFE				
Arsenic	µg/L	8.	32.	80.
Cadmium	µg/L	1.	4.	10.
Chromium (Hexavalent) (see below, a)	µg/L	2.	8.	20.
Copper	µg/L	3.	12.	30.
Lead	µg/L	2.	8.	20.
Mercury	µg/L	0.04	0.16	0.4
Nickel	µg/L	5.	20.	50.
Selenium	µg/L	15.	60.	150.
Silver	µg/L	0.7	2.8	7.
Zinc	µg/L	20.	80.	200.
Cyanide (see below, b)	µg/L	1.	4.	10.
Total Chlorine Residual (For intermittent chlorine sources see below, c)	µg/L	2.	8.	60.
Ammonia (expressed as nitrogen)	µg/L	600.	2400.	6000.
Acute* Toxicity	TUa	N/A	0.3	N/A
Chronic* Toxicity	TUc	N/A	1.	N/A
Phenolic Compounds (non-chlorinated)	µg/L	30.	120.	300.
Chlorinated Phenolics	µg/L	1.	4.	10.
Endosulfan*	µg/L	0.009	0.018	0.027
Endrin	µg/L	0.002	0.004	0.006
HCH*	µg/L	0.004	0.008	0.012
Radioactivity	Not to exceed limits specified in Title 17, Division 1, Chapter 5, Subchapter 4, Group 3, Article 3, section 30253 of the California Code of Regulations. Reference to section 30253 is prospective, including future changes to any incorporated provisions of federal law, as the changes take effect.			

* See Appendix I for definition of terms.

TABLE 1 (formerly TABLE B) Continued

Chemical	30-day Average (µg/L) Decimal Notation	Scientific Notation
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS		
acrolein	220.	2.2×10^{2}
antimony	1,200.	1.2×10^{3}
bis(2-chloroethoxy) methane	4.4	4.4×10^{0}
bis(2-chloroisopropyl) ether	1,200.	1.2×10^{3}
chlorobenzene	570.	5.7×10^{2}
chromium (III)	190,000.	1.9×10^{5}
di-n-butyl phthalate	3,500.	3.5×10^{3}
dichlorobenzenes*	5,100.	5.1×10^{3}
diethyl phthalate	33,000.	3.3×10^{4}
dimethyl phthalate	820,000.	8.2×10^{5}
4,6-dinitro-2-methylphenol	220.	2.2×10^{2}
2,4-dinitrophenol	4.0	4.0×10^{0}
ethylbenzene	4,100.	4.1×10^{3}
fluoranthene	15.	1.5×10^{1}
hexachlorocyclopentadiene	58.	5.8×10^{1}
nitrobenzene	4.9	4.9×10^{0}
thallium	2.	$2. \times 10^{0}$
toluene	85,000.	8.5×10^{4}
tributyltin	0.0014	1.4×10^{-3}
1,1,1-trichloroethane	540,000.	5.4×10^{5}
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
acrylonitrile	0.10	1.0×10^{-1}
aldrin	0.000022	2.2×10^{-5}
benzene	5.9	5.9×10^{0}
benzidine	0.000069	6.9×10^{-5}
beryllium	0.033	3.3×10^{-2}
bis(2-chloroethyl) ether	0.045	4.5×10^{-2}
bis(2-ethylhexyl) phthalate	3.5	3.5×10^{0}
carbon tetrachloride	0.90	9.0×10^{-1}
chlordane*	0.000023	2.3×10^{-5}
chlorodibromomethane	8.6	8.6×10^{0}

* See Appendix I for definition of terms.

TABLE 1 (formerly TABLE B) Continued

Chemical	30-day Average (µg/L) Decimal Notation	Scientific Notation
OBJECTIVES FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS		
chloroform	130.	1.3×10^{2}
DDT*	0.00017	1.7×10^{-4}
1,4-dichlorobenzene	18.	1.8×10^{1}
3,3'-dichlorobenzidine	0.0081	8.1×10^{-3}
1,2-dichloroethane	28.	2.8×10^{1}
1,1-dichloroethylene	0.9	9×10^{-1}
dichlorobromomethane	6.2	6.2×10^{0}
dichloromethane	450.	4.5×10^{2}
1,3-dichloropropene	8.9	8.9×10^{0}
dieldrin	0.00004	4.0×10^{-5}
2,4-dinitrotoluene	2.6	2.6×10^{0}
1,2-diphenylhydrazine	0.16	1.6×10^{-1}
halomethanes*	130.	1.3×10^{2}
heptachlor	0.00005	5×10^{-5}
heptachlor epoxide	0.00002	2×10^{-5}
hexachlorobenzene	0.00021	2.1×10^{-4}
hexachlorobutadiene	14.	1.4×10^{1}
hexachloroethane	2.5	2.5×10^{0}
isophorone	730.	7.3×10^{2}
N-nitrosodimethylamine	7.3	7.3×10^{0}
N-nitrosodi-N-propylamine	0.38	3.8×10^{-1}
N-nitrosodiphenylamine	2.5	2.5×10^{0}
PAHs*	0.0088	8.8×10^{-3}
PCBs*	0.000019	1.9×10^{-5}
TCDD equivalents*	0.0000000039	3.9×10^{-9}
1,1,2,2-tetrachloroethane	2.3	2.3×10^{0}
tetrachloroethylene	2.0	2.0×10^{0}
toxaphene	0.00021	2.1×10^{-4}
trichloroethylene	27.	2.7×10^{1}
1,1,2-trichloroethane	9.4	9.4×10^{0}
2,4,6-trichlorophenol	0.29	2.9×10^{-1}
vinyl chloride	36.	3.6×10^{1}

* See Appendix I for definition of terms.

Table 1 Notes:

a) Dischargers may at their option meet this objective as a total chromium objective.

b) If a discharger can demonstrate to the satisfaction of the Regional Water Board (subject to EPA approval) that an analytical method is available to reliably distinguish between strongly and weakly complexed cyanide, effluent limitations for cyanide may be met by the combined measurement of free cyanide, simple alkali metal cyanides, and weakly complexed organometallic cyanide complexes. In order for the analytical method to be acceptable, the recovery of free cyanide from metal complexes must be comparable to that achieved by the approved method in 40 CFR PART 136, as revised May 14, 1999.

c) Water quality objectives for total chlorine residual applying to intermittent discharges not exceeding two hours, shall be determined through the use of the following equation:

$$\log y = -0.43 (\log x) + 1.8$$

where: y = the water quality objective (in µg/L) to apply when chlorine is being discharged;
x = the duration of uninterrupted chlorine discharge in minutes.

E. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, algae, and plant species, shall not be degraded.*

2. The natural taste, odor, and color of fish, shellfish,* or other marine resources used for human consumption shall not be altered.

3. The concentration of organic materials* in fish, shellfish* or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

F. Radioactivity

1. Discharge of radioactive waste* shall not degrade* marine life.

* See Appendix I for definition of terms.

III. PROGRAM OF IMPLEMENTATION

A. General Provisions

1. Effective Date

a. The *Water Quality Control Plan, Ocean Waters of California, California Ocean Plan* was adopted and has been effective since 1972. There have been multiple amendments of the Ocean Plan since its adoption.

2. General Requirements For Management Of Waste Discharge To The Ocean*

a. Waste* management systems that discharge to the ocean* must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.

b. Waste* discharged to the ocean* must be essentially free of:

(1) Material* that is floatable or will become floatable upon discharge.

(2) Settleable material* or substances that may form sediments which will degrade* benthic communities or other aquatic life.

(3) Substances which will accumulate to toxic levels in marine waters, sediments or biota.

(4) Substances that significantly* decrease the natural light* to benthic communities and other marine life.

(5) Materials* that result in aesthetically undesirable discoloration of the ocean* surface.

c. Waste* effluents shall be discharged in a manner which provides sufficient initial* dilution to minimize the concentrations of substances not removed in the treatment.

d. Location of waste* discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:

(1) Pathogenic organisms and viruses are not present in areas where shellfish* are harvested for human consumption or in areas used for swimming or other body-contact sports.

(2) Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.*

(3) Maximum protection is provided to the marine environment.

* See Appendix I for definition of terms.

e. Waste* that contains pathogenic organisms or viruses should be discharged a sufficient distance from shellfishing* and water-contact sports areas to maintain applicable bacterial standards without disinfection. Where conditions are such that an adequate distance cannot be attained, reliable disinfection in conjunction with a reasonable separation of the discharge point from the area of use must be provided. Disinfection procedures that do not increase effluent toxicity and that constitute the least environmental and human hazard should be used.

3. Areas of Special Biological Significance*

a. ASBS* shall be designated by the State Water Board following the procedures provided in Appendix IV. A list of ASBS* is available in Appendix V.

4. Combined Sewer Overflow: Not withstanding any other provisions in this plan, discharges from the City of San Francisco's combined sewer system are subject to the US EPA's Combined Sewer Overflow Policy.

B. Table 2 Effluent Limitations

TABLE 2 (formerly TABLE A)
EFFLUENT LIMITATIONS

	Unit of Measurement	Limiting Concentrations: Monthly (30-day Average)	Weekly (7-day Average)	Maximum at any time
Grease and Oil	mg/L	25.	40.	75.
Suspended Solids			See below +	
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75.	100.	225.
pH	Units		Within limit of 6.0 to 9.0 at all times	

Table 2 Notes:

\+ Suspended Solids: Dischargers shall, as a 30-day average, remove 75% of suspended solids from the influent stream before discharging wastewaters to the ocean,* except that the effluent limitation to be met shall not be lower than 60 mg/l. Regional Boards may recommend that the State Water Board (chapter III section J), with the concurrence of the Environmental Protection Agency, adjust the lower effluent concentration limit (the 60 mg/l above) to suit the environmental and effluent characteristics of the discharge. As a further consideration in making such recommendation for adjustment, Regional Water Boards should evaluate effects on existing and potential water* reclamation projects.

If the lower effluent concentration limit is adjusted, the discharger shall remove 75% of suspended solids from the influent stream at any time the influent concentration exceeds four times such adjusted effluent limit.

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1. Table 2 effluent limitations apply only to publicly owned treatment works and industrial discharges for which Effluent Limitations Guidelines have not been established pursuant to sections 301, 302, 304, or 306 of the Federal Clean Water Act.

* See Appendix I for definition of terms.

2. Table 2 effluent limitations shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.

3. The State Water Board is authorized to administer and enforce effluent limitations established pursuant to the Federal Clean Water Act. Effluent limitations established under sections 301, 302, 306, 307, 316, 403, and 405 of the aforementioned Federal Act and administrative procedures pertaining thereto are included in this plan by reference. Compliance with Table 2 effluent limitations, or Environmental Protection Agency Effluent Limitations Guidelines for industrial discharges, based on Best Practicable Control Technology, shall be the minimum level* of treatment acceptable under this plan, and shall define reasonable treatment and waste* control technology.

4. Compliance with Table 2 effluent limitations for brine discharges from desalination facilities that commingle brine and wastewater prior to discharge to the ocean may be measured after the brine has been commingled with wastewater, provided that the permittee for the commingled discharge accepts responsibly for any exceedances of the Table 2 effluent limitations.

C. Implementation Provisions for Table 1

1. Effluent concentrations calculated from Table 1 water quality objectives shall apply to a discharger's total effluent, of whatever origin (i.e., gross, not net, discharge), except where otherwise specified in this Plan.

2. If the Regional Water Board determines, using the procedures in Appendix VI, that a pollutant is discharged into ocean* waters at levels which will cause, have the reasonable potential to cause, or contribute to an excursion above a Table 1 water quality objective, the Regional Water Board shall incorporate a water quality-based effluent limitation in the Waste Discharge Requirement for the discharge of that pollutant.

3. Effluent limitations shall be imposed in a manner prescribed by the State Water Board such that the concentrations set forth below as water quality objectives shall not be exceeded in the receiving water* upon completion of initial* dilution, except that objectives indicated for radioactivity shall apply directly to the undiluted waste* effluent.

4. Calculation of Effluent Limitations

a. Effluent limitations for water quality objectives listed in Table 1, with the exception of acute toxicity and radioactivity, shall be determined through the use of the following equation:

Equation 1: $Ce = Co + Dm (Co - Cs)$

where:

Ce = the effluent concentration limit, µg/L

Co = the concentration (water quality objective) to be met at the completion of initial* dilution, µg/L

Cs = background seawater* concentration (see Table 3 below, with all metals expressed as total recoverable concentrations), µg/L

Dm = minimum probable initial* dilution expressed as parts seawater* per part wastewater.

* See Appendix I for definition of terms.

TABLE 3 (formerly TABLE C)
BACKGROUND SEAWATER* CONCENTRATIONS (Cs)

Waste Constituent	Cs (µg/L)
Arsenic	3.
Copper	2.
Mercury	0.0005
Silver	0.16
Zinc	8.
For all other Table 1 parameters, Cs = 0.	

b. Determining a Mixing Zone for the Acute Toxicity* Objective

The mixing zone for the acute toxicity* objective shall be ten percent (10%) of the distance from the edge of the outfall structure to the edge of the chronic mixing zone (zone of initial dilution*). There is no vertical limitation on this zone. The effluent limitation for the acute toxicity* objective listed in Table 1 shall be determined through the use of the following equation:

Equation 2: $Ce = Ca + (0.1)\ Dm\ (Ca)$

where:

Ca = the concentration (water quality objective) to be met at the edge of the acute mixing zone.

Dm = minimum probable initial* dilution expressed as parts seawater* per part wastewater (This equation applies only when Dm > 24).

c. Toxicity Testing Requirements based on the Minimum Initial* Dilution Factor for Ocean Waste* Discharges

(1) Dischargers shall conduct acute toxicity* testing if the minimum initial* dilution of the effluent is greater than 1,000:1 at the edge of the mixing zone.

(2) Dischargers shall conduct either acute or chronic toxicity* testing if the minimum initial* dilution ranges from 350:1 to 1,000:1 depending on the specific discharge conditions. The Regional Water Board shall make this determination.

(3) Dischargers shall conduct chronic toxicity* testing for ocean waste* discharges with minimum initial* dilution factors ranging from 100:1 to 350:1. The Regional Water Board may require that acute toxicity* testing be conducted in addition to chronic as necessary for the protection of beneficial uses of ocean* waters.

(4) Dischargers shall conduct chronic toxicity* testing if the minimum initial* dilution of the effluent falls below 100:1 at the edge of the mixing zone.

* See Appendix I for definition of terms.

d. For the purpose of this Plan, minimum initial* dilution is the lowest average initial* dilution within any single month of the year. Dilution estimates shall be based on observed waste* flow characteristics, observed receiving water* density structure, and the assumption that no currents, of sufficient strength to influence the initial* dilution process, flow across the discharge structure.

e. The Executive Director of the State Water Board shall identify standard dilution models for use in determining Dm, and shall assist the Regional Board in evaluating Dm for specific waste* discharges. Dischargers may propose alternative methods of calculating Dm, and the Regional Board may accept such methods upon verification of its accuracy and applicability.

f. The six-month median shall apply as a moving median of daily values for any 180-day period in which daily values represent flow weighted average concentrations within a 24-hour period. For intermittent discharges, the daily value shall be considered to equal zero for days on which no discharge occurred.

g. The daily maximum shall apply to flow weighted 24 hour composite samples.

h. The instantaneous maximum shall apply to grab sample determinations.

i. If only one sample is collected during the time period associated with the water quality objective (e.g., 30-day average or 6-month median), the single measurement shall be used to determine compliance with the effluent limitation for the entire time period.

j. Discharge requirements shall also specify effluent limitations in terms of mass emission rate limits utilizing the general formula:

Equation 3: lbs/day = 0.00834 x Ce x Q

where:

Ce = the effluent concentration limit, µg/L

Q = flow rate, million gallons per day (MGD)

k. The six-month median limit on daily mass emissions shall be determined using the six-month median effluent concentration as Ce and the observed flow rate Q in millions of gallons per day. The daily maximum mass emission shall be determined using the daily maximum effluent concentration limit as Ce and the observed flow rate Q in millions of gallons per day.

l. Any significant* change in waste* flow shall be cause for reevaluating effluent limitations.

5. Minimum* Levels

For each numeric effluent limitation, the Regional Board must select one or more Minimum* Levels (and their associated analytical methods) for inclusion in the permit. The “reported” Minimum* Level is the Minimum* Level (and its associated analytical

* See Appendix I for definition of terms.

method) chosen by the discharger for reporting and compliance determination from the Minimum* Levels included in their permit.

a. Selection of Minimum* Levels from Appendix II

The Regional Water Board must select all Minimum* Levels from Appendix II that are below the effluent limitation. If the effluent limitation is lower than all the Minimum* Levels in Appendix II, the Regional Board must select the lowest Minimum* Level from Appendix II.

b. Deviations from Minimum* Levels in Appendix II

The Regional Board, in consultation with the State Water Board's Quality Assurance Program, must establish a Minimum* Level to be included in the permit in any of the following situations:

1. A pollutant is not listed in Appendix II.
2. The discharger agrees to use a test method that is more sensitive than those described in 40 CFR 136 (revised May 14, 1999).
3. The discharger agrees to use a Minimum* Level lower than those listed in Appendix II.
4. The discharger demonstrates that their calibration standard matrix is sufficiently different from that used to establish the Minimum* Level in Appendix II and proposes an appropriate Minimum* Level for their matrix.
5. A discharger uses an analytical method having a quantification practice that is not consistent with the definition of Minimum* Level (e.g., US EPA methods 1613, 1624, 1625).

6. Use of Minimum* Levels

a. Minimum* Levels in Appendix II represent the lowest quantifiable concentration in a sample based on the proper application of method-specific analytical procedures and the absence of matrix interferences. Minimum* Levels also represent the lowest standard concentration in the calibration curve for a specific analytical technique after the application of appropriate method-specific factors.

Common analytical practices may require different treatment of the sample relative to the calibration standard. Some examples are given below:

Substance or Grouping	Method-Specific Treatment	Most Common Factor
Volatile Organics	No differential treatment	1
Semi-Volatile Organics	Samples concentrated by extraction	1000
Metals	Samples diluted or concentrated	½ , 2 , and 4
Pesticides	Samples concentrated by extraction	100

b. Other factors may be applied to the Minimum* Level depending on the specific sample preparation steps employed. For example, the treatment typically applied when there are matrix effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied during the

* See Appendix I for definition of terms.

computation of the reporting limit. Application of such factors will alter the reported Minimum* Level.

c. Dischargers are to instruct their laboratories to establish calibration standards so that the Minimum* Level (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the discharger to use analytical data derived from *extrapolation* beyond the lowest point of the calibration curve. In accordance with section 4b, above, the discharger's laboratory may employ a calibration standard lower than the Minimum* Level in Appendix II.

7. Sample Reporting Protocols

a. Dischargers must report with each sample result the reported Minimum* Level (selected in accordance with section 4, above) and the laboratory's current MDL.*

b. Dischargers must also report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

(1) Sample results greater than or equal to the reported Minimum* Level must be reported "as measured" by the laboratory (i.e., the measured chemical concentration in the sample).

(2) Sample results less than the reported Minimum* Level, but greater than or equal to the laboratory's MDL,* must be reported as "Detected, but Not Quantified", or DNQ. The laboratory must write the estimated chemical concentration of the sample next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc.").

(3) Sample results less than the laboratory's MDL* must be reported as "Not Detected", or ND.

8. Compliance Determination

Sufficient sampling and analysis shall be required to determine compliance with the effluent limitation.

a. Compliance with Single-Constituent Effluent Limitations

Dischargers are out of compliance with the effluent limitation if the concentration of the pollutant (see section 7c, below) in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum* Level.

b. Compliance with Effluent Limitations expressed as a Sum of Several Constituents

Dischargers are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCBs*) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

* See Appendix I for definition of terms.

c. Multiple Sample Data Reduction

The concentration of the pollutant in the effluent may be estimated from the result of a single sample analysis or by a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses when all sample results are quantifiable (i.e., greater than or equal to the reported Minimum* Level). When one or more sample results are reported as ND or DNQ, the central tendency concentration of the pollutant shall be the median (middle) value of the multiple samples. If, in an even number of samples, one or both of the middle values is ND or DNQ, the median will be the lower of the two middle values.

d. Powerplants and Heat Exchange Dischargers

Due to the large total volume of powerplant and other heat exchange discharges, special procedures must be applied for determining compliance with Table 1 objectives on a routine basis. Effluent concentration values (Ce) shall be determined through the use of equation 1 considering the minimal probable initial* dilution of the combined effluent (in-plant waste* streams plus cooling water flow). These concentration values shall then be converted to mass emission limitations as indicated in equation 3. The mass emission limits will then serve as requirements applied to all in-plant waste* streams taken together which discharge into the cooling water flow, except that limits for total chlorine residual, acute (if applicable per section (3)(c)) and chronic* toxicity* and instantaneous maximum concentrations in Table 1 shall apply to, and be measured in, the combined final effluent, as adjusted for dilution with ocean water. The Table 1 objective for radioactivity shall apply to the undiluted combined final effluent.

9. Pollutant Minimization Program

a. Pollutant Minimization Program Goal

The goal of the Pollutant Minimization Program is to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures, in order to maintain the effluent concentration at or below the effluent limitation.

Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The completion and implementation of a Pollution Prevention Plan, required in accordance with CA Water Code section 13263.3 (d) will fulfill the Pollution Minimization Program requirements in this section.

b. Determining the need for a Pollutant Minimization Program

1. The discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:

(a) The calculated effluent limitation is less than the reported Minimum Level*

(b) The concentration of the pollutant is reported as DNQ

* See Appendix I for definition of terms.

(c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

2. Alternatively, the discharger must develop and conduct a Pollutant Minimization Program if all of the following conditions are true:

(a) The calculated effluent limitation is less than the Method Detection Limit.*

(b) The concentration of the pollutant is reported as ND.

(c) There is evidence showing that the pollutant is present in the effluent above the calculated effluent limitation.

c. Regional Water Boards may include special provisions in the discharge requirements to require the gathering of evidence to determine whether the pollutant is present in the effluent at levels above the calculated effluent limitation. Examples of evidence may include:

1. health advisories for fish consumption,
2. presence of whole effluent toxicity,
3. results of benthic or aquatic organism tissue sampling,
4. sample results from analytical methods more sensitive than methods included in the permit (in accordance with section 4b, above).
5. the concentration of the pollutant is reported as DNQ and the effluent limitation is less than the MDL*

d. Elements of a Pollutant Minimization Program

The Regional Board may consider cost-effectiveness when establishing the requirements of a Pollutant Minimization Program. The program shall include actions and submittals acceptable to the Regional Board including, but not limited to, the following:

1. An annual review and semi-annual monitoring of potential sources of the reportable pollutant, which may include fish tissue monitoring and other bio-uptake sampling;
2. Quarterly monitoring for the reportable pollutant in the influent to the wastewater treatment system;
3. Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable pollutant in the effluent at or below the calculated effluent limitation;
4. Implementation of appropriate cost-effective control measures for the pollutant, consistent with the control strategy; and,
5. An annual status report that shall be sent to the Regional Board including:

(a) All Pollutant Minimization Program monitoring results for the previous year;

(b) A list of potential sources of the reportable pollutant;

(c) A summary of all action taken in accordance with the control strategy; and,

* See Appendix I for definition of terms.

(d) A description of actions to be taken in the following year.

10. Toxicity Reduction Requirements

a. If a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1, a toxicity reduction evaluation (TRE) is required. The TRE shall include all reasonable steps to identify the source of toxicity. Once the source(s) of toxicity is identified, the discharger shall take all reasonable steps necessary to reduce toxicity to the required level.

b. The following shall be incorporated into waste* discharge requirements: (1) a requirement to conduct a TRE if the discharge consistently exceeds its toxicity effluent limitation, and (2) a provision requiring a discharger to take all reasonable steps to reduce toxicity once the source of toxicity is identified.

D. Implementation Provisions for Bacterial Characteristics

1. Water-Contact Monitoring

a. Weekly samples shall be collected from each site. The geometric mean shall be calculated using the five most recent sample results.

b. If a single sample exceeds any of the single sample maximum (*SSM*) standards, repeat sampling at that location shall be conducted to determine the extent and persistence of the exceedance. Repeat sampling shall be conducted within 24 hours of receiving analytical results and continued until the sample result is less than the SSM standard or until a sanitary survey is conducted to determine the source of the high bacterial densities.

i) Total coliform density will not exceed 10,000 per 100 mL; or
ii) Fecal coliform density will not exceed 400 per 100 mL; or
iii) Total coliform density will not exceed 1,000 per 100 mL when the ratio of fecal/total coliform exceeds 0.1;
iv) enterococcus density will not exceed 104 per 100 mL.

When repeat sampling is required because of an exceedance of any one single sample density, values from all samples collected during that 30-day period will be used to calculate the geometric mean.

c. It is state policy that the geometric mean bacterial objectives are strongly preferred for use in water body assessment decisions, for example, in developing the Clean Water Act section 303(d) list of impaired waters, because the geometric mean objectives are a more reliable measure of long-term water body conditions. In making assessment decisions on bacterial quality, single sample maximum data must be considered together with any available geometric mean data. The use of only single sample maximum bacterial data is generally inappropriate unless there is a limited data set, the water is subject to short-term spikes in bacterial concentrations, or other circumstances justify the use of only single sample maximum data.

* See Appendix I for definition of terms.

d. For monitoring stations outside of the defined water-contact recreation zone (REC-1), samples will be analyzed for total coliform only.

E. Implementation Provisions for Marine Managed Areas*

1. Section E addresses the following Marine Managed Areas*:

(a) State Water Quality Protection Areas (SWQPAs)* consisting of:

(1) SWQPA – Areas of Special Biological Significance (ASBS)* designated by the State Water Board that require special protections as defined under section 4 below.

(2) SWQPA – General Protection (GP) designated by the State Water Board to protect water quality within Marine Protected Areas (MPAs) that require protection under the provisions described under section 5 below.

(b) Marine Protected Areas as defined in the California Public Resources Code as State Marine Reserves, State Marine Parks and State Marine Conservation Areas, established by the Fish and Game Commission, or the Parks and Recreation Commission.

2. The designation of State Marine Parks and State Marine Conservation Areas may not serve as the sole basis for new or modified limitations, substantive conditions, or prohibitions upon existing municipal point source wastewater discharge outfalls. This provision does not apply to State Marine Reserves.

3. The State Water Board may designate SWQPAs* to prevent the undesirable alteration of natural water quality within MPAs. These designations may include either SWQPA-ASBS or SWQPA-GP or in combination. In considering the designation of SWQPAs over MPAs, the State Water Board will consult with the affected Regional Water Quality Control Board, the Department of Fish and Game and the Department of Parks and Recreation, in accordance with the requirements of Appendix IV.

4. Implementation Provisions For SWQPA-ASBS*

(a) Waste* shall not be discharged to areas designated as being of special biological significance. Discharges shall be located a sufficient distance from such designated areas to assure maintenance of natural water quality conditions in these areas.

(b) Regional Water Boards may approve waste* discharge requirements or recommend certification for limited-term (i.e. weeks or months) activities in ASBS.* Limited-term activities include, but are not limited to, activities such as maintenance/repair of existing boat facilities, restoration of sea walls, repair of existing storm water pipes, and replacement/repair of existing bridges. Limited-term activities may result in temporary and short-term changes in existing water quality. Water quality degradation shall be limited to the shortest possible time. The activities must not permanently degrade* water quality or result in water quality

* See Appendix I for definition of terms.

lower than that necessary to protect existing uses, and all practical means of minimizing such degradation shall be implemented.

5. Implementation Provisions for SWQPAs-GP*

(a) Implementation provisions for existing point source wastewater discharges (NPDES)

(1) An SWQPA-GP shall not be designated over existing permitted point source wastewater outfalls or encroach upon the zone of initial dilution* associated with an existing discharge. This requirement does not apply to discharges less than one million gallons per day.

(2) Designation of an SWQPA-GP shall not include conditions to move existing point source wastewater outfalls.

(3) Where a new SWQPA-GP is established in the vicinity of existing municipal wastewater outfalls, there shall be no new or modified limiting condition or prohibitions for the SWQPA-GP relative to those wastewater outfalls.

(4) Regulatory requirements for discharges from existing treated municipal wastewater outfalls shall be derived from the Chapter II – Water Quality Objectives and Chapter III – Program of Implementation.

(b) Implementation provisions for existing seawater* intakes

(1) Existing permitted seawater* intakes other than those serving desalination facilities* must be controlled to minimize entrainment and impingement by using best technology available. Existing permitted seawater* intakes with a capacity less than one million gallons per day are excluded from this requirement.

(2) Existing permitted seawater* intakes serving desalination facilities are governed by the provisions set forth in chapter III.M of this Plan.

(c) Implementation provisions for permitted separate storm sewer system (MS4) discharges and nonpoint source discharges.

(1) Existing waste* discharges are allowed, but shall not cause an undesirable alteration in natural water quality. For purposes of SWQPA-GP, an undesirable alteration in natural water quality means that for intermittent (e.g. wet weather) discharges, Table 1 instantaneous maximum concentrations for chemical constituents, and daily maximum concentrations for chronic toxicity,* must not be exceeded in the receiving water.*

(2) An NPDES permitting authority* may authorize NPDES-permitted non-storm water discharges* to an MS4 with a direct discharge to an SWQPA-GP only to the extent the NPDES permitting authority* finds that the discharge does not cause an undesirable alteration in natural water quality in an SWQPA-GP.

(3) Non-storm water (dry weather) flows are effectively prohibited as required by the applicable permit. Where capacity and infrastructure exists, all dry weather flows

* See Appendix I for definition of terms.

shall be diverted to municipal sanitary sewer systems. The permitting authority* may allow discharges essential for emergency response purposes, structural stability, and slope stability, which may include but are not limited the following:

a. Discharges associated with emergency fire-fighting operations.
b. Foundation and footing drains
c. Water from crawl space or basement pumps.
d. Hillside dewatering.

(4) The following naturally occurring discharges are allowed:

a. Naturally occurring groundwater seepage via a storm drain
b. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

(5) Existing storm water discharges into an SWQPA-GP shall be characterized and assessed to determine what effect if any these inputs are having on natural water quality in the State Water Quality Protection Area. Such assessments shall include an evaluation of cumulative impacts as well as impacts stemming from individual discharges. Information to be considered shall include:

a. Water quality;
b. Flow;
c. Watershed pollutant sources; and
d. Intertidal and/ or subtidal biological surveys.

Within each SWQPA-GP the assessment shall be used to rank these existing discharges into low, medium and high threat impact categories. Cumulative impacts will be ranked similarly as well.

(6) An initial analysis shall be performed for pre- and post-storm receiving water* quality of Table 1 constituents and chronic toxicity.* If post-storm receiving water* quality has larger concentrations of constituents relative to pre-storm, and Table 1 instantaneous maximum concentrations for chemical constituents, and daily maximum concentrations for chronic toxicity,* are exceeded, then receiving water* shall be re-analyzed along with storm runoff (end of pipe) for the constituents that are exceeded.

(7) If undesirable alterations of natural water quality and/or biological communities are identified, control strategies/measures shall be implemented for those dischargers characterized as a high threat or those contributing to higher threat cumulative impacts first.

(8) If those strategies fail, additional control strategies/measures will be implemented for dischargers characterized as medium impact dischargers. If these strategies do not result in improvement of water quality, those discharges classified as low threat shall also implement control strategies/measures.

(d) Implementation Provisions for New Discharges

* See Appendix I for definition of terms.

(1) Point Source Wastewater Outfalls
No new point source wastewater outfalls shall be established within an SWQPA-GP.

(2) Seawater* intakes
No new surface water seawater* intakes shall be established within an SWQPA-GP. This does not apply to subsurface* intakes where studies are prepared showing there is no predictable entrainment, impingement, or construction-related marine life mortality.

(3) All Other New Discharges
There shall be no increase in nonpoint sources or permitted storm drains directly into an SWQPA-GP.

6. Impaired Tributaries to MPAs, SWQPA-ASBS and SWQPA-GP

All water bodies draining to, or that are designated as, MPAs and SWQPAs that appear on the State's CWA section 303(d) list shall be given a high priority to have a TMDL developed and implemented.

F. Revision of Waste* Discharge Requirements

1. The Regional Water Boards may establish more restrictive water quality objectives and effluent limitations than those set forth in this Plan as necessary for the protection of beneficial uses of ocean* waters.

2. Regional Water Boards may impose alternative less restrictive provisions than those contained within Table 1 of the Plan, provided an applicant can demonstrate that:

   a. Reasonable control technologies (including source control, material* substitution, treatment and dispersion) will not provide for complete compliance; or

   b. Any less stringent provisions would encourage water* reclamation;

3. Provided further that:

   a. Any alternative water quality objectives shall be below the conservative estimate of chronic toxicity,* as given in Table 4 (with all metal concentrations expressed as total recoverable concentrations), and such alternative will provide for adequate protection of the marine environment;

   b. A receiving water* quality toxicity objective of 1 TUc is not exceeded; and

   c. The State Water Board grants an exception (chapter III.J) to the Table 1 limits as established in the Regional Board findings and alternative limits.

G. Compliance Schedules in National Pollutant Discharge Elimination System (NPDES) Permits

1. Compliance schedules in NPDES permits are authorized in accordance with the provisions of the State Water Board's Policy for Compliance Schedules in [NPDES] Permits (2008).

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* See Appendix I for definition of terms.

TABLE 4 (formerly TABLE D)
CONSERVATIVE ESTIMATES OF CHRONIC* TOXICITY

Constituent	Estimate of Chronic* Toxicity (µg/L)
Arsenic	19.
Cadmium	8.
Hexavalent Chromium	18.
Copper	5.
Lead	22.
Mercury	0.4
Nickel	48.
Silver	3.
Zinc	51.
Cyanide	10.
Total Chlorine Residual	10.0
Ammonia	4000.0
Phenolic Compounds (non-chlorinated)	a) (see below)
Chlorinated Phenolics	a)
Chlorinated Pesticides and PCBs*	b)

Table 4 Notes:

a) There are insufficient data for phenolics to estimate chronic* toxicity levels. Requests for modification of water quality objectives for these waste* constituents must be supported by chronic* toxicity data for representative sensitive species. In such cases, applicants seeking modification of water quality objectives should consult the Regional Water Quality Control Board to determine the species and test conditions necessary to evaluate chronic effects.

b) Limitations on chlorinated pesticides and PCBs* shall not be modified so that the total of these compounds is increased above the objectives in Table 1.

H. Monitoring Program

1. The Regional Water Boards shall require dischargers to conduct self-monitoring programs and submit reports necessary to determine compliance with the waste* discharge requirements, and may require dischargers to contract with agencies or persons acceptable to the Regional Water Board to provide monitoring reports. Monitoring provisions contained in waste* discharge requirements shall be in accordance with the Monitoring Procedures provided in Appendices III and VI.

2. The Regional Water Board may require monitoring of bioaccumulation of toxicants in the discharge zone. Organisms and techniques for such monitoring shall be chosen by the Regional Water Board on the basis of demonstrated value in waste* discharge monitoring.

* See Appendix I for definition of terms.

I. Discharge Prohibitions

1. Hazardous Substances

a. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste* into the ocean* is prohibited.

2. Areas Designated for Special Water Quality Protection

a. Waste* shall not be discharged to designated Areas* of Special Biological Significance except as provided in chapter III.E Implementation Provisions for Marine Managed Areas.*

3. Sludge

a. Pipeline discharge of sludge to the ocean* is prohibited by federal law; the discharge of municipal and industrial waste* sludge directly to the ocean,* or into a waste* stream that discharges to the ocean,* is prohibited by this Plan. The discharge of sludge digester supernatant directly to the ocean,* or to a waste* stream that discharges to the ocean* without further treatment, is prohibited.

b. It is the policy of the State Water Board that the treatment, use and disposal of sewage sludge shall be carried out in the manner found to have the least adverse impact on the total natural and human environment. Therefore, if federal law is amended to permit such discharge, which could affect California waters, the State Water Board may consider requests for exceptions to this section under Chapter III. J of this Plan, provided further that an Environmental Impact Report on the proposed project shows clearly that any available alternative disposal method will have a greater adverse environmental impact than the proposed project.

4. By-Passing

a. The by-passing of untreated wastes* containing concentrations of pollutants in excess of those of Table 2 or Table 1 to the ocean* is prohibited.

5. Vessels

a. Discharges of hazardous waste (as defined in California Health and Safety Code § 25117 et seq. [but not including sewage]), oily bilge water,* medical waste (as defined in § 117600 et seq. of the California Health and Safety Code) dry-cleaning waste, and film-processing waste from large passenger vessels* and oceangoing vessels* are prohibited.

b. Discharges of graywater* and sewage* from large passenger vessels* are prohibited.

c. Discharges of sewage and sewage sludge from vessels are prohibited in No Discharge Zones* promulgated by U.S. EPA.

* See Appendix I for definition of terms.

6. Trash*

The discharge of Trash* to surface waters of the State or the deposition of Trash* where it may be discharged into surface waters of the State is prohibited. Compliance with this prohibition of discharge shall be achieved as follows:

a. Dischargers with NPDES permits that contain specific requirements for the control of Trash* that are consistent with these Trash Provisions* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.

b. Dischargers with non-NPDES waste discharge requirements (WDRs) or waivers of WDRs that contain specific requirements for the control of Trash* shall be determined to be in compliance with this prohibition if the dischargers are in full compliance with such requirements.

c. Dischargers with NPDES permits, WDRs, or waivers of WDRs that do not contain specific requirements for the control of Trash* are exempt from these Trash Provisions*.

d. Dischargers without NPDES permits, WDRs, or waivers of WDRs must comply with this prohibition of discharge.

e. Chapter III.I.6.b and Chapter III.L.3 notwithstanding, this prohibition of discharge applies to the discharge of preproduction plastic* by manufacturers of preproduction plastics*, transporters of preproduction plastics*, and manufacturers that use preproduction plastics* in the manufacture of other products to surface waters of the State, or the deposition of preproduction plastic* where it may be discharged into surface waters of the State, unless the discharger is subject to a NPDES permit for discharges of storm water* associated with industrial activity.

J. State Board Exceptions to Plan Requirements

1. The State Water Board may, in compliance with the California Environmental Quality Act, subsequent to a public hearing, and with the concurrence of the Environmental Protection Agency, grant exceptions where the Board determines:

   a. The exception will not compromise protection of ocean* waters for beneficial uses, and,

   b. The public interest will be served.

2. All exceptions issued by the State Water Board and in effect at the time of the Triennial Review will be reviewed at that time. If there is sufficient cause to re-open or revoke any exception, the State Water Board may direct staff to prepare a report and to schedule a public hearing. If after the public hearing the State Water Board decides to re-open, revoke, or re-issue a particular exception, it may do so at that time.

* See Appendix I for definition of terms.

K. Implementation Provisions for Vessel Discharges

1. Vessel discharges must comply with State Lands Commission (SLC) requirements for ballast water discharges and hull fouling to control and prevent the introduction of non-indigenous species, found in the Public Resources Code sections 71200 et seq. and title 2, California Code of Regulations, section 22700 et. seq.

2. Discharges incidental to the normal operation large passenger vessels* and ocean-going vessels must be covered and comply with an individual or general NPDES permit.

3. Vessel discharges must not result in violations of water quality objectives in this plan.

4. Vessels subject to the federal NPDES Vessel General Permit (VGP) which are not large passenger vessels* must follow the best management practices for graywater* as required in the VGP, including the use of only those cleaning agents (e.g., soaps and detergents) that are phosphate-free, non-toxic, and non-bioaccumulative.

L. Implementation Provisions for Trash* [(Section L only) effective January 12, 2016]

1. Applicability

a. These Trash Provisions* shall be implemented through a prohibition of discharge (Chapter III.I.6) and through NPDES permits issued pursuant to section 402(p) of the Federal Clean Water Act, waste discharge requirements (WDRs), or waivers of WDRs (as set forth in Chapter III.L.2 and Chapter III.L.3 below).

b. These Trash Provisions* apply to all surface waters of the State, with the exception of those waters within the jurisdiction of the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) for which trash Total Maximum Daily Loads (TMDLs) are in effect prior to the effective date of these Trash Provisions*[1]; provided, however, that:

(1) Upon the effective date of these Trash Provisions*, the Los Angeles Water Board shall cease its full capture system* certification process and provide that any new full capture systems* shall be certified by the State Water Board in accordance with these Trash Provisions*.

(2) Within one year of the effective date of these Trash Provisions*, the Los Angeles Water Board shall convene a public meeting to reconsider the scope of its trash TMDLs, with the exception of those for the Los Angeles River and Ballona Creek watersheds, to particularly consider an approach

[1] In the Los Angeles Region, there are fifteen (15) trash TMDLs for the following watersheds and water bodies: Los Angeles River Watershed, Ballona Creek, Malibu Creek Watershed, Santa Monica Bay Nearshore and Offshore, San Gabriel River East Fork, Revolon Slough and Beardsley Wash, Ventura River Estuary, Machado Lake, Lake Elizabeth, Lake Hughes, Munz Lake, Peck Road Park Lake, Echo Park Lake, Lincoln Park Lake and Legg Lake. Three of these were established by the U.S. EPA: Peck Road Park Lake, Echo Park Lake and Lincoln Park Lake.

* See Appendix I for definition of terms.

that would focus MS4* permittees' trash-control efforts on high-trash generation areas within their jurisdictions.

2. Dischargers Permitted Pursuant to Federal Clean Water Act Section 402(p)

Permitting authorities* shall include the following requirements in NPDES permits issued pursuant to Federal Clean Water Act section 402(p):

a. MS4* permittees with regulatory authority over priority land uses* shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein by either of the following measures:

(1) Track 1: Install, operate, and maintain full capture systems* for all storm drains that captures runoff from the priority land uses* in their jurisdictions; or

(2) Track 2: Install, operate, and maintain any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* within either the jurisdiction of the MS4* permittee or within the jurisdiction of the MS4* permittee and contiguous MS4* permittees. The MS4* permittee may determine the locations or land uses within its jurisdiction to implement any combination of controls. The MS4* permittee shall demonstrate that such combination achieves full capture system equivalency*. The MS4* permittee may determine which controls to implement to achieve compliance with full capture system equivalency*. It is, however, the State Water Board's expectation that the MS4* permittee will elect to install full capture systems* where such installation is not cost-prohibitive.

b. The California Department of Transportation (Department) shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein in all significant trash generating areas* by installing, operating, and maintaining any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* for all storm drains that captures runoff from significant trash generating areas*. The Department shall demonstrate that such combination achieves full capture system equivalency*. In furtherance of this provision, the Department and MS4* permittees that are subject to the provisions of Chapter III.L.2.a herein shall coordinate their efforts to install, operate, and maintain full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* in significant trash generating areas* and/or priority land uses*.

c. Dischargers that are subject to NPDES permits for discharges of storm water* associated with industrial activity (including construction activity) shall be required to comply with the prohibition of discharge in Chapter III.I.6.a herein by eliminating Trash* from all storm water* and authorized non-storm water* discharges consistent with an outright prohibition of the discharge of Trash* contained within the applicable NPDES permit regulating the industrial or construction facility. If the discharger can satisfactorily demonstrate to the permitting authority* its inability to comply with the outright prohibition of the

* See Appendix I for definition of terms.

discharge of Trash* contained within the applicable NPDES permit, then the permitting authority* may require the discharger to either:

(1) Install, operate, and maintain full capture systems* for all storm drains that captures runoff from the facility or site regulated by the NPDES permit; or,

(2) Install, operate, and maintain any combination of full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* for the facility or site regulated by the NPDES permit. The discharger shall demonstrate that such combination achieves full capture system equivalency*.

Termination of permit coverage for industrial and construction storm water* dischargers shall be conditioned upon the proper operation and maintenance of all controls (e.g., full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls*) used at their facility(ies).

d. A permitting authority* may determine that specific land uses or locations (e.g., parks, stadia, schools, campuses, or roads leading to landfills) generate substantial amounts of Trash*. In the event that the permitting authority* makes that determination, the permitting authority* may require the MS4* to comply with Chapter III.L.2.a.1 or Chapter III.L.2.a.2, as determined by the permitting authority*, with respect to such land uses or locations.

3. Other Dischargers

A permitting authority* may require dischargers, described in Chapter III.I.6.c or Chapter III.I.6.d, that are not subject to Chapter III.L.2 herein, to implement any appropriate Trash* controls in areas or facilities that may generate Trash*. Such areas or facilities may include (but are not limited to) high usage campgrounds, picnic areas, beach recreation areas, parks not subject to an MS4* permit, or marinas.

4. Time Schedule

The permitting authority* shall modify, re-issue, or newly adopt NPDES permits issued pursuant to section 402(p) of the Federal Clean Water Act that are subject to the provisions of Chapter III.L.2 herein to include requirements consistent with these Trash Provisions*. The permitting authorities* shall abide by the following time schedules:

a. NPDES Permits Regulating MS4* Permittees that have Regulatory Authority over Priority Land Uses*.[2]

[2] The time schedule requirement in Chapter III.L.4.a.1 requiring MS4* permittees to elect Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2) does not apply to MS4* permittees subject to the Municipal Regional Stormwater NPDES Permit (MRP) issued by the San Francisco Bay Regional Water Quality Control Board (San Francisco Bay Water Board) or the East Contra Costa Municipal Storm Water Permit issued by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) because those permits already require control requirements substantially equivalent to Track 2. The time schedule requirement in Chapter III.L.4.a.1 requiring MS4* permittees to submit an implementation plan

* See Appendix I for definition of terms.

(1) Within eighteen (18) months of the effective date of these Trash Provisions*, for each permittee, each permitting authority* shall either:

A. Modify, re-issue, or adopt the applicable MS4* permit to add requirements to implement these Trash Provisions*. The implementing permit shall require written notice from each MS4* permittee stating whether it has elected to comply under Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2) and such notice shall be submitted to the permitting authority* no later than three (3) months from the effective date of the implementing permit, or for MS4s* designated after the effective date of these Trash Provisions*, three (3) months from the effective date of that designation. The implementing permit shall also require that within eighteen (18) months of the effective date of the implementing permit or new designation, MS4* permittees that have elected to comply with Track 2 shall submit an implementation plan to the permitting authority*. The implementation plan shall describe: (i) the combination of controls selected by the MS4* permittee and the rationale for the selection, (ii) how the combination of controls is designed to achieve full capture system equivalency*, and (iii) how full capture system equivalency* will be demonstrated. The implementation plan is subject to approval by the permitting authority*.

B. Issue an order pursuant to Water Code section 13267 or 13383 requiring the MS4* permittee to submit, within three (3) months from receipt of the order, written notice to the permitting authority* stating whether such MS4* permittee will comply with the prohibition of discharge under Chapter III.L.2.a.1 (Track 1) or Chapter III.L.2.a.2 (Track 2). For MS4s* designated after the effective date of these Trash Provisions*, the order pursuant to Water Code section 13267 or 13383 shall be issued at the time of designation. Within eighteen (18) months of the receipt of the Water Code section 13267 or 13383 order, MS4* permittees that have elected to comply with Track 2 shall submit an implementation plan to the permitting authority* that describes: (i) the combination of controls selected by the MS4* permittee and the rationale for the selection, (ii) how the combination of controls is designed to achieve full capture system equivalency*, and (iii) how full capture system equivalency* will be demonstrated. The implementation plan is subject to approval by the permitting authority*.

(2) For MS4* permittees that elect to comply with Chapter III.L.2.a.1 (Track1), the implementing permit shall state that full compliance shall occur within

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does not apply to the above permittees if the pertinent permitting authority* determines that such permittee has already submitted an implementation plan prior to the effective date of the Trash Provisions* that is equivalent to the implementation plan required by Chapter III.L.4.a.1. In the aforementioned permits, the pertinent permitting authority* may establish an earlier full compliance deadline than that specified in Chapter III.L.4.a.3.

* See Appendix I for definition of terms.

ten (10) years of the effective date of the first implementing permit except as specified in Chapter III.L.4.a.5. The permit shall also require these permittees to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

(3) For MS4* permittees that elect to comply with Chapter III.L.2.a.2 (Track 2), the implementing permit shall state that full compliance shall occur within ten (10) years of the effective date of the first implementing permit except as specified in Chapter III.L.4.a.5. The permit shall also require these permittees to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

(4) The implementing permit shall state that for MS4* permittees designated after the effective date of the implementing permit, full compliance shall occur within ten (10) years of the effective date of the designation. The permit shall also require such designations to demonstrate achievement of interim milestones such as average load reductions of ten percent (10%) per year or other progress to full implementation.

(5) Where a permitting authority* makes a determination pursuant to Chapter III.L.2.d that a specific land use generates a substantial amount of Trash*, that permitting authority* has discretion to determine the time schedule for full compliance. In no case may the final compliance date be later than ten (10) years from the determination.

b. NPDES Permits Regulating the Department.

(1) Within eighteen (18) months of the effective date of these Trash Provisions*, the State Water Board shall issue an order pursuant to Water Code section 13267 or 13383 requiring the Department to submit an implementation plan to the Executive Director of the State Water Board that: (i) describes the specific locations of its significant trash generating areas*, (ii) the combination of controls selected by the Department and the rationale for the selections, and (iii) how it will demonstrate full capture system equivalency*.

(2) The Department must demonstrate full compliance with Chapter III.L.2.b herein within ten (10) years of the effective date of the first implementing NPDES permit, along with achievements of interim milestones such as average load reductions of ten percent (10%) per year. In no case may the final compliance date be later than fifteen (15) years from the effective date of these Trash Provisions*.

c. NPDES Permits Regulating the Discharges of Storm Water* Associated with Industrial Activity (Including Construction Activity). Dischargers that are subject

* See Appendix I for definition of terms.

to the provisions of Chapter III.L.2.c herein must demonstrate full compliance in accordance with the deadlines contained in the first implementing NPDES permits. Such deadlines may not exceed the terms of the first implementing permits.

5. Monitoring and Reporting

The permitting authority* must include monitoring and reporting requirements in its implementing permits. The following monitoring and reporting provisions are the minimum requirements that must be included within the implementing permits:

a. MS4* permittees that elect to comply with Chapter III.L.2.a.1 (Track 1) shall provide a report to the applicable permitting authority* demonstrating installation, operation, maintenance, and the Geographic Information System- (GIS-) mapped location and drainage area served by its full capture systems* on an annual basis.

b. MS4* permittees that elect to comply with Chapter III.L.2.b.2 (Track 2) shall develop and implement monitoring plans that demonstrate the effectiveness of the full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* and compliance with full capture system equivalency*. Monitoring reports shall be provided to the applicable permitting authority* on an annual basis, and shall include GIS-mapped locations and drainage area served for each of the full capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* installed or utilized by the MS4* permittee. In developing the monitoring reports the MS4* permittee should consider the following questions:

(1) What type of and how many treatment controls*, institutional controls*, and/or multi-benefit projects* have been used and in what locations?

(2) How many full capture systems* have been installed (if any), in what locations have they been installed, and what is the individual and cumulative area served by them?

(3) What is the effectiveness of the total combination of treatment controls*, institutional controls*, and multi-benefit projects* employed by the MS4* permittee?

(4) Has the amount of Trash* discharged from the MS4* decreased from the previous year? If so, by how much? If not, explain why.

(5) Has the amount of Trash* in the MS4's* receiving water(s) decreased from the previous year? If so, by how much? If not, explain why.

c. The Department, as subject to the provisions of Chapter III.L.2.b, shall develop and implement monitoring plans that demonstrate the effectiveness of the controls and compliance with full capture system equivalency*. Monitoring reports shall be provided to the State Water Board on an annual basis, and shall include GIS-mapped locations and drainage area served for each of the full

* See Appendix I for definition of terms.

capture systems*, multi-benefit projects*, other treatment controls*, and/or institutional controls* installed or utilized by the Department. In developing the monitoring report, the Department should consider the following questions:

(1) What type of and how many treatment controls* institutional controls*, and/or multi-benefit projects* have been used and in what locations?

(2) How many full capture systems* have been installed (if any), in what locations have they been installed, and what is the individual and cumulative area served by them?

(3) What is the effectiveness of the total combination of treatment controls*, institutional controls*, and multi-benefit projects* employed by the Department?

(4) Has the amount of Trash* discharged from the Department's MS4* decreased from the previous year? If so, by how much? If not, explain why.

(5) Has the amount of Trash* in the receiving waters decreased from the previous year? If so, by how much? If not, explain why.

d. Dischargers that are subject to the provisions of Chapter III.L.2.c herein shall be required to report the measures used to comply with Chapter III.L.2.c.

M. Implementation Provisions for Desalination Facilities*

1. Applicability and General Provisions

a. Chapter III.M applies to desalination facilities* using seawater.* Chapter III.M.2 does not apply to desalination facilities* operated by a federal agency. Chapter III.M.2, M.3, and M.4 do not apply to portable desalination facilities* that withdraw less than 0.10 million gallons per day (MGD) of seawater* and are operated by a governmental agency. These standards do not alter or limit in any way the authority of any public agency to implement its statutory obligations. The Executive Director of the State Water Board may temporarily waive the application of chapter III.M to desalination facilities* that are operating to serve as a critical short-term water supply during a state of emergency as declared by the Governor.

b. Definitions of New, Expanded, and Existing Facilities:

(1) For purposes of chapter III.M, "existing facilities" means desalination facilities* that have been issued an NPDES permit and all building permits and other governmental approvals necessary to commence construction for which the owner or operator has relied in good faith on those previously-issued permits and approvals and commenced construction of the facility beyond site grading prior to January 28, 2016.

* See Appendix I for definition of terms.

(2) For purposes of chapter III.M, "expanded facilities" means existing facilities for which, after January 28, 2016, the owner or operator does either of the following in a manner that could increase intake or mortality of all forms of marine life * beyond that which was originally approved in any NPDES permit or Water Code section 13142.5, subdivision (b) (hereafter Water Code section 13142.5(b)) determination: 1) increases the amount of seawater* used either exclusively by the facility or used by the facility in conjunction with other facilities or uses, or 2) changes the design or operation of the facility. To the extent that the desalination facility* is co-located with another facility that withdraws water for a different purpose and that other facility reduces the volume of water withdrawn to a level less than the desalination facility's* volume of water withdrawn, the desalination facility* is considered to be an expanded facility.

(3) For purposes of chapter III.M, "new facilities" means desalination facilities* that are not existing facilities or expanded facilities.

c. Chapter III.M.2 (Water Code §13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures) applies to new and expanded desalination facilities* withdrawing seawater.*

d. Chapter III.M.3 (Receiving Water Limitation for Salinity*) applies to all desalination facilities* that discharge into ocean waters* and wastewater facilities that receive brine* from seawater* desalination facilities* and discharge into ocean waters.*

e. Chapter III.M.4 (Monitoring and Reporting Programs) applies to all desalination facilities* that discharge into ocean waters.* Chapter III.M.4 shall not apply to a wastewater facility that receives brine* from a seawater* desalination facility* and discharges a positively buoyant commingled effluent through an existing wastewater outfall that is covered under an existing NPDES permit, as long as the owner or operator monitors for compliance with the receiving water limitation set forth in chapter III.M.3. For the purposes of chapter III.M.4, a positively buoyant commingled effluent shall mean that the commingled plume rises when it enters the receiving water body due to salinity* levels in the commingled discharge being lower than the natural background salinity.*

f. References to the regional water board include the regional water board acting under delegated authority. For provisions that require consultation between regional water board and State Water Board staff, the regional water board shall notify and consult with the State Water Board staff prior to making a final determination on the item requiring consultation.

g. All desalination facilities must comply with all other applicable sections of the Ocean Plan.

2. Water Code section 13142.5(b) Determinations for New and Expanded Facilities: Site, Design, Technology, and Mitigation Measures Feasibility Considerations

* See Appendix I for definition of terms.

a. General Considerations

(1) The owner or operator shall submit a request for a Water Code section 13142.5(b) determination to the appropriate regional water board as early as practicable. This request shall include sufficient information for the regional water board to conduct the analyses described below. The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed, including any information necessary to identify and assess other potential sources of mortality to all forms of marine life. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third party entity to review studies and models and make recommendations to the regional water board.

(2) The regional water board shall conduct a Water Code section 13142.5(b) analysis of all new and expanded desalination facilities.* A Water Code section 13142.5(b) analysis may include future expansions at the facility. The regional water board shall first analyze separately as independent considerations a range of feasible* alternatives for the best available site, the best available design, the best available technology, and the best available mitigation measures to minimize intake and mortality of all forms of marine life.* Then, the regional water board shall consider all four factors collectively and determine the best combination of feasible* alternatives to minimize intake and mortality of all forms of marine life.* The best combination of alternatives may not always include the best alternative under each individual factor because some alternatives may be mutually exclusive, redundant, or not feasible* in combination.

(3) The regional water board's Water Code section 13142.5(b) analysis for expanded facilities may be limited to those expansions or other changes that result in the increased intake or mortality of all forms of marine life,* unless the regional water board determines that additional measures that minimize intake and mortality of all forms of marine life* are feasible* for the existing portions of the facility.

(4) In conducting the Water Code section 13142.5(b) determination, the regional water boards shall consult with other state agencies involved in the permitting of that facility, including, but not limited to: California Coastal Commission, California State Lands Commission, and California Department of Fish and Wildlife. The regional water board shall consider project-specific decisions made by other state agencies; however, the regional water board is not limited to project-specific requirements set forth by other agencies and may include additional requirements in a Water Code section 13142.5(b) determination.

* See Appendix I for definition of terms.

(5) A regional water board may expressly condition a Water Code section 13142.5(b) determination based on the expectation of the occurrence of a future event. Such future events may include, but are not limited to, the permanent shutdown of a co-located power plant with intake structures shared with the desalination facility,* or a reduction in the volume of wastewater available for the dilution of brine.* The regional water board must make a new Water Code section 13142.5(b) determination if the foreseeable future event occurs.

(a) The owner or operator shall provide notice to the regional water board as soon as it becomes aware that the expected future event will occur, and shall submit a new request for a Water Code section 13142.5(b) determination to the regional water board at least one year prior to the event occurring. If the owner or operator does not become aware that the event will occur at least one year prior to the event occurring, the owner or operator shall submit the request as soon as possible.

(b) The regional water board may allow up to five years from the date of the event for the owner or operator to make modifications to the facility required by a new Water Code section 13142.5(b) determination, provided that the regional water board finds that 1) any water supply interruption resulting from the facility modifications requires additional time for water users to obtain a temporary replacement supply, or 2) such a compliance period is otherwise in the public interest and reasonably required for modification of the facility to comply with the determination.

(c) If the regional water board makes a Water Code section 13142.5(b) determination for a desalination facility* that will be co-located with a power plant, the regional water board shall condition its determination on the power plant remaining in compliance with the Water Quality Control Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling.

b. Site is the general onshore and offshore location of a new or expanded facility. There may be multiple potential facility design configurations within any given site. The regional water board shall require that the owner or operator evaluate a reasonable range of nearby sites, including sites that would likely support subsurface intakes. For each potential site, in order to determine whether a proposed facility site is the best available site feasible* to minimize intake and mortality of all forms of marine life,* the regional water board shall require the owner or operator to:

(1) Consider whether subsurface intakes* are feasible.*

(2) Consider whether the identified need for desalinated* water is consistent with an applicable adopted urban water management plan

* See Appendix I for definition of terms.

prepared in accordance with Water Code section 10631, or if no urban water management plan is available, other water planning documents such as a county general plan or integrated regional water management plan.

(3) Analyze the feasibility of placing intake, discharge, and other facility infrastructure in a location that avoid impacts to sensitive habitats* and sensitive species.

(4) Analyze the direct and indirect effects on all forms of marine life* resulting from facility construction and operation, individually and in combination with potential anthropogenic effects on all forms of marine life* resulting from other past, present, and reasonably foreseeable future activities within the area affected by the facility.

(5) Analyze oceanographic geologic, hydrogeologic, and seafloor topographic conditions at the site, so that the siting of a facility, including the intakes and discharges, minimizes the intake and mortality of all forms of marine life.*

(6) Analyze the presence of existing discharge infrastructure, and the availability of wastewater to dilute the facility's brine* discharge.

(7) Ensure that the intake and discharge structures are not located within a MPA or SWQPA* with the exception of intake structures that do not have marine life mortality associated with the construction, operation, and maintenance of the intake structures (e.g. slant wells). Discharges shall be sited at a sufficient distance from a MPA or SWQPA* so that the salinity* within the boundaries of a MPA or SWQPA* does not exceed natural background salinity.* To the extent feasible,* surface intakes shall be sited so as to maximize the distance from a MPA or SWQPA.*

c. Design is the size, layout, form, and function of a facility, including the intake capacity and the configuration and type of infrastructure, including intake and outfall structures. The regional water board shall require that the owner or operator perform the following in determining whether a proposed facility design is the best available design feasible* to minimize intake and mortality of all forms of marine life:*

(1) For each potential site, analyze the potential design configurations of the intake, discharge, and other facility infrastructure to avoid impacts to sensitive habitats* and sensitive species.

(2) If the regional water board determines that subsurface intakes* are not feasible* and surface water intakes are proposed instead, analyze potential designs for those intakes in order to minimize the intake and mortality of all forms of marine life.*

* See Appendix I for definition of terms.

(3) Design the outfall so that the brine mixing zone* does not encompass or otherwise adversely affect existing sensitive habitat.*

(4) Design the outfall so that discharges do not result in dense, negatively-buoyant plumes that result in adverse effects due to elevated salinity* or hypoxic conditions occurring outside the brine mixing zone.* An owner or operator must demonstrate that the outfall meets this requirement through plume modeling and/or field studies. Modeling and field studies shall be approved by the regional water board in consultation with State Water Board staff.

(5) Design outfall structures to minimize the suspension of benthic sediments.

d. Technology is the type of equipment, materials,* and methods that are used to construct and operate the design components of the desalination facility.* The regional water board shall apply the following considerations in determining whether a proposed technology is the best available technology feasible* to minimize intake and mortality of all forms of marine life:*

(1) Considerations for Intake Technology:

(a) Subject to chapter M.2.a.(2), the regional water board in consultation with State Water Board staff shall require subsurface intakes* unless it determines that subsurface intakes* are not feasible* based upon a comparative analysis of the factors listed below for surface and subsurface intakes.* A design capacity in excess of the need for desalinated* water as identified in chapter III.M.2.b.(2) shall not be used by itself to declare subsurface intakes* as not feasible.*

i. The regional water board shall consider the following factors in determining feasibility of subsurface intakes:* geotechnical data, hydrogeology, benthic topography, oceanographic conditions, presence of sensitive habitats,* presence of sensitive species, energy use for the entire facility; design constraints (engineering, constructability), and project life cycle cost. Project life cycle cost shall be determined by evaluating the total cost of planning, design, land acquisition, construction, operations, maintenance, mitigation, equipment replacement and disposal over the lifetime of the facility, in addition to the cost of decommissioning the facility. Subsurface intakes* shall not be determined to be economically infeasible solely because subsurface intakes* may be more expensive than surface intakes. Subsurface intakes* may be determined to be economically infeasible if the additional costs or lost profitability associated with subsurface intakes,* as compared to surface intakes, would render the desalination facility* not economically viable. In

* See Appendix I for definition of terms.

addition, the regional water board may evaluate other site- and facility-specific factors.

ii. If the regional water board determines that subsurface intakes* are not feasible* for the proposed intake design capacity, it shall determine whether subsurface intakes* are feasible* for a reasonable range of alternative intake design capacities. The regional water board may find that a combination of subsurface* and surface intakes is the best feasible* alternative to minimize intake and mortality of marine life and meet the identified need for desalinated water as described in chapter III.M.2.b.(2).

(b) Installation and maintenance of a subsurface intake* shall avoid, to the maximum extent feasible,* the disturbance of sensitive habitats* and sensitive species.

(c) If subsurface intakes* are not feasible,* the regional water board may approve a surface water intake, subject to the following conditions:

i. The regional water board shall require that surface water intakes be screened. Screens must be functional while the facility is withdrawing seawater.*

ii. In order to reduce entrainment, all surface water intakes must be screened with a 1.0 mm (0.04 in) or smaller slot size screen when the desalination facility* is withdrawing seawater.*

iii. An owner or operator may use an alternative method of preventing entrainment so long as the alternative method results in intake and mortality of eggs, larvae, and juvenile organisms that is less than or equivalent to a 1.0 mm (0.04 in) slot size screen. The owner or operator must demonstrate the effectiveness of the alternative method to the regional water board. The owner or operator must conduct a study to demonstrate the effectiveness of the alternative method, and use an Empirical Transport Model* (ETM)/ Area of Production Forgone* (APF) approach* to estimate entrainment. The study period shall be at least 12 consecutive months. Sampling for environmental studies shall be designed to account for variation in oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis* shall evaluate entrainment for a broad range of species, species morphologies, and sizes under the environmental and operational conditions that are representative of the entrained species and the conditions at

* See Appendix I for definition of terms.

the full-scale desalination facility.* At their discretion, the regional water boards may permit the use of existing entrainment data to meet this requirement.

iv. In order to minimize impingement, through-screen velocity at the surface water intake shall not exceed 0.15 meters per second (0.5 feet per second).

(2) Considerations for Brine* Discharge Technology:

(a) The preferred technology for minimizing intake and mortality of all forms of marine life* resulting from brine* discharge is to commingle brine* with wastewater (e.g., agricultural, municipal, industrial, power plant cooling water, etc.) that would otherwise be discharged to the ocean. The wastewater must provide adequate dilution to ensure salinity* of the commingled discharge meets the receiving water limitation for salinity* in chapter III.M.3. Nothing in this section shall preclude future recycling of the wastewater.

(b) Multiport diffusers* are the next best method for disposing of brine* when the brine* cannot be diluted by wastewater and when there are no live organisms in the discharge. Multiport diffusers* shall be engineered to maximize dilution, minimize the size of the brine mixing zone,* minimize the suspension of benthic sediments, and minimize mortality of all forms of marine life.*

(c) Brine* discharge technologies other than wastewater dilution and multiport diffusers,* may be used if an owner or operator can demonstrate to the regional water board that the technology provides a comparable level of intake and mortality of all forms of marine life* as wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable. The owner or operator must evaluate all of the individual and cumulative effects of the proposed alternative discharge method on the intake and mortality of all forms of marine life,* including (where applicable); intake-related entrainment, osmotic stress, turbulence that occurs during water conveyance and mixing, and shearing stress at the point of discharge. When determining the intake and mortality associated with a brine* discharge technology or combination of technologies, the regional water board shall require the owner or operator to use empirical studies or modeling to:

i. Estimate intake entrainment impacts using an ETM/APF approach.*

ii. Estimate degradation of all forms of marine life* from elevated salinity* within the brine mixing zone,* including osmotic stresses, the size of impacted area, and the duration that all forms of marine life* are exposed to the

* See Appendix I for definition of terms.

toxic conditions. Considerations shall be given to the most sensitive species, and community structure and function.

iii. Estimate the intake and mortality of all forms of marine life* that occurs as a result of water conveyance, in-plant turbulence or mixing, and waste* discharge.

iv. Within 18 months of beginning operation, submit to the regional water board an empirical study that evaluates intake and mortality of all forms of marine life* associated with the alternative brine* discharge technology. The study must evaluate impacts caused by any augmented intake volume, intake and pump technology, water conveyance, waste brine* mixing, and effluent discharge. Unless demonstrated otherwise, organisms entrained by the alternative brine* discharge technology are assumed to have a mortality rate of 100 percent. The study period shall be at least 12 consecutive months. If the regional water board requires a study period longer than 12 months, the final report must be submitted to the regional water board within 6 months of the completion of the empirical study.

v. If the empirical study shows that the alternative brine* discharge technology results in more intake and mortality of all forms of marine life* than a facility using wastewater dilution or multiport diffusers,* then the facility must either: (1) cease using the alternative brine* discharge technology and install and use wastewater dilution or multiport diffusers* to discharge brine* waste, or (2) re-design the alternative brine* discharge technology system to minimize intake and mortality of all forms of marine life* to a level that is comparable with wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable,* subject to regional water board approval.

(d) Flow augmentation* as an alternative brine* discharge technology is prohibited with the following exceptions:

i. At facilities that use subsurface intakes* to supply augmented flow water for dilution. Facilities that use subsurface intakes* to supply augmented flow water for dilution are exempt from the requirements of chapter III.M.2.d.(2)(c) if the facility meets the receiving water limitation for salinity* in chapter III.M.3.

ii. At a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016. If the owner or operator of the facility proposes to use flow augmentation* as an

* See Appendix I for definition of terms.

alternative brine* discharge technology, the facility must: use low turbulence intakes (e.g., screw centrifugal pumps or axial flow pumps) and conveyance pipes; convey and mix dilution water in a manner that limits thermal stress, osmotic stress, turbulent shear stress, and other factors that could cause intake and mortality of all forms of marine life*; comply with chapter III.M.2.d.(1); and not discharge through multiport diffusers.*

e. Mitigation for the purposes of this section is the replacement of all forms of marine life* or habitat that is lost due to the construction and operation of a desalination facility* after minimizing intake and mortality of all forms of marine life* through best available site, design, and technology. The regional water board shall ensure an owner or operator fully mitigates for the operational lifetime of the facility and uses the best available mitigation measures feasible* to minimize intake and mortality of all forms of marine life.* The owner or operator may choose whether to satisfy a facility's mitigation measures pursuant to chapter III.M.2.e.(3) or, if available, M.2.e.(4), or a combination of the two.

(1) *Marine Life Mortality Report.* The owner or operator of a facility shall submit a report to the regional water board estimating the marine life mortality resulting from construction and operation of the facility after implementation of the facility's required site, design, and technology measures.

(a) For operational mortality related to intakes, the report shall include a detailed entrainment study. The entrainment study period shall be at least 12 consecutive months and sampling shall be designed to account for variation in oceanographic or hydrologic conditions and larval abundance and diversity such that abundance estimates are reasonably accurate. At their discretion, the regional water boards may permit the use of existing entrainment data from the facility to meet this requirement. Samples must be collected using a mesh size no larger than 335 microns and individuals collected shall be identified to the lowest taxonomical level practicable. The ETM/APF analysis* shall be representative of the entrained species collected using the 335 micron net. The APF* shall be calculated using a one-sided, upper 95 percent confidence bound for the 95th percentile of the APF distribution. An owner or operator with subsurface intakes* is not required to do an ETM/APF analysis* for their intakes and is not required to mitigate for intake-related operational mortality. The regional water board may apply a one percent reduction to the APF* acreage calculated in the Marine Life Mortality Report to account for the reduction in entrainment of all forms of marine life* when using a 1.0 mm slot size screen.

* See Appendix I for definition of terms.

(b) For operational mortality related to discharges, the report shall estimate the area in which salinity* exceeds 2.0 parts per thousand above natural background salinity* or a facility-specific alternative receiving water limitation (see chapter III.M.3). The area in excess of the receiving water limitation for salinity* shall be determined by modeling and confirmed with monitoring. The report shall use any acceptable approach approved by the regional water board for evaluating mortality that occurs due to shearing stress resulting from the facility's discharge, including any incremental increase in mortality resulting from a commingled discharge.

(c) For construction-related mortality, the report shall use any acceptable approach approved by the regional water board for evaluating the mortality that occurs within the area disturbed by the facility's construction. The regional water board may determine that the construction-related disturbance does not require mitigation because the disturbance is temporary and the habitat is naturally restored.

(d) Upon approval of the report by the regional water board in consultation with State Water Board staff, the calculated marine life mortality shall form the basis for the mitigation provided pursuant to this section.

(2) The owner or operator shall mitigate for the mortality of all forms of marine life* determined in the report above by choosing to either complete a mitigation project as described in chapter III.M.2.e.(3) or, if an appropriate fee-based mitigation program is available, provide funding for the program as described in chapter III.M.2.e.(4). The mitigation project or the use of a fee-based mitigation program and the amount of the fee that the owner or operator must pay is subject to regional water board approval.

(3) *Mitigation Option 1: Complete a Mitigation Project.* The mitigation project must satisfy the following provisions:

(a) The owner or operator shall submit a Mitigation Plan. Mitigation Plans shall include: project objectives, site selection, site protection instrument (the legal arrangement or instrument that will be used to ensure the long-term protection of the compensatory mitigation project site), baseline site conditions, a mitigation work plan, a maintenance plan, a long-term management plan, an adaptive management plan, performance standards and success criteria, monitoring requirements, and financial assurances.

(b) The mitigation project must meet the following requirements:

i. Mitigation shall be accomplished through expansion, restoration or creation of one or more of the following:

* See Appendix I for definition of terms.

kelp beds,* estuaries,* coastal wetlands, natural reefs, MPAs, or other projects approved by the regional water board that will mitigate for intake and mortality of all forms of marine life* associated with the facility.

ii. The owner or operator shall demonstrate that the project fully mitigates for intake-related marine life mortality by including expansion, restoration, or creation of habitat based on the APF* acreage calculated in the Marine Life Mortality Report above. The owner or operator using surface water intakes shall do modeling to evaluate the areal extent of the mitigation project's production area to confirm that it overlaps the facility's source water body.* Impacts on the mitigation project due to entrainment by the facility must be offset by adding compensatory acreage to the mitigation project.

iii. The owner or operator shall demonstrate that the project also fully mitigates for the discharge-related marine life mortality projected in the Marine Life Mortality Report above.

iv. The owner or operator shall demonstrate that the project also fully mitigates for the construction-related marine life mortality identified in the Marine Life Mortality Report above.

v. The regional water board may permit out-of-kind mitigation* for mitigation of open water or soft-bottom species. In-kind mitigation* shall be done for all other species whenever feasible.*

vi. For out-of-kind mitigation,* an owner or operator shall evaluate the biological productivity of the impacted open water or soft-bottom habitat calculated in the Marine Life Mortality Report and the proposed mitigation habitat. If the mitigation habitat is a more biologically productive habitat (e.g. wetlands, estuaries,* rocky reefs, kelp beds,* eelgrass beds,* surfgrass beds*), the regional water boards may apply a mitigation ratio based on the relative biological productivity of the impacted open water or soft-bottom habitat and the mitigation habitat. The mitigation ratio shall not be less than one acre of mitigation habitat for every ten acres of impacted open water or soft-bottom habitat.

vii. For in-kind mitigation,* the mitigation ratio shall not be less than one acre of mitigation habitat for every one acre of impacted habitat.

* See Appendix I for definition of terms.

viii. For both in-kind* and out-of-kind mitigation,* the regional water boards may increase the required mitigation ratio for any species and impacted natural habitat calculated in the Marine Life Mortality Report when appropriate to account for imprecisions associated with mitigation including, but not limited to, the likelihood of success, temporal delays in productivity, and the difficulty of restoring or establishing the desired productivity functions.

ix. The rationale for the mitigation ratios must be documented in the administrative record for the permit action.

(c) The Mitigation Plan is subject to approval by the regional water board in consultation with State Water Board staff and with other agencies having authority to condition approval of the project and require mitigation.

(4) *Mitigation Option 2: Fee-based Mitigation Program*. If the regional water board determines that an appropriate fee-based mitigation program has been established by a public agency, and that payment of a fee to the mitigation program will result in the creation and ongoing implementation of a mitigation project that meets the requirements of chapter M.2.e.(3), the owner or operator may pay a fee to the mitigation program in lieu of completing a mitigation project.

(a) The agency that manages the fee-based mitigation program must have legal and budgetary authority to accept and spend mitigation funds, a history of successful mitigation projects documented by having set and met performance standards for past projects, and stable financial backing in order to manage mitigation sites for the operational life of the facility.

(b) The amount of the fee shall be based on the cost of the mitigation project, or if the project is designed to mitigate cumulative impacts from multiple desalination facilities or other development projects, the amount of the fee shall be based on the desalination facility's* fair share of the cost of the mitigation project.

(c) The manager of the fee-based mitigation program must consult with the California Department of Fish and Wildlife, Ocean Protection Council, Coastal Commission, State Lands Commission, and State and regional water boards to develop mitigation projects that will best compensate for intake and mortality of all forms of marine life* caused by the desalination facility.* Mitigation projects that increase or enhance the viability and sustainability of all forms of marine life* in Marine Protected Areas are preferred, if feasible.*

* See Appendix I for definition of terms.

(5) California Department of Fish and Wildlife, the regional water board, and State Water Board may perform audits or site inspections of any mitigation project.

(6) An owner or operator, or a manager of a fee-based mitigation program, must submit a mitigation project performance report to the regional water board 180 days prior to the expiration date of their NPDES permit.

(7) For conditionally permitted facilities or expanded facilities, the regional water boards may:

(a) Account for previously-approved mitigation projects associated with a facility when making a new Water Code section 13142.5(b) determination.

(b) Require additional mitigation when making a new Water Code section 13142.5(b) determination for any additional mortality of all forms of marine life resulting from the occurrence of the conditional event or the expansion of the facility. The additional mitigation must be to compensate for any additional construction, discharge, or other increases in intake or impacts or an increase in intake and mortality of all forms of marine life.*

3. Receiving Water Limitation for Salinity*

a. Chapter III.M.3 is applicable to all desalination facilities discharging brine* into ocean waters,* including facilities that commingle brine* and wastewater.

b. The receiving water limitation for salinity* shall be established as described below:

(1) Discharges shall not exceed a daily maximum of 2.0 parts per thousand (ppt) above natural background salinity* measured no further than 100 meters (328 ft) horizontally from each discharge point. There is no vertical limit to this zone.

(2) In determining an effluent limit necessary to meet this receiving water limitation, permit writers shall use the formula in chapter III.C.4 that has been modified for brine* discharges as follows:

Equation 1: Ce= Co + Dm(2.0 ppt)
Ce= (2.0 ppt + Cs) + Dm(2.0 ppt)

Where:

Ce= the effluent concentration limit, ppt
Co= the salinity* concentration to be met at the completion of initial* dilution= 2.0 ppt + Cs
Cs= the natural background salinity,* ppt
Dm= minimum probable initial dilution* expressed as parts

* See Appendix I for definition of terms.

seawater* per part brine* discharge

(a) The fixed distance referenced in the initial dilution* definition shall be no more than 100 meters (328 feet).

(b) In addition, the owner or operator shall develop a dilution factor (Dm) based on the distance of 100 meters (328 feet) or initial dilution,* whichever is smaller. The dilution factor (Dm) shall be developed within the brine mixing zone* using applicable water quality models that have been approved by the regional water boards in consultation with State Water Board staff.

(c) The value 2.0 ppt in Equation 1 is the maximum incremental increase above natural background salinity* (Cs) allowed at the edge of the brine mixing zone.* A regional water board may substitute an alternative numeric value for 2.0 ppt in Equation 1 based upon the results of a facility-specific alternative salinity* receiving water limitation study, as described in chapter III.M.3.c below.

c. An owner or operator may submit a proposal to the regional water board for approval of an alternative (other than 2 ppt) salinity* receiving water limitation to be met no further than 100 meters horizontally from the discharge. There is no vertical limit to this zone.

(1) To determine whether a proposed facility-specific alternative receiving water limitation is adequately protective of beneficial uses, an owner or operator shall:

(a) Establish baseline biological conditions at the discharge location and at reference locations over a 12-month period prior to commencing brine* discharge. The biologic surveys must characterize the ecologic composition of habitat and marine life using measures established by the regional water board. At their discretion, the regional water boards may permit the use of existing data to meet this requirement.

(b) Conduct at least the following chronic toxicity* Whole Effluent Toxicity (WET) tests: germination and growth for giant kelp (*Macrocystis pyrifera)*; development for red abalone (*Haliotis refescens)*; development and fertilization for purple urchin (*Strongleocentrotus purpuratus)*; development and fertilization for sand dollar (*Dendraster excentricus)*; larval growth rate for topsmelt (*Atherniops affinis)*. WET tests shall be performed by an Environmental Laboratory Accreditation Program (ELAP) certified laboratory.

* See Appendix I for definition of terms.

(c) The regional water board in consultation with State Water Board staff may require an owner or operator to do additional toxicity studies if needed.

(2) The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information in order to approve a facility-specific alternative receiving water limitation for salinity.*

(3) The facility-specific alternative receiving water limitation shall be based on the lowest observed effect concentration (LOEC)* for the most sensitive species and toxicity endpoint as determined in the chronic toxicity* studies. The regional water board in consultation with State Water Board staff has discretion to approve the proposed facility-specific alternative receiving water limitation for salinity.*

(4) The regional water board shall review a facility's monitoring data, the studies as required in chapter III.M.4 below, or any other information that the regional water board deems to be relevant to periodically assess whether the facility-specific alternative receiving water limitation for salinity* is adequately protective of beneficial uses. The regional water board may eliminate or revise a facility-specific alternative receiving water limitation for salinity* based on its assessment of the data.

d. The owner or operator of a facility that has received a conditional Water Code section 13142.5(b) determination and is over 80 percent constructed by January 28, 2016 that proposes flow augmentation* using a surface water intake may submit a proposal to the regional water board in consultation with the State Water Board staff for approval of an alternative brine mixing zone* not to exceed 200 meters laterally from the discharge point and throughout the water column. The owner or operator of such a facility must demonstrate, in accordance with chapter III.M.2.d.(2)(c), that the combination of the alternative brine mixing zone* and flow augmentation* using a surface water intake provide a comparable level of intake and mortality of all forms of marine life* as the combination of the standard brine mixing zone* and wastewater dilution if wastewater is available, or multiport diffusers* if wastewater is unavailable. In addition to the analysis of the effects required by chapter III.M.2.d.(2)(c), the owner or operator must also evaluate the individual and cumulative effects of the alternative brine mixing zone* on the intake and mortality of all forms of marine life.* In no case may the discharge result in hypoxic conditions outside of the alternative brine mixing zone.* If an alternative brine mixing zone* is approved, the alternative distance and the areal extent of the alternative brine mixing zone* shall be used in lieu of the standard brine mixing zone* for all purposes, including establishing an effluent limitation and a receiving water limitation for salinity, in chapter III.M.

e. Existing facilities that do not meet the receiving water limitation at the edge of the brine mixing zone* and throughout the water column by January 28, 2016 must either: 1) establish a facility-specific alternative receiving water limitation

* See Appendix I for definition of terms.

for salinity* as described in chapter III.M.3.c; or, 2) upgrade the facility's brine* discharge method in order to meet the receiving watr limitation in chapter III.M.3.b in accordance with the State Water Board's Compliance Schedule Policy, as set forth in chapter III.M.3.f below. An owner or operator that chooses to upgrade the facility's method of brine* discharge:

(1) Must demonstrate to the regional water board that the brine* discharge does not negatively impact sensitive habitats,* sensitive species, MPAs, or SWQPAs.*

(2) Is subject to the Considerations for Brine* Discharge Technology described in chapter III.M.2.d.(2).

f. The regional water board may grant compliance schedules for the requirements for brine* waste discharges for desalination facilities.* All compliance schedules shall be in accordance with the State Water Board's Compliance Schedule Policy, except that the salinity* receiving water limitation set forth in chapters III.M.3.b and III.M.3.c shall be considered to be a "new water quality objective" as used in the Compliance Schedule Policy.

g. The regional water board in consultation with the State Water Board staff may require an owner or operator to provide additional studies or information if needed. All studies and models are subject to the approval of the regional water board in consultation with State Water Board staff. The regional water board may require an owner or operator to hire a neutral third party entity to review studies and models and make recommendations to the regional water board.

4. Monitoring and Reporting Programs

a. The owner or operator of a desalination facility* must submit a Monitoring and Reporting Plan to the regional water board for approval. The Monitoring and Reporting Plan shall include monitoring of effluent and receiving water characteristics and impacts to all forms of marine life.* The Monitoring and Reporting Plan shall, at a minimum, include monitoring for benthic community health, aquatic life toxicity, hypoxia, and receiving water characteristics consistent with Appendix III of this Plan and for compliance with the receiving water limitation in chapter III.M.3. Receiving water monitoring for salinity* shall be conducted at times when the monitoring locations are most likely affected by the discharge. For new or expanded facilities the following additional requirements apply:

(1) An owner or operator must perform facility-specific monitoring to demonstrate compliance with the receiving water limitation for salinity,* and evaluate the potential effects of the discharge within the water column, bottom sediments, and the benthic communities. Facility-specific monitoring is required until the regional water board determines that a regional monitoring program is adequate to ensure compliance with the receiving water limitation. The monitoring and

* See Appendix I for definition of terms.

reporting plan shall be reviewed, and revised if necessary, upon NPDES permit renewal.

(2) Baseline biological conditions shall be established at the discharge location and at a reference location prior to commencement of construction. The owner or operator is required to conduct biological surveys (e.g., Before-After Control-Impact study), that will evaluate the differences between biological communities at a reference site and at the discharge location before and after the discharge commences. The regional water board will use the data and results from the surveys and any other applicable data for evaluating and renewing the requirements set forth in a facility's NPDES permit.

* See Appendix I for definition of terms.

APPENDIX I
DEFINITION OF TERMS

ACUTE TOXICITY

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{\text{96-hr LC 50\%}}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Appendix III. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

ALL FORMS OF MARINE LIFE includes all life stages of all marine species.

AREA PRODUCTION FOREGONE (APF), also known as habitat production foregone, is an estimate of the area that is required to produce (replace) the same amount of larvae or propagules* that are removed via entrainment at a desalination facilities* intakes. APF is calculated by multiplying the proportional mortality* by the source water body,* which are both determined using an empirical transport model.*

AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) are those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that maintenance of natural water quality is assured. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.* ASBS are also referred to as State Water Quality Protection Areas* – Areas of Special Biological Significance (SWQPA-ASBS).

BRINE is the byproduct of desalinated* water having a salinity* concentration greater than a desalination facility's* intake source water.

* See Appendix I for definition of terms.

BRINE MIXING ZONE is the area where salinity* may exceed 2.0 parts per thousand above natural background salinity,* or the concentration of salinity* approved as part of an alternative receiving water limitation. The standard brine mixing zone shall not exceed 100 meters (328 feet) laterally from the points of discharge and throughout the water column. An alternative brine mixing zone, if approved as described in chapter III.M.3.d, shall not exceed 200 meters (656 feet) laterally from the points of discharge and throughout the water column. The brine mixing zone is an allocated impact zone where there may be toxic effects on marine life due to elevated salinity.

CHLORDANE shall mean the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

CHRONIC TOXICITY: This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water* that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix III, Table III-1.

DDT shall mean the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

DEGRADE: Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant* differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

DESALINATION FACILITY is an industrial facility that processes water to remove salts and other components from the source water to produce water that is less saline than the source water.

DICHLOROBENZENES shall mean the sum of 1,2- and 1,3-dichlorobenzene.

DOWNSTREAM OCEAN WATERS shall mean waters downstream with respect to ocean currents.

DREDGED MATERIAL: Any material* excavated or dredged from the navigable waters of the United States, including material* otherwise referred to as "spoil".

EELGRASS BEDS are aggregations of the aquatic plant species of the genus *Zostera*.

* See Appendix I for definition of terms.

EMPIRICAL TRANSPORT MODEL (ETM) is a methodology for determining the spatial area known as the source water body* that contains the source water population, which are the organisms that are at risk of entrainment as determined by factors that may include but are not limited to biological, hydrodynamic, and oceanographic data. ETM can also be used to estimate proportional mortality,* P_m.

ENCLOSED BAYS are indentations along the coast which enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

ENDOSULFAN shall mean the sum of endosulfan-alpha and -beta and endosulfan sulfate.

ESTUARIES AND COASTAL LAGOONS are waters at the mouths of streams that serve as mixing zones for fresh and ocean* waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant* mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

ETM/APF APPROACH or ANALYSIS. For guidance on how to perform an ETM/APF analysis please see Appendix E of the Staff Report for Amendment to the Water Quality Control Plan For Ocean Waters of California Addressing Desalination Facility Intakes, Brine Discharges, And The Incorporation Of Other Non-substantive Changes.

FEASIBLE for the purposes of chapter III.M, shall mean capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors.

FLOW AUGMENTATION is a type of in-plant dilution and occurs when a desalination facility* withdraws additional source water for the specific purpose of diluting brine* prior to discharge.

FULL CAPTURE SYSTEM is a treatment control*, or series of treatment controls*, including but not limited to, a multi-benefit project* or a low-impact development control* that traps all particles that are 5 mm or greater, and has a design treatment capacity that is either: a) of not less than the peak flow rate, Q, resulting from a one-year, one-hour, storm in the subdrainage area, or b) appropriately sized to, and designed to carry at least the same flows as, the corresponding storm drain.

[Rational equation is used to compute the peak flow rate: $Q = C \bullet I \bullet A$, where Q = design flow rate (cubic feet per second, cfs); C = runoff coefficient (dimensionless); I = design rainfall

* See Appendix I for definition of terms.

intensity (inches per hour, as determined per the rainfall isohyetal map specific to each region, and A = subdrainage area (acres).]

Prior to installation, full capture systems* must be certified by the Executive Director, or designee, of the State Water Board. Uncertified full capture systems* will not satisfy the requirements of these Trash Provisions*. To request certification, a permittee shall submit a certification request letter that includes all relevant supporting documentation to the State Water Board's Executive Director. The Executive Director, or designee, shall issue a written determination approving or denying the certification of the proposed full capture system* or conditions of approval, including a schedule to review and reconsider the certification. Full capture systems* certified by the Los Angeles Regional Water Board prior to the effective date of these Trash Provisions* and full capture systems* listed in Appendix I of the Bay Area-wide Trash Capture Demonstration Project, Final Project Report (May 8, 2014) will satisfy the requirements of these Trash Provisions*, unless the Executive Director, or designee, of the State Water Board determines otherwise.

FULL CAPTURE SYSTEM EQUIVALENCY is the Trash* load that would be reduced if full capture systems* were installed, operated, and maintained for all storm drains that capture runoff from the relevant areas of land (priority land uses*, significant trash generating areas*, facilities or sites regulated by NPDES permits for discharges of storm water* associated with industrial activity, or specific land uses or areas that generate substantial amounts of Trash*, as applicable). The full capture system equivalency* is a Trash* load reduction target that the permittee quantifies by using an approach, and technically acceptable and defensible assumptions and methods for applying the approach, subject to the approval of permitting authority*. Examples of such approaches include, but are not limited to, the following:

(1) Trash Capture Rate Approach. Directly measure or otherwise determine the amount of Trash* captured by full capture systems* for representative samples of all similar types of land uses, facilities, or areas within the relevant areas of land over time to identify specific trash capture rates. Apply each specific Trash* capture rate across all similar types of land uses, facilities, or areas to determine full capture system equivalency*. Trash* capture rates may be determined either through a pilot study or literature review. Full capture systems* selected to evaluate Trash* capture rates may cover entire types of land uses, facilities, or areas, or a representative subset of types of land uses, facilities, or areas. With this approach, full capture system equivalency* is the sum of the products of each type of land use, facility, or area multiplied by Trash* capture rates for that type of land use, facility, or area.

(2) Reference Approach. Determine the amount of Trash* in a reference receiving water in a reference watershed where full capture systems* have been installed for all storm drains that capture runoff from all relevant areas of land. The reference watershed must be comprised of similar types and extent of sources of trash* and land uses (including priority land uses* and all other land uses), facilities, or areas as the permittee's watershed. With this approach, full capture system equivalency* would be demonstrated when the amount of Trash* in the receiving water is equivalent to the amount of Trash* in the reference receiving water.

* See Appendix I for definition of terms.

GRAYWATER is drainage from galley, dishwasher, shower, laundry, bath, and lavatory wash basin sinks, and water fountains, but does not include drainage from toilets, urinals, hospitals, or cargo spaces.

HALOMETHANES shall mean the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

HCH shall mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

INDICATOR BACTERIA includes total coliform bacteria, fecal coliform bacteria (or *E. coli*), and/or Enterococcus bacteria.

IN-KIND MITIGATION is when the habitat or species lost is the same as what is replaced through mitigation.

INSTITUTIONAL CONTROLS are non-structural best management practices (i.e., no structures are involved) that may include, but not be limited to, street sweeping, sidewalk Trash* bins, collection of the Trash*, anti-litter educational and outreach programs, producer take-back for packaging, and ordinances.

INITIAL DILUTION is the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant* mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

KELP BEDS, are aggregations of marine algae of the order Laminariales, including species in the genera *Macrocystis, Nereocystis, and Pelagophycus*. Kelp beds include the total foliage canopy throughout the water column.

LARGE PASSENGER VESSELS are vessels of 300 gross registered tons or greater engaged in carrying passengers for hire. The following vessels are not large passenger vessels:
(1) Vessels without berths or overnight accommodations for passengers;
(2) Noncommercial vessels, warships, vessels operated by nonprofit entities as determined by the Internal Revenue Service, and vessels operated by the state, the United States, or a foreign government;
(3) Oceangoing vessels,* as defined below (e.g. those used to transport cargo).

* See Appendix I for definition of terms.

LOW-IMPACT DEVELOPMENT CONTROLS are treatment controls* that employ natural and constructed features that reduce the rate of storm water* runoff, filter out pollutants, facilitate storm water* storage onsite, infiltrate storm water* into the ground to replenish groundwater supplies, or improve the quality of receiving groundwater and surface water. (See Water Code § 10564.)

LOEC is the lowest observed effect concentration or the lowest concentration of effluent that causes observable adverse effects in exposed test organisms.

MARICULTURE is the culture of algae, plants, and animals in marine waters independent of any pollution source.

MARINE MANAGED AREAS are named, discrete geographic marine or estuarine areas along the California coast designated by law or administrative action, and intended to protect, conserve, or otherwise manage a variety of resources and their uses. According to the California Public Resources Code (§§ 36600 et seq.) there are six classifications of marine managed areas, including State Marine Reserves, State Marine Parks and State Marine Conservation Areas, State Marine Cultural Preservation Areas, State Marine Recreational Management Areas, and State Water Quality Protection Areas.*

MARKET SQUID NURSURIES are comprised of numerous egg capsules, each containing approximately 200 developing embryos, attached in clusters or mops to sandy substrate with moderate water flow. Market squid (*Doryteuthis opalescens*) nurseries occur at a wide range of depths; however, mop densities are greatest in shallow, nearshore waters between ten and 100 meters (328 feet) deep.

MATERIAL: (a) In common usage: (1) the substance or substances of which a thing is made or composed (2) substantial; (b) For purposes of this Ocean Plan relating to waste disposal, dredging and the disposal of dredged material* and fill, MATERIAL means matter of any kind or description which is subject to regulation as waste, or any material dredged from the navigable waters of the United States. See also, DREDGED MATERIAL.* For the purposes of chapter III.M.2.d, materials relates to the common usage in (a).

METHOD DETECTION LIMIT (MDL) is the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero, as defined in 40 CFR PART 136 Appendix B.

MINIMUM LEVEL (ML) is the concentrations at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method-specified sample weights, volumes and processing steps have been followed.

MULTI-BENEFIT PROJECT is a treatment control* project designed to achieve any of the benefits set forth in section 10562, subdivision (d) of the Water Code. Examples include projects designed to: infiltrate, recharge or store storm water* for beneficial reuse; develop or enhance habitat and open space through storm water* and non-storm water management; and/or reduce storm water* and non-storm water runoff volume.

* See Appendix I for definition of terms.

MULTIPORT DIFFUSERS are linear structures consisting of spaced ports or nozzles that are installed on submerged marine outfalls. For the purposes of chapter III.M, multiport diffusers discharge brine* waste into an ambient receiving water body and enable rapid mixing, dispersal, and dilution of brine* within a relatively small area.

MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) has the same meaning set forth in 40 Code of Federal Regulations section 122.26(b)(8).

NATURAL BACKGROUND SALINITY is the salinity* at a location that results from naturally occurring processes and is without apparent human influence. For purposes of determining natural background salinity, the regional water board may approve the use of:

(1) the mean monthly natural background salinity. Mean monthly natural background salinity shall be determined by averaging 20 years of historical salinity* data in the proximity of the proposed discharge location and at the depth of the proposed discharge, when feasible.* For historical data not recorded in parts per thousand, the regional water boards may accept converted data at their discretion. When historical data are not available, natural background salinity shall be determined by measuring salinity* at depth of proposed discharge for three years, on a weekly basis prior to a desalination facility* discharging brine,* and the mean monthly natural salinity* shall be used to determine natural background salinity; or

(2) the actual salinity at a reference location, or reference locations, that is representative of natural background salinity at the discharge location. The reference locations shall be without apparent human influence, including wastewater outfalls and brine discharges.

Either method to establish natural background salinity may be used for the purpose of determining compliance with the receiving water limitation or an effluent limitation for salinity. If a reference location(s) is used for compliance monitoring, the permit should specify that historical data shall be used if reference location data becomes unavailable. An owner or operator shall submit to the regional water board all necessary information to establish natural background salinity.

NATURAL LIGHT: Reduction of natural light may be determined by the Regional Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Board.

NO DISCHARGE ZONE (NDZ) is an area in which both treated and untreated sewage discharges from vessels are prohibited. Within NDZ boundaries, vessel operators are required to retain their sewage discharges onboard for disposal at sea (beyond three miles from shore) or onshore at a pump-out facility.

NON-STORM WATER DISCHARGE is any runoff that is not the result of a precipitation event. This is often referred to as “dry weather flow.”

OCEAN WATERS are the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays,* estuaries, and coastal lagoons.* If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

* See Appendix I for definition of terms.

OCEANGOING VESSELS (i.e., oceangoing ships) means commercial vessels of 300 gross registered tons or more calling on California ports or places, excluding active military vessels.

OILY BILGE WATER includes bilge water that contains used lubrication oils, oil sludge and slops, fuel and oil sludge, used oil, used fuel and fuel filters, and oily waste.

OUT-OF-KIND MITIGATION is when the habitat or species lost is different than what is replaced through mitigation.

PAHs (polynuclear aromatic hydrocarbons) shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

PCBs (polychlorinated biphenyls) shall mean the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

PERMITTING AUTHORITY means the State Water Board or Regional Water Board, whichever issues the permit.

PREPRODUCTION PLASTIC has the same meaning set forth in section 13367(a) of the Water Code.

PRIORITY LAND USES are those developed sites, facilities, or land uses (i.e., not simply zoned land uses) within the MS4* permittee's jurisdiction from which discharges of Trash* are regulated by this Ocean Plan as follows:

(1) **High-density residential:** all land uses with at least ten (10) developed dwelling units/acre.
(2) **Industrial**: land uses where the primary activities on the developed parcels involve product manufacture, storage, or distribution (e.g., manufacturing businesses, warehouses, equipment storage lots, junkyards, wholesale businesses, distribution centers, or building material sales yards).
(3) **Commercial**: land uses where the primary activities on the developed parcels involve the sale or transfer of goods or services to consumers (e.g., business or professional buildings, shops, restaurants, theaters, vehicle repair shops, etc.)
(4) **Mixed urban**: land uses where high-density residential, industrial, and/or commercial land uses predominate collectively (i.e., are intermixed).
(5) **Public transportation stations**: facilities or sites where public transit agencies' vehicles load or unload passengers or goods (e.g., bus stations and stops).

Equivalent alternate land uses: An MS4* permittee with regulatory authority over priority land uses* may issue a request to the applicable permitting authority* that the MS4* permittee be allowed to substitute one or more land uses identified above with alternates land use within the MS4* permittee's jurisdiction that generates rates of Trash* that are equivalent to or greater than the priority land use(s)* being substituted. The land use area

* See Appendix I for definition of terms.

requested to substitute for a priority land use* need not be an acre-for-acre substitution but may involve one or more priority land uses*, or a fraction of a priority land use*, or both, provided the total trash* generated in the equivalent alternative land use is equivalent to or greater than the total Trash* generated from the priority land use(s)* for which substitution is requested. Comparative Trash* generation rates shall be established through the reporting of quantification measures such as street sweeping and catch basin cleanup records; mapping; visual trash presence surveys, such as the "Keep America Beautiful Visible Litter Survey"; or other information as required by the permitting authority*.

PROPAGULES are structures that are capable of propagating an organism to the next stage in its life cycle via dispersal. Dispersal is the movement of individuals from their birth site to their reproductive grounds.

PROPORTIONAL MORTALITY, P_m, is percentage of larval organisms or propagules* in the source water body* that is expected to be entrained at a desalination facility's* intake. It is assumed that all entrained larvae or propagules* die as a result of entrainment.

RECEIVING WATER, for permitted storm water discharges and nonpoint sources, should be measured at the point of discharge(s), in the surf zone immediately where runoff from an outfall meets the ocean water (a.k.a., at point zero).

SALINITY is a measure of the dissolved salts in a volume of water. For the purposes of this Plan, salinity shall be measured using a standard method approved by the regional water board (e.g. Standard Method 2520 B, EPA Method 120.1, EPA Method 160.1) and reported in parts per thousand (ppt). For historical salinity data not recorded in parts per thousand, the regional water boards may accept converted data at their discretion.

SEAWATER is salt water that is in or from the ocean. For the purposes chapter III.M, seawater includes tidally influenced waters in coastal estuaries and coastal lagoons* and underground salt water beneath the seafloor, beach, or other contiguous land with hydrologic connectivity to the ocean.

SENSITIVE HABITATS, for the purposes of this Plan, are kelp beds,* rocky substrate, surfgrass beds,* eelgrass beds,* oyster beds, spawning grounds for state or federally managed species, market squid nurseries,* or other habitats in need of special protection as determined by the Water Boards.

SHELLFISH are organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams and oysters).

SIGNIFICANT difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

SIGNIFICANT TRASH GENERATING AREAS means all locations or facilities within the Department's jurisdiction where Trash* accumulates in substantial amounts, such as:

(1) Highway on- and off-ramps in high density residential, commercial, and industrial land uses (as such land uses are defined under priority land uses* herein).
(2) Rest areas and park-and-rides.

* See Appendix I for definition of terms.

(3) State highways in commercial and industrial land uses (as such land uses are defined under priority land uses* herein).
(4) Mainline highway segments to be identified by the Department through pilot studies and/or surveys.

SOURCE WATER BODY is the spatial area that contains the organisms that are at risk of entrainment at a desalination facility* as determined by factors that may include, but are not limited to, biological, hydrodynamic, and oceanographic data.

STATE WATER QUALITY PROTECTION AREAS (SWQPAs) are nonterrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All Areas of Special Biological Significance (ASBS)* that were previously designated by the State Water Board in Resolutions 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by this Plan.

STATE WATER QUALITY PROTECTION AREAS – GENERAL PROTECTION (SWQPA-GP) designated by the State Water Board to protect marine species and biological communities from an undesirable alteration in natural water quality within State Marine Parks and State Marine Conservation Areas.

STORM WATER has the same meaning set forth in 40 Code of Federal Regulations section 122.26(b)(13) (Nov. 16, 1990).

SUBSURFACE INTAKE, for the purposes of chapter III.M, is an intake withdrawing seawater* from the area beneath the ocean floor or beneath the surface of the earth inland from the ocean.

SURFGRASS BEDS are aggregations of marine flowering plants of the genus *Phyllospadix*.

TCDD EQUIVALENTS shall mean the sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

* See Appendix I for definition of terms.

Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CDF	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

TRASH means all improperly discarded solid material from any production, manufacturing, or processing operation including, but not limited to, products, product packaging, or containers constructed of plastic, steel, aluminum, glass, paper, or other synthetic or natural materials.

TRASH PROVISIONS are the water quality objective for Trash*, as well as the prohibition of discharge set forth in Chapter III.I and implementation requirements set forth in Chapter III.L herein.

TREATMENT CONTROLS are structural best management practices to either (a) remove pollutants and/or solids from storm water* runoff, wastewater, or effluent, or (b) capture, infiltrate or reuse storm water* runoff, wastewater, or effluent. Treatment controls include full capture systems* and low-impact development controls*.

WASTE: As used in this Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

WATER RECLAMATION: The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

* See Appendix I for definition of terms.

APPENDIX II
MINIMUM* LEVELS

The Minimum* Levels identified in this appendix represent the lowest concentration of a pollutant that can be quantitatively measured in a sample given the current state of performance in analytical chemistry methods in California. These Minimum* Levels were derived from data provided by state-certified analytical laboratories in 1997 and 1998 for pollutants regulated by the California Ocean Plan and shall be used until new values are adopted by the State Water Board. There are four major chemical groupings: volatile chemicals, semi-volatile chemicals, inorganics, pesticides & PCBs.* "No Data" is indicated by "--".

TABLE II-1
MINIMUM* LEVELS – VOLATILE CHEMICALS

		Minimum* Level (µg/L)	
Volatile Chemicals	**CAS Number**	**GC Method [a]**	**GCMS Method [b]**
Acrolein	107028	2.	5
Acrylonitrile	107131	2.	2
Benzene	71432	0.5	2
Bromoform	75252	0.5	2
Carbon Tetrachloride	56235	0.5	2
Chlorobenzene	108907	0.5	2
Chlorodibromomethane	124481	0.5	2
Chloroform	67663	0.5	2
1,2-Dichlorobenzene (volatile)	95501	0.5	2
1,3-Dichlorobenzene (volatile)	541731	0.5	2
1,4-Dichlorobenzene (volatile)	106467	0.5	2
Dichlorobromomethane	75274	0.5	2
1,1-Dichloroethane	75343	0.5	1
1,2-Dichloroethane	107062	0.5	2
1,1-Dichloroethylene	75354	0.5	2
Dichloromethane	75092	0.5	2
1,3-Dichloropropene (volatile)	542756	0.5	2
Ethyl benzene	100414	0.5	2
Methyl Bromide	74839	1.	2
Methyl Chloride	74873	0.5	2
1,1,2,2-Tetrachloroethane	79345	0.5	2
Tetrachloroethylene	127184	0.5	2
Toluene	108883	0.5	2
1,1,1-Trichloroethane	71556	0.5	2
1,1,2-Trichloroethane	79005	0.5	2
Trichloroethylene	79016	0.5	2
Vinyl Chloride	75014	0.5	2

Table II-1 Notes

a) GC Method = Gas Chromatography
b) GCMS Method = Gas Chromatography / Mass Spectrometry
* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML (see chapter III, "Use of Minimum* Levels").

* See Appendix I for definition of terms.

TABLE II-2
MINIMUM* LEVELS – SEMI VOLATILE CHEMICALS

Semi-Volatile Chemicals	CAS Number	Minimum* Level (µg/L) GC Method [a, *]	GCMS Method [b, *]	HPLC Method [c,*]	COLOR Method [d]
Acenapthylene	208968	--	10	0.2	--
Anthracene	120127	--	10	2	--
Benzidine	92875	--	5	--	--
Benzo(a)anthracene	56553	--	10	2	--
Benzo(a)pyrene	50328	--	10	2	--
Benzo(b)fluoranthene	205992	--	10	10	--
Benzo(g,h,i)perylene	191242	--	5	0.1	--
Benzo(k)floranthene	207089	--	10	2	--
Bis 2-(1-Chloroethoxy) methane	111911	--	5	--	--
Bis(2-Chloroethyl)ether	111444	10	1	--	--
Bis(2-Chloroisopropyl)ether	39638329	10	2	--	--
Bis(2-Ethylhexyl) phthalate	117817	10	5	--	--
2-Chlorophenol	95578	2	5	--	--
Chrysene	218019	--	10	5	--
Di-n-butyl phthalate	84742	--	10	--	--
Dibenzo(a,h)anthracene	53703	--	10	0.1	--
1,2-Dichlorobenzene (semivolatile)	95504	2	2	--	--
1,3-Dichlorobenzene (semivolatile)	541731	2	1	--	--
1,4-Dichlorobenzene (semivolatile)	106467	2	1	--	--
3,3-Dichlorobenzidine	91941	--	5	--	--
2,4-Dichlorophenol	120832	1	5	--	--
1,3-Dichloropropene	542756	--	5	--	
Diethyl phthalate	84662	10	2	--	--
Dimethyl phthalate	131113	10	2	--	--
2,4-Dimethylphenol	105679	1	2	--	--
2,4-Dinitrophenol	51285	5	5	--	--
2,4-Dinitrotoluene	121142	10	5	--	--
1,2-Diphenylhydrazine	122667	--	1	--	--
Fluoranthene	206440	10	1	0.05	--
Fluorene	86737	--	10	0.1	--
Hexachlorobenzene	118741	5	1	--	--
Hexachlorobutadiene	87683	5	1	--	--
Hexachlorocyclopentadiene	77474	5	5	--	--

Table II-2 continued on next page…

* See Appendix I for definition of terms.

Table II-2 (Continued)
Minimum* Levels – Semi Volatile Chemicals

Semi-Volatile Chemicals	CAS Number	Minimum* Level (µg/L) GC Method [a, *]	GCMS Method [b, *]	HPLC Method [c,*]	COLOR Method [d]
Hexachloroethane	67721	5	1	--	--
Indeno(1,2,3-cd)pyrene	193395	--	10	0.05	--
Isophorone	78591	10	1	--	--
2-methyl-4,6-dinitrophenol	534521	10	5	--	--
3-methyl-4-chlorophenol	59507	5	1	--	--
N-nitrosodi-n-propylamine	621647	10	5	--	--
N-nitrosodimethylamine	62759	10	5	--	--
N-nitrosodiphenylamine	86306	10	1	--	--
Nitrobenzene	98953	10	1	--	--
2-Nitrophenol	88755	--	10	--	--
4-Nitrophenol	100027	5	10	--	--
Pentachlorophenol	87865	1	5	--	--
Phenanthrene	85018	--	5	0.05	--
Phenol	108952	1	1	--	50
Pyrene	129000	--	10	0.05	--
2,4,6-Trichlorophenol	88062	10	10	--	--

Table II-2 Notes:

a) GC Method = Gas Chromatography
b) GCMS Method = Gas Chromatography / Mass Spectrometry
c) HPLC Method = High Pressure Liquid Chromatography
d) COLOR Method = Colorimetric

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML* by 1000 (see chapter III, “Use of Minimum* Levels”).

* See Appendix I for definition of terms.

TABLE II-3
MINIMUM* LEVELS - INORGANICS

Inorganic Substances	CAS Number	Minimum* Level (µg/L) COLOR Method[a]	DCP Method[b]	FAA Method[c]	GFAA Method[d]	HYDRIDE Method[e]	ICP Method[f]	ICPMS Method[g]	SPGFAA Method[h]	CVAA Method[i]
Antimony	7440360	--	1000.	10.	5.	0.5	50.	0.5	5.	--
Arsenic	7440382	20.	1000.	--	2.	1.	10.	2.	2.	--
Beryllium	7440417	--	1000.	20.	0.5	--	2.	0.5	1.	--
Cadmium	7440439	--	1000.	10.	0.5	--	10.	0.2	0.5	--
Chromium (total)	--	--	1000.	50.	2.	--	10.	0.5	1.	--
Chromium (VI)	18540299	10.	--	5.	--	--	--	--	--	--
Copper	7440508	--	1000.	20.	5.	--	10.	0.5	2.	--
Cyanide	57125	5.	--	--	--	--	--	--	--	--
Lead	7439921	--	10000.	20.	5.	--	5.	0.5	2.	--
Mercury	7439976	--	--	--	--	--	--	0.5	--	0.2
Nickel	7440020	--	1000.	50.	5.	--	20.	1.	5.	--
Selenium	7782492	--	1000.	--	5.	1.	10.	2.	5.	--
Silver	7440224	--	1000.	10.	1.	--	10.	0.2	2.	--
Thallium	7440280	--	1000.	10.	2.	--	10.	1.	5.	--
Zinc	7440666	--	1000.	20.	--	--	20.	1.	10.	--

Table II-3 Notes

a) COLOR Method = Colorimetric
b) DCP Method = Direct Current Plasma
c) FAA Method = Flame Atomic Absorption
d) GFAA Method = Graphite Furnace Atomic Absorption
e) HYDRIDE Method = Gaseous Hydride Atomic Absorption
f) ICP Method = Inductively Coupled Plasma
g) ICPMS Method = Inductively Coupled Plasma / Mass Spectrometry
h) SPGFAA Method = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., US EPA 200.9)
i) CVAA Method = Cold Vapor Atomic Absorption

* To determine the lowest standard concentration in an instrument calibration curve for these techniques, use the given ML* (see chapter III, "Use of Minimum* Levels").

* See Appendix I for definition of terms.

TABLE II-4
MINIMUM* LEVELS – PESTICIDES AND PCBs*

Pesticides – PCBs	CAS Number	Minimum* Level (µg/L) GC Method[a,*]
Aldrin	309002	0.005
Chlordane*	57749	0.1
4,4'-DDD	72548	0.05
4,4'-DDE	72559	0.05
4,4'-DDT	50293	0.01
Dieldrin	60571	0.01
a-Endosulfan	959988	0.02
b-Endosulfan	33213659	0.01
Endosulfan Sulfate	1031078	0.05
Endrin	72208	0.01
Heptachlor	76448	0.01
Heptachlor Epoxide	1024573	0.01
a-Hexachlorocyclohexane	319846	0.01
b-Hexachlorocyclohexane	319857	0.005
d-Hexachlorocyclohexane	319868	0.005
g-Hexachlorocyclohexane (Lindane)	58899	0.02
PCB 1016	--	0.5
PCB 1221	--	0.5
PCB 1232	--	0.5
PCB 1242	--	0.5
PCB 1248	--	0.5
PCB 1254	--	0.5
PCB 1260	--	0.5
Toxaphene	8001352	0.5

Table II-4 Notes

a) GC Method = Gas Chromatography

* To determine the lowest standard concentration in an instrument calibration curve for this technique, multiply the given ML* by 100 (see chapter III, “Use of Minimum* Levels”).

* See Appendix I for definition of terms.

APPENDIX III
STANDARD MONITORING PROCEDURES

1. INTRODUCTION

The purpose of this appendix is to provide guidance to the Regional Water Boards on implementing the Ocean Plan and to ensure the reporting of useful information. Monitoring should be question driven rather than just gathering data and should be focused on assuring compliance with narrative and numeric water quality standards, the status and attainment of beneficial uses, and identifying sources of pollution.

It is not feasible to prescribe requirements in the Ocean Plan that encompass all circumstances and conditions that could be encountered by all dischargers, nor is it desirable to limit the flexibility of the Regional Water Boards in the monitoring of ocean* waters. This appendix should therefore be considered the basic framework for the design of an ocean discharger monitoring program. The Regional Water Boards are responsible for issuing monitoring and reporting programs (MRPs) that will implement this monitoring guidance. Regional Water Boards can deviate from the procedures required in the appendix only with the approval of the State Water Resources Control Board.

This monitoring guidance utilizes a model monitoring framework. The model monitoring framework has three components that comprise a range of spatial and temporal scales: (1) core monitoring, (2) regional monitoring, and (3) special studies.

1) Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water* quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.

2) Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. It is recommended that the Regional Water Boards require participation by the discharger in an approved regional monitoring program, if available, for the receiving water.* In the event that a regional monitoring effort takes place during a permit cycle in which the MRP does not specifically address regional monitoring, a Regional Water Board may allow relief from aspects of core monitoring components in order to encourage participation.

3) Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often they are used to help understand core or regional monitoring results, where a specific environmental process is not well understood, or to address unique issues of local importance. Regional Water Boards may require special studies as appropriate. Special studies are not addressed further in this guidance because they are beyond its scope.

The Ocean Plan does not address all site-specific monitoring issues and allows the Regional Water Boards to select alternative protocols with the approval of the State Water Board. If no direction is given in this appendix for a specific provision of the Ocean Plan, it is within the

* See Appendix I for definition of terms.

discretion of the Regional Water Boards to establish the monitoring requirements for that provision.

2. QUALITY ASSURANCE

All receiving* and ambient water monitoring conducted in compliance with MRPs must be comparable with the Quality Assurance requirements of the Surface Water Ambient Monitoring Program (SWAMP).

SWAMP comparable means all sample collection and analyses shall meet or exceed the measurement quality objectives (MQOs) – including all sample types, frequencies, control limits and holding time requirements – as specified in the SWAMP Quality Assurance Project Plan (QAPrP)

The SWAMP QAPrP is located
at: http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml#qa.

For those measurements that do not have SWAMP MQOs available, then MQOs shall be at the discretion of the Regional Water Board. Refer to the USEPA guidance document (EPA QA/G-4) for selecting data quality objectives, located at http://www.epa.gov/quality/qs-docs/g4-final.pdf.

Water Quality data must be reported according to the California Environmental Data Exchange Network (CEDEN) "Data Template" format for all constituents that are monitored in receiving and ambient water. CEDEN Data Template are available at: http://ceden.org.

3. TYPE OF WASTE DISCHARGE SOURCES

Discharges to ocean waters* are highly diverse and variable, exhibiting a wide range of constituents, effluent quality and quantity, location and frequency of discharge. Different types of discharges will require different approaches. This Appendix provides specific direction for three broad types of discharges: (1) Point Sources, (2) Storm Water Point Sources and (3) Non-point Sources.

3.1. Point Sources

Industrial, municipal, marine laboratory and other traditional point sources of pollution that discharge wastewater directly to surface waters and are required to obtain NPDES permits.

3.2. Storm Water Point Sources

Storm Water Point Sources, hereafter referred to as Storm Water Sources, are those NPDES permitted discharges regulated by Construction or Industrial Storm Water General Permits or municipal separate storm sewer system (MS4s) Permits. MS4 Permits are further divided into Phase I and II Permits. A Phase I MS4 Permit is issued by a Regional Water Board for medium (serving between 100,000 and 250,000 people) and large (serving 250,000 or more people) municipalities. A Phase II MS4 General Permit is issued by the State Water Resources Control Board for the discharge of storm water for smaller municipalities, and includes nontraditional Small MS4s, which are governmental facilities such as military bases, public campuses, prison and hospital complexes.

* See Appendix I for definition of terms.

3.3. Non-point Sources

A Non-point Source is any source of pollutants that is not a Point Source described in section 3.1 or a Storm Water Source as described in section 3.2. Land use categories contributing to non-point sources include but are not limited to:

a. Agriculture
b. Grazing
c. Forestry/timber harvest
d. Urban not covered under an NPDES permit
e. Marinas and mooring fields
f. Golf Courses not covered under an NPDES Permit

Only agricultural and golf course related non-point source discharge monitoring is addressed in this Appendix, but Regional Water Boards may issue MRPs for other non-point sources at their discretion. Agriculture includes irrigated lands. Irrigated lands are where water is applied for the purpose of producing crops, including, but not limited to, row and field crop, orchards, vineyard, rice production, nurseries, irrigated pastures, and managed wetlands.

4. INDICATOR BACTERIA*

4.1. Point Sources

Primary questions to be addressed:

1. Does the effluent comply with the water quality standards in the receiving water*?
2. Does the sewage effluent reach water contact zones or commercial shellfish* beds?

To answer these questions, core monitoring shall be conducted in receiving water* on the shoreline for the indicator bacteria* at a minimum weekly for any point sources discharging treated sewage effluent:

a. within one nautical mile of shore, or
b. within one nautical mile of a commercial shellfish* bed, or
c. if the discharge is in excess of 10 million gallons per day (MGD).

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the permittee participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

4.2. Storm Water

Primary questions to be addressed:

1. Does the receiving water* comply with water quality standards?

* See Appendix I for definition of terms.

2. Is the condition of the receiving water* protective of contact recreation and shellfish* harvesting beneficial uses?
3. Are the indicator bacteria* levels in receiving water* getting better or worse?
4. What is the relative contribution of indicator bacteria* to the receiving water* from storm water runoff?

To answer these questions, core monitoring for indicator bacteria* shall be required periodically for storm water discharges representative of the area of concern. At a minimum, for municipal storm water discharges, all receiving water* at outfalls greater than 36 inches in diameter or width must be monitored (ankle depth, point zero) at the following frequencies:

a. During wet weather with a minimum of three storms per year, and
b. When non-storm water discharges* occur (flowing during dry weather), and if located at an AB 411 beach, at least weekly. (An AB 411 Beach is defined as a beach visited by more than 50,000 people annually and located on an area adjacent to a storm drain that flows in the summer. (Health & Saf. Code § 115880.)).

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled indicator bacteria.*

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the permittee participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

4.3. Non-point Sources

Primary questions to be addressed:

1. Does the receiving water* comply with water quality standards?
2. Do agricultural and golf course non-point source discharges reach water contact or shellfish* harvesting zones?
3. Are the indicator bacteria* levels in receiving water* getting better or worse?
4. What is the relative contribution of indicator bacteria* to the receiving water* from agricultural and golf course non-point sources?

To answer these questions, core monitoring of representative agricultural irrigation tail water and storm water runoff, at a minimum, will be conducted in receiving water* (ankle depth, point zero) for indicator bacteria*:

a. During wet weather, at a minimum of two storm events per year, and
b. When non-storm water discharges* occur (flowing during dry weather), and if located at an AB 411 beach or within one nautical mile of shellfish* bed, at least weekly.

Alternatively, these requirements may be met through participation in a regional monitoring program to assess the status of marine contact recreation water quality. If the discharger

* See Appendix I for definition of terms.

participates in a regional monitoring program, in conjunction with local health organization(s), core monitoring may be suspended for that period at the discretion of the Regional Water Board. Regional monitoring should be used to answer the above questions, and may be used to answer additional questions. These additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* indicator bacteria* problems, or the sources of indicator bacteria.*

5. CHEMICAL CONSTITUENTS

5.1. Point Sources

Primary questions addressed:

1. Does the effluent meet permit effluent limits thereby ensuring that water quality standards are achieved in the receiving water*?
2. What is the mass of the constituents that are discharged annually?
3. Is the effluent concentration or mass changing over time?

Consistent with Appendix VI, the core monitoring for the substances in Table 1 and Table 2 shall be required periodically. For discharges less than 10 MGD, the monitoring frequency shall be at least one complete scan of the Table 1 substances annually. Discharges greater than 10 MGD shall be required to monitor at least semiannually.

5.2. Storm Water

Primary questions addressed:

1. Does the receiving water* meet the water quality standards?
2. Are the conditions in receiving water* getting better or worse?
3. What is the relative runoff contribution to pollution in the receiving water*?

For Phase I and Phase II MS4 dischargers, core receiving water* monitoring will be required at a minimum for 10 percent of all outfalls greater than 36 inches in diameter or width once per year. If a discharger has less than five outfalls exceeding 36 inches in diameter or width, they shall conduct monitoring at a minimum of only once per outfall during a five year period. Monitoring shall be for total suspended solids, oil & grease, total organic carbon, pH, temperature, biochemical oxygen demand, turbidity, Table 1 metals, PAHs,* and pesticides determined by the Regional Water Boards. Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants.

For industrial storm water discharges, runoff monitoring must be conducted at all outfalls at least two storm events per year. In addition, at least one representative receiving water* sample must be collected per industrial storm water permittee during two storm events per year. Monitoring shall be conducted for total suspended solids, oil & grease, total organic carbon, pH, temperature, biochemical oxygen demand, turbidity, and Table 1 metals and PAHs.*

The requirements for individual core monitoring for Table 1 metals, PAHs* and pesticides may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional program for monitoring runoff and/or receiving water* to answer the above questions as

* See Appendix I for definition of terms.

well as additional questions. Additional questions may include, but are not limited to, questions regarding the extent and magnitude of current or potential receiving water* problems from storm water runoff, or sources of any runoff pollutants.

5.3. Non-point Sources

The primary questions are:

1. Does the agricultural or golf course runoff meet water quality standards in the receiving water*?
2. Are nutrients present that would contribute to objectionable aquatic algal blooms or degrade* indigenous biota?
3. Are the conditions in receiving water* getting better or worse?
4. What is the relative agricultural runoff or golf course contribution to pollution in the receiving water*?

To answer these questions, a statistically representative sample (determined by the Regional Water Board) of receiving water* at the sites of agricultural irrigation tail water and storm water runoff, and golf course runoff in each watershed will be monitored for Ocean Plan Table 1 metals, ammonia as N, nitrate as N, phosphate as P, and pesticides determined by the Regional Board:

a. During wet weather, at a minimum of two storm events per year, and
b. During dry weather, when flowing, at a frequency determined by the Regional Boards.

This requirement may be satisfied by core monitoring individually, or through participation in a regional program for monitoring runoff and receiving water* at the discretion of the Regional Water Board to answer the above questions as well as additional questions. Additional questions may include, but are not limited to, questions regarding the sources of agricultural pollutants.

6. SEDIMENT MONITORING

All Sources:

1. Is the dissolved sulfide concentration of waters in sediments significantly* increased above that present under natural conditions?
2. Is the concentration of substances set forth in Table 1, for protection of marine aquatic life, in marine sediments at levels which would degrade* the benthic community?
3. Is the concentration of organic pollutants in marine sediments at levels that would degrade* the benthic community?

6.1. Point Sources

For discharges greater than 10 MGD, acid volatile sulfides, OP Pesticides, Table 1 metals, ammonia N, PAHs,* and chlorinated hydrocarbons will be measured in sediments annually in a core monitoring program approved by the Regional Water Board. Sediment sample locations will be determined by the Regional Water Board. If sufficient data exists from previous water column monitoring for these parameters, the Regional Water Board at its discretion may reduce the frequency of monitoring, or may allow this requirement to be satisfied through participation in a regional monitoring program.

* See Appendix I for definition of terms.

6.2. Storm Water

For Phase I MS4 permittees, discharges greater than 72 inches in diameter or width discharging to low energy coastal environments with the likelihood of sediment deposition, acid volatile sulfides, OP Pesticides, Ocean Plan Table 1 metals, ammonia N, PAHs,* and chlorinated hydrocarbons will be measured in sediments once per permit cycle.

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants.

This requirement may be satisfied by core monitoring individually or through participation in a regional monitoring program at the discretion of the Regional Water Board. Sediment sample locations will be determined by the Regional Water Board.

7. AQUATIC LIFE TOXICITY

Toxicity tests are another method used to assess risk to aquatic life. These tests assess the overall toxicity of the effluent, including the toxicity of unmeasured constituents and/or synergistic effects of multiple constituents.

7.1. Point Sources

1. Does the effluent meet permit effluent limits for toxicity thereby ensuring that water quality standards are achieved in the receiving water*?
2. If not:
   a. Are unmeasured pollutants causing risk to aquatic life?
   b. Are pollutants in combinations causing risk to aquatic life?

Core monitoring for Table 1 effluent toxicity shall be required periodically. For discharges less than 0.1 MGD the monitoring frequency for acute and/or chronic toxicity* shall be twice per permit cycle. For discharges between 0.1 and 10 MGD, the monitoring frequency for acute and/or chronic toxicity* of the effluent should be at least annually. For discharges greater than 10 MGD, the monitoring frequency for acute and/or chronic toxicity* of the effluent should be at least semiannually.

For discharges greater than 10 MGD in a low energy coastal environment with the likelihood of sediment deposition, Core monitoring for acute sediment toxicity is required and will utilize alternative amphipod species (*Eohaustorius estuarius, Leptocheirus plumulosus, Rhepoxynius abronius*).

If an exceedance is detected, six additional toxicity tests are required within a 12-week period. If an additional exceedance is detected within the 12-week period, a toxicity reduction evaluation (TRE) is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1.

7.2. Storm Water

1. Does the runoff meet objectives for toxicity in the receiving water*?
2. Are the conditions in receiving water* getting better or worse with regard to toxicity

* See Appendix I for definition of terms.

3. What is the relative runoff contribution to the receiving water* toxicity?
4. What are the causes of the toxicity* and the sources of the constituents responsible?

For Phase I MS4, Phase II MS4, and industrial storm water discharges, core toxicity monitoring will be required at a minimum for 10 percent of all outfalls greater than 36 inches in diameter or width at a minimum of once per year. Receiving water* monitoring shall be for Table 1 critical life stage chronic toxicity* for a minimum of one invertebrate species.

For storm water discharges greater than 72 inches in diameter or width in a low energy coastal environment with the likelihood of sediment deposition, core sediment monitoring for acute sediment toxicity is required and will utilize alternative amphipod species (*Eohaustorius estuarius, Leptocheirus plumulosus, Rhepoxynius abronius*).

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled toxicity.

If an exceedence is detected, an additional toxicity test is required during the subsequent storm event. If an additional exceedance is detected at that time, a TRE is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1. A sufficient volume must be collected to conduct a TIE, if necessary, as a part of a TRE.

The requirement for core toxicity monitoring may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional monitoring program to answer the above questions, as well as any other additional questions that may be developed by the regional monitoring program.

7.3. Non-point Sources

1. Does the agricultural and golf course runoff meet water quality standards for toxicity in the receiving water*?
2. Are the conditions in receiving water* getting better or worse with regard to toxicity?
3. What is the relative agricultural and golf course runoff contribution to receiving water* toxicity?
4. What are the causes of the toxicity, and the sources of the constituents responsible?

To answer these questions, a statistically representative sample (determined by the Regional Water Board) of receiving water* at the sites of agricultural irrigation tail water and storm water runoff, and golf course runoff, in each watershed will be monitored:

a. During wet weather, at a minimum of two storm events per year, and
b. During dry weather, when flowing, at a frequency determined by the Regional Boards.

Core receiving water* monitoring shall include Table 1 critical life stage chronic toxicity* for a minimum of one invertebrate species.

For runoff in a low energy coastal environment with the likelihood of sediment deposition, core sediment monitoring shall include acute sediment toxicity utilizing alternative amphipod species (*Eohaustorius estuarius, Leptocheirus plumulosus, Rhepoxynius abronius*) at a minimum once per year.

* See Appendix I for definition of terms.

If an exceedence is detected, an additional toxicity test is required during the subsequent storm event. If an additional exceedance is detected, a TRE is required, consistent with chapter III.C.10 that requires a TRE if a discharge consistently exceeds an effluent limitation based on a toxicity objective in Table 1. A sufficient volume must be collected to conduct a TIE, if necessary, as a part of a TRE.

The requirement for core monitoring may be waived at the discretion of the Regional Water Board, if the permittee participates in a regional monitoring program to answer the above questions, as well as any other additional questions that may be developed by the regional monitoring program.

8. BENTHIC COMMUNITY HEALTH

8.1. Point Sources

1. Are benthic communities degraded* as a result of the discharge?

To answer this question, benthic community monitoring shall be conducted
   a. for all discharges greater than 10 MGD, or
   b. those discharges greater than 0.1 MGD and one nautical mile or less from shore, or
   c. discharges greater than 0.1 MGD and one nautical mile or less from a State Water Quality Protection Area* or a State Marine Reserve.

The minimum frequency shall be once per permit cycle, except for discharges greater than 100 MGD the minimum frequency shall be at least twice per permit cycle.

This requirement may be satisfied by core monitoring individually or through participation in a regional monitoring program at the discretion of the Regional Board.

9. BIOACCUMULATION

9.1. Point Sources

1. Does the concentration of pollutants in fish, shellfish,* or other marine resources used for human consumption bioaccumulate to levels that are harmful to human health?
2. Does the concentration of pollutants in marine life bioaccumulate to levels that degrade* marine communities?

To answer these questions, bioaccumulation monitoring shall be conducted, at a minimum, once per permit cycle for:

   a. discharges greater than 10 MGD, or
   b. those discharges greater than 0.1 MGD and one nautical mile or less from shore, or
   c. discharges greater than 0.1 MGD and one nautical mile or less from a State Water Quality Protection Area* or a State Marine Reserve, Park or Conservation Area.

Constituents to be monitored must include pesticides (at the discretion of the Regional Board), Table 1 metals, and PAHs.* Bioaccumulation may be monitored by a mussel watch program or a fish tissue program. Resident mussels are preferred over transplanted mussels. Sand crabs

* See Appendix I for definition of terms.

and/or fish may be added or substituted for mussels at the discretion of the Regional Water Board.

This requirement may be satisfied individually as core monitoring or through participation in a regional monitoring program at the discretion of the Regional Water Board.

9.2. Storm Water

1. Does the concentration of pollutants in fish, shellfish,* or other marine resources used for human consumption bioaccumulate to levels that are harmful to human health?
2. Does the concentration of pollutants in marine life bioaccumulate to levels that degrade* marine communities?

For Phase I MS4 dischargers, bioaccumulation monitoring shall be conducted, at a minimum, once per permit cycle. Constituents to be monitored must include OP Pesticides, Ocean Plan Table 1 metals, Table 1 PAHs,* Table 1 chlorinated hydrocarbons, and pyrethroids. Bioaccumulation may be monitored by a mussel watch program or a fish tissue program. Sand crabs, fish, and/or Solid Phase Microextraction may be added or substituted for mussels at the discretion of the Regional Water Board.

This requirement may be satisfied individually as core monitoring or through participation in a regional monitoring program at the discretion of the Regional Water Board.

10. RECEIVING WATER* CHARACTERISTICS

All Sources:

1. Is natural light* significantly* reduced at any point outside the zone of initial dilution* as the result of the discharge of waste*?
2. Does the discharge of waste* cause a discoloration of the ocean surface?
3. Does the discharge of oxygen demanding waste* cause the dissolved oxygen concentration to be depressed at any time more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding* waste* materials*?
4. Does the discharge of waste* cause the pH to change at any time more than 0.2 units from that which occurs naturally?
5. Does the discharge of waste* cause the salinity* to become elevated in the receiving water*?
6. Do nutrients cause objectionable aquatic growth or degrade* indigenous biota?

10.1. Point Sources

For discharges greater than 10 MGD, turbidity (alternatively light transmissivity or surface water transparency), color [Chlorophyll-A and/or color dissolved organic matter (CDOM)], dissolved oxygen and pH shall be measured in the receiving water* seasonally, at a minimum, in a core monitoring program approved by the Regional Water Board. If sufficient data exists from previous water column monitoring for these parameters, the Regional Water Board, at its discretion, may reduce the frequency of water column monitoring, or may allow this requirement to be satisfied through participation in a regional monitoring program. Use of regional ocean observing programs, such as the Southern California Coastal Ocean Observing System

* See Appendix I for definition of terms.

(SCCOOS) and the Central and Northern California Ocean Observing System (CeNCCOOS) is encouraged.

Salinity* must also be monitored by all point sources discharging brine* as part of their core monitoring program. Seawater desalination facilities* discharging brine* into ocean waters* and wastewater facilities that receive brine from seawater desalination facilities and discharge into ocean waters shall monitor salinity as described in chapter III.M.4.

10.2. Storm Water

At a minimum, 10 percent of Phase I MS4 discharges greater than 36 inches, receiving water* turbidity, color, dissolved oxygen, pH, nitrate, phosphate, and ammonia shall be measured annually in a core monitoring program approved by the Regional Water Board.

Regional Water Boards may waive monitoring once structural best management practices have been installed, evaluated and determined to have successfully controlled pollutants. The Regional Water Board, at its discretion, may also allow this requirement to be satisfied through participation in a regional monitoring program.

10.3. Non-point Sources

Representative agricultural and golf course discharges shall be measured, at a minimum twice annually (during two storm season and irrigation season) for receiving water* turbidity, color, dissolved oxygen, pH, nitrate, phosphate, ammonia in a core monitoring program approved by the Regional Water Board. The Regional Water Board, at its discretion, may allow this requirement to be satisfied through participation in a regional monitoring program.

11. ANALYTICAL REQUIREMENTS

Procedures, calibration techniques, and instrument/reagent specifications shall conform to the requirements of 40 CFR PART 136. Compliance monitoring shall be determined using an US EPA approved protocol as provided in 40 CFR PART 136. All methods shall be specified in the monitoring requirement section of waste* discharge requirements.

Where methods are not available in 40 CFR PART 136, the Regional Water Boards shall specify suitable analytical methods in waste* discharge requirements. Acceptance of data should be predicated on demonstrated laboratory performance.

Laboratories analyzing monitoring data shall be certified by the California Department of Public Health, in accordance with the provisions of Water Code section 13176, and must include quality assurance quality control data with their reports.

Sample dilutions for total and fecal coliform bacterial analyses shall range from 2 to 16,000. Sample dilutions for enterococcus bacterial analyses shall range from 1 to 10,000 per 100 mL. Each test method number or name (e.g., EPA 600/4-85/076, Test Methods for *Escherichia coli* and *Enterococci* in Water by Membrane Filter Procedure) used for each analysis shall be specified and reported with the results.

* See Appendix I for definition of terms.

Test methods used for coliforms (total and fecal) shall be those presented in Table 1A of 40 CFR PART 136, unless alternate methods have been approved in advance by U.S. EPA pursuant to 40 CFR PART 136.

Test methods used for enterococcus shall be those presented in U.S. EPA publication EPA 600/4-85/076, Test Methods for *Escherichia coli* and *Enterococci* in Water by Membrane Filter Procedure or any improved method determined by the Regional Board to be appropriate. The Regional Water Board may allow analysis for *Escherichia coli* (*E. coli)* by approved test methods to be substituted for fecal coliforms if sufficient information exists to support comparability with approved methods and substitute the existing methods.

The State or Regional Water Board may, subject to U.S. EPA approval, specify test methods which are more sensitive than those specified in 40 CFR PART 136. Because storm water and non-point sources are not assigned a dilution factor, sufficient sampling and analysis shall be required to determine compliance with Table 1 Water Quality Objectives. Total chlorine residual is likely to be a method detection limit effluent limitation in many cases. The limit of detection of total chlorine residual in standard test methods is less than or equal to 20 µg/L.

Toxicity monitoring requirements in permits prepared by the Regional Water Boards shall use marine test species instead of freshwater species when measuring compliance. The Regional Water Board shall require the use of critical life stage toxicity tests specified in this Appendix to measure TUc. For Point Sources, a minimum of three test species with approved test protocols shall be used to measure compliance with the toxicity objective. If possible, the test species shall include a fish, an invertebrate, and an aquatic plant. After a screening period, monitoring can be reduced to the most sensitive species.

Dilution and control water should be obtained from an unaffected area of the receiving waters.* The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay test and reported with the test results.

Use of critical life stage bioassay testing shall be included in waste* discharge requirements as a monitoring requirement for all Point Source discharges greater than 100 MGD

Procedures and methods used to determine compliance with benthic monitoring should use the following federal guidelines when applicable: Macroinvertebrate Field and Laboratory Methods for Evaluating the Biological Integrity of Surface Waters (1990) -- EPA/600/4-90/030 (PB91-171363). This manual describes guidelines and standardized procedures for the use of macroinvertebrates in evaluating the biological integrity of surface waters.

Procedures used to determine compliance with bioaccumulation monitoring should use the U.S. EPA. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories (November 2000, EPA 823-B-00-007), NOAA Technical Memorandum NOS ORCA 130, Sampling and Analytical Methods of the National Status and Trends Program Mussel Watch Project (1998 update), and/or State Mussel Watch Program, 1987-1993 Data Report, State Water Resources Control Board 94-1WQ.

* See Appendix I for definition of terms.

TABLE III-1
APPROVED TESTS – CHRONIC TOXICITY* (TUc)

Species	Effect	Tier	Reference
giant kelp, *Macrocystis pyrifera*	percent germination; germ tube length	1	1,3
red abalone, *Haliotis rufescens*	Abnormal shell development	1	1,3
oyster, *Crassostrea gigas*; mussels, *Mytilus spp.*	Abnormal shell development; percent survival	1	1,3
urchin, *Strongylocentrotus purpuratus*; sand dollar, *Dendraster excentricus*	Percent normal development	1	1,3
urchin, *Strongylocentrotus purpuratus*; sand dollar, *Dendraster excentricus*	Percent fertilization	1	1,3
shrimp, *Holmesimysis costata*	Percent survival; growth	1	1,3
shrimp, *Mysidopsis bahia*	Percent survival; growth; fecundity	2	2,4
topsmelt, *Atherinops affinis*	Larval growth rate; percent survival	1	1,3
Silversides, *Menidia beryllina*	Larval growth rate; percent survival	2	2,4

Table III-1 Notes

The first tier test methods are the preferred toxicity tests for compliance monitoring. A Regional Water Board can approve the use of a second tier test method for waste* discharges if first tier organisms are not available.

* See Appendix I for definition of terms.

Protocol References

1. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. Short-term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms. U.S. EPA Report No. EPA/600/R-95/136.

2. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Peltier, and M.A. Heber. 1994. Short-term methods for estimating the chronic toxicity of effluents and receiving water to marine and estuarine organisms. U.S. EPA Report No. EPA-600-4-91-003.

3. SWRCB 1996. Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project. 96-1WQ.

4. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Nieheisel, P.A. Lewis, E.L. Robinson, J. Menkedick and F. Kessler (eds). 1988. Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms. EPA/600/4-87/028. National Information Service, Springfield, VA.

* See Appendix I for definition of terms.

APPENDIX IV
PROCEDURES FOR THE NOMINATION AND DESIGNATION OF STATE WATER QUALITY PROTECTION AREAS.*

1. Any person may nominate areas of ocean* waters for designation as SWQPA-ASBS or SWQPA-GP by the State Water Board. Nominations shall be made to the appropriate Regional Water Board and shall include:

   (a) Information such as maps, reports, data, statements, and photographs to show that:

      (1) Candidate areas are located in ocean* waters as defined in the "Ocean Plan".

      (2) Candidate areas are intrinsically valuable or have recognized value to man for scientific study, commercial use, recreational use, or esthetic reasons.

      (3) Candidate areas need protection beyond that offered by waste* discharge restrictions or other administrative and statutory mechanisms.

   (b) Data and information to indicate whether the proposed designation may have a significant* effect on the environment.

      (1) If the data or information indicate that the proposed designation will have a significant* effect on the environment, the nominee must submit sufficient information and data to identify feasible changes in the designation that will mitigate or avoid the significant* environmental effects.

2. The State Water Board or a Regional Water Board may also nominate areas for designation as SWQPA-ASBS or SWQPA-GP on their own motion.

3. A Regional Water Board may decide to (a) consider individual SWQPA-ASBS or SWQPA-GP nominations upon receipt, (b) consider several nominations in a consolidated proceeding, or (c) consider nominations in the triennial review of its water quality control plan (basin plan). A nomination that meets the requirements of 1. above may be considered at any time but not later than the next scheduled triennial review of the appropriate basin plan or Ocean Plan.

4. After determining that a nomination meets the requirements of paragraph 1. above, the Executive Officer of the affected Regional Water Board shall prepare a Draft Nomination Report containing the following:

   (a) The area or areas nominated for designation as SWQPA-ASBS or SWQPA-GP.

   (b) A description of each area including a map delineating the boundaries of each proposed area.

   (c) A recommendation for action on the nomination(s) and the rationale for the recommendation. If the Draft Nomination Report recommends approval of the proposed designation, the Draft Nomination Report shall comply with the CEQA documentation requirements for a water quality control plan amendment in section 3777, title 23, California Code of Regulations.

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* See Appendix I for definition of terms.

5. The Executive Officer shall, at a minimum, seek informal comment on the Draft Nomination Report from the State Water Board, Department of Fish and Game, other interested state and federal agencies, conservation groups, affected waste dischargers, and other interested parties. Upon incorporation of responses from the consulted agencies, the Draft Nomination Report shall become the Final Nomination Report.

6. (a) If the Final Nomination Report recommends approval of the proposed designation, the Executive Officer shall ensure that processing of the nomination complies with the CEQA consultation requirements in section 3778, Title 23, California Code of Regulations and proceed to step 7 below.

   (b) If the Final Nomination Report recommends against approval of the proposed designation, the Executive Officer shall notify interested parties of the decision. No further action need be taken. The nominating party may seek reconsideration of the decision by the Regional Water Board itself.

7. The Regional Water Board shall conduct a public hearing to receive testimony on the proposed designation. Notice of the hearing shall be published three times in a newspaper of general circulation in the vicinity of the proposed area or areas and shall be distributed to all known interested parties 45 days in advance of the hearing. The notice shall describe the location, boundaries, and extent of the area or areas under consideration, as well as proposed restrictions on waste* discharges within the area.

8. The Regional Water Board shall respond to comments as required in section 3779, Title 23, California Code of Regulations, and 40 C.F.R. Part 25 (July 1, 1999).

9. The Regional Water Board shall consider the nomination after completing the required public review processes required by CEQA.

   (a) If the Regional Water Board supports the recommendation for designation, the board shall forward to the State Water Board its recommendation for approving designation of the proposed area or areas and the supporting rationale. The Regional Water Board submittal shall include a copy of the staff report, hearing transcript, comments, and responses to comments.

   (b) If the Regional Water Board does not support the recommendation for designation, the Executive Officer shall notify interested parties of the decision, and no further action need be taken.

10. After considering the Regional Water Board recommendation and hearing record, the State Water Board may approve or deny the recommendation, refer the matter to the Regional Water Board for appropriate action, or conduct further hearing itself. If the State Water Board acts to approve a recommended designation, the State Water Board shall amend Appendix V, Table V-1, of this Plan. The amendment will go into effect after approval by the Office of Administrative Law and US EPA. In addition, after the effective date of a designation, the affected Regional Water Board shall revise its water quality control plan in the next triennial review to include the designation.

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* See Appendix I for definition of terms.

12. The State Water Board Executive Director shall advise other agencies to whom the list of designated areas is to be provided that the basis for an SWQPA-ASBS or SWQPA-GP designation is limited to protection of marine life from waste* discharges.

* See Appendix I for definition of terms.

APPENDIX V
STATE WATER QUALITY PROTECTION AREAS*
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE*

TABLE V-1
STATE WATER QUALITY PROTECTION AREAS*
AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE*
(DESIGNATED OR APPROVED BY THE STATE WATER RESOURCES CONTROL BOARD)

No.	ASBS Name	Date Designated	State Water Board Resolution No.	Region No.
1.	Jughandle Cove	March 21, 1974,	74-28	1
2.	Del Mar Landing	March 21, 1974,	74-28	1
3.	Gerstle Cove	March 21, 1974,	74-28	1
4.	Bodega	March 21, 1974,	74-28	1
5.	Saunders Reef	March 21, 1974,	74-28	1
6.	Trinidad Head	March 21, 1974,	74-28	1
7.	King Range	March 21, 1974,	74-28	1
8.	Redwoods National Park	March 21, 1974,	74-28	1
9.	James V. Fitzgerald	March 21, 1974,	74-28	2
10.	Farallon Islands	March 21, 1974,	74-28	2
11.	Duxbury Reef	March 21, 1974,	74-28	2
12.	Point Reyes Headlands	March 21, 1974,	74-28	2
13.	Double Point	March 21, 1974,	74-28	2
14.	Bird Rock	March 21, 1974,	74-28	2
15.	Año Nuevo	March 21, 1974,	74-28	3
16.	Point Lobos	March 21, 1974,	74-28	3
17.	San Miguel, Santa Rosa, and Santa Cruz Islands	March 21, 1974,	74-28	3
18.	Julia Pfeiffer Burns	March 21, 1974,	74-28	3
19.	Pacific Grove	March 21, 1974,	74-28	3
20.	Salmon Creek Coast	March 21, 1974,	74-28	3
21.	San Nicolas Island and Begg Rock	March 21, 1974,	74-28	4
22.	Santa Barbara and Anacapa Islands	March 21, 1974,	74-28	4
23.	San Clemente Island	March 21, 1974,	74-28	4

Table V-1 Continued on next page…

* See Appendix I for definition of terms.

Table V-1 (Continued)

Areas of Special Biological Significance*
(Designated or Approved by the State Water Resources Control Board)

No.	ASBS Name	Date Designated	State Water Board Resolution No.	Region No.
24.	Laguna Point to Latigo Point	March 21, 1974,	74-28	4
25.	Northwest Santa Catalina Island	March 21, 1974,	74-28	4
26.	Western Santa Catalina Island	March 21, 1974,	74-28	4
27.	Farnsworth Bank	March 21, 1974,	74-28	4
28.	Southeast Santa Catalina	March 21, 1974,	74-28	4
29.	La Jolla	March 21, 1974,	74-28	9
30.	Heisler Park	March 21, 1974,	74-28	9
31.	San Diego-Scripps	March 21, 1974,	74-28	9
32.	Robert E. Badham	April 18, 1974	74-32	8
33.	Irvine Coast	April 18, 1974	74-32	8,9
34.	Carmel Bay	June 19, 1975	75-61	3

* See Appendix I for definition of terms.

APPENDIX VI

REASONABLE POTENTIAL ANALYSIS PROCEDURE FOR DETERMINING WHICH TABLE 1 OBJECTIVES REQUIRE EFFLUENT LIMITATIONS

In determining the need for an effluent limitation, the Regional Water Board shall use all representative information to characterize the pollutant discharge using a scientifically defensible statistical method that accounts for the averaging period of the water quality objective, accounts for and captures the long-term variability of the pollutant in the effluent, accounts for limitations associated with sparse data sets, accounts for uncertainty associated with censored data sets, and (unless otherwise demonstrated) assumes a lognormal distribution of the facility-specific effluent data.

The purpose of the following procedure (see also Figure VI-1) is to provide direction to the Regional Water Boards for determining if a pollutant discharge causes, has the reasonable potential to cause, or contributes to an excursion above Table 1 water quality objectives in accordance with 40 CFR 122.44 (d)(1)(iii). The Regional Water Board may use an alternative approach for assessing reasonable potential such as an appropriate stochastic dilution model that incorporates both ambient and effluent variability. The permit fact sheet or statement of basis will document the justification or basis for the conclusions of the reasonable potential assessment. This appendix does not apply to permits or any portion of a permit where the discharge is regulated through best management practices (BMP) unless such discharge is also subject to numeric effluent limitations.

Step 1: Identify C_o, the applicable water quality objective from Table 1 for the pollutant.

Step 2: Does information about the receiving water* body or the discharge support a reasonable potential assessment (RPA) without characterizing facility-specific effluent monitoring data? If yes, go to *Step 13* to conduct an RPA based on best professional judgment (BPJ). Otherwise, proceed to *Step 3*.

Step 3: Is facility-specific effluent monitoring data available? If yes, proceed to *Step 4.* Otherwise, go to *Step 13.*

Step 4: Adjust all effluent monitoring data C_e, including censored (ND or DNQ) values to the concentration *X* expected after complete mixing. For Table 1 pollutants use $X = (C_e + D_m C_s) / (D_m + 1)$; for acute toxicity* use $X = C_e / (0.1 D_m + 1)$; where D_m is the minimum probable initial dilution* expressed as parts seawater* per part wastewater and C_s is the background seawater* concentration from Table 3. For ND values, C_e is replaced with "<MDL*;" for DNQ values C_e is replaced with "<ML.*" Go to *Step 5*.

Step 5: Count the total number of samples *n*, the number of censored (ND or DNQ) values, *c* and the number of detected values, *d, such that n = c + d*.

Is any *detected* pollutant concentration after complete mixing greater than C_o? If yes, the discharge causes an excursion of C_o; go to *Endpoint 1*. Otherwise, proceed to *Step 6*.

Step 6: Does the effluent monitoring data contain three or more detected observations ($d \geq 3$)? If yes, proceed to *Step 7* to conduct a parametric RPA. Otherwise, go to *Step11* to conduct a nonparametric RPA.

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* See Appendix I for definition of terms.

Step 7: Conduct a parametric RPA. Assume data are lognormally distributed, unless otherwise demonstrated. Does the data consist entirely of detected values ($c/n = 0$)? If yes,

- calculate summary statistics M_L and S_L, the mean and standard deviation of the natural logarithm transformed effluent data expected after complete mixing, ln(X),
- go to *Step 9*.

Otherwise, proceed to *Step 8*.

Step 8: Is the data censored by 80% or less ($c/n \leq 0.8$)? If yes,

- calculate summary statistics M_L and S_L using the censored data analysis method of Helsel and Cohn (1988),
- go to *Step 9*.

Otherwise, go to Step 11.

Step 9: Calculate the UCB i.e., the one-sided, upper 95 percent confidence bound for the 95th percentile of the effluent distribution after complete mixing. For lognormal distributions, use $UCBL_{(.95,.95)} = \exp(M_L + S_L\, g'_{(.95,.95,n)})$, where g' is a normal tolerance factor obtained from the table below (Table VI-1). Proceed to *Step 10*.

Step 10: Is the UCB greater than C_o? If yes, the discharge has a reasonable potential to cause an excursion of C_o; go to *Endpoint 1*. Otherwise, the discharge has no reasonable potential to cause an excursion of C_o; go to *Endpoint 2*.

Step 11: Conduct a non-parametric RPA. Compare each data value X to C_o. Reduce the sample size n by 1 for each tie (i.e., inconclusive censored value result) present. An adjusted ND value having $C_o <$ MDL* is a tie. An adjusted DNQ value having $C_o <$ ML* is also a tie.

Step 12: Is the adjusted $n > 15$? If yes, the discharge has no reasonable potential to cause an excursion of C_o; go to *Endpoint 2*. Otherwise, go to *Endpoint 3*.

Step 13: Conduct an RPA based on BPJ. Review all available information to determine if a water quality-based effluent limitation is required, notwithstanding the above analysis in *Steps 1* through *12*, to protect beneficial uses. Information that may be used includes: the facility type, the discharge type, solids loading analysis, lack of dilution, history of compliance problems, potential toxic impact of discharge, fish tissue residue data, water quality and beneficial uses of the receiving water,* CWA 303(d) listing for the pollutant, the presence of endangered or threatened species or critical habitat, and other information.

Is data or other information unavailable or insufficient to determine if a water quality-based effluent limitation is required? If yes, go to *Endpoint 3.* Otherwise, go to either *Endpoint 1* or *Endpoint 2* based on BPJ.

Endpoint 1: An effluent limitation must be developed for the pollutant. Effluent monitoring for the pollutant, consistent with the monitoring frequency in Appendix III, is required.

Endpoint 2: An effluent limitation is not required for the pollutant. Appendix III effluent monitoring is not required for the pollutant; the Regional Board, however, may require occasional monitoring for the pollutant or for whole effluent toxicity as appropriate.

* See Appendix I for definition of terms.

Endpoint 3: The RPA is inconclusive. Monitoring for the pollutant or whole effluent toxicity testing, consistent with the monitoring frequency in Appendix III, is required. An existing effluent limitation for the pollutant shall remain in the permit, otherwise the permit shall include a reopener clause to allow for subsequent modification of the permit to include an effluent limitation if the monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a Table 1 water quality objective.

Appendix VI References:

Helsel D. R. and T. A. Cohn. 1988. Estimation of descriptive statistics for multiply censored water quality data. Water Resources Research, Vol 24(12):1977-2004.

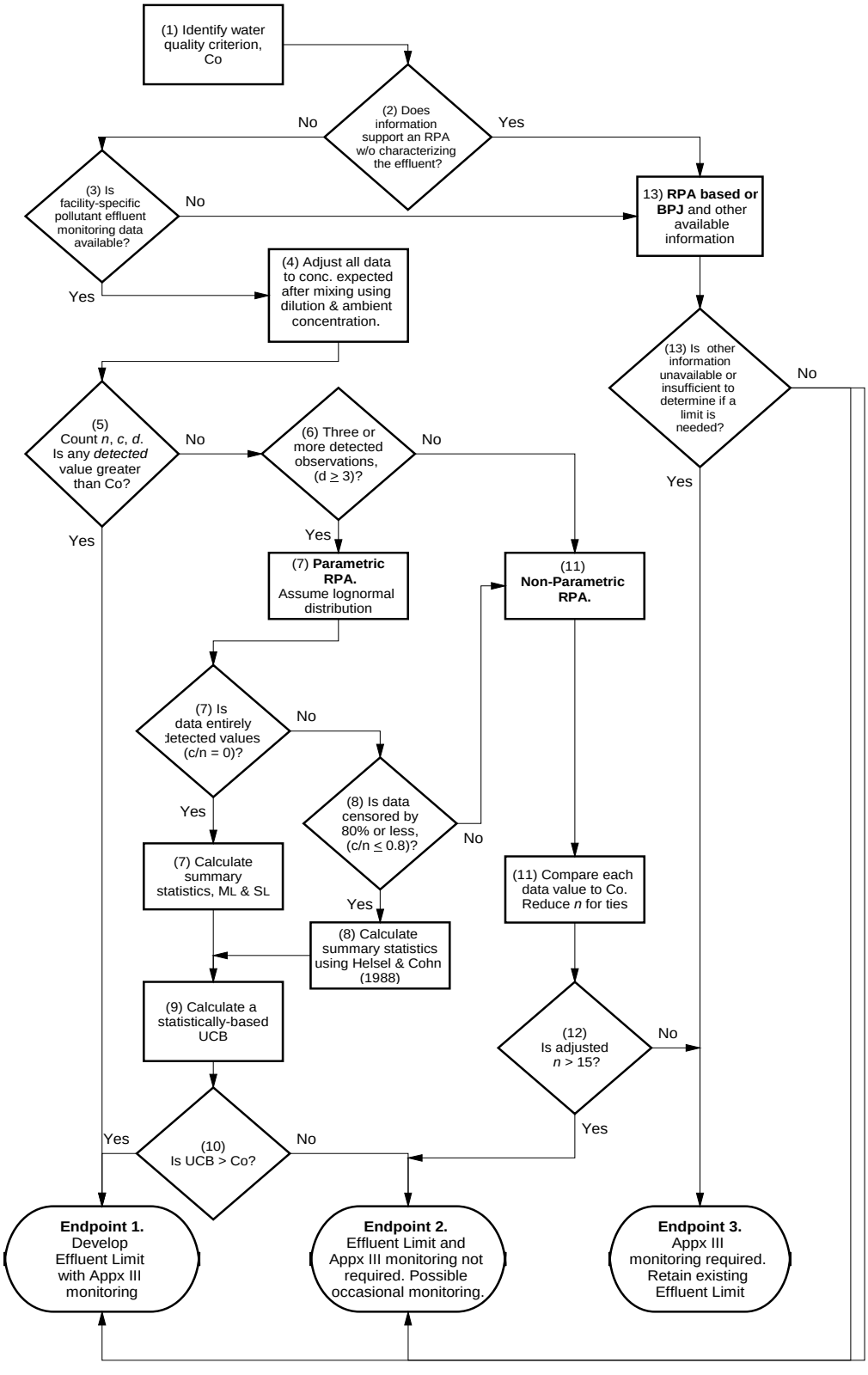
Hahn J. H. and W. Q. Meeker. 1991. Statistical Intervals, A guide for practitioners. J. Wiley & Sons, NY.

TABLE VI-1: Tolerance factors $g'_{(.95,.95,n)}$ for calculating normal distribution one-sided upper 95 percent tolerance bounds for the 95th percentile (Hahn & Meeker 1991)

n	$g'_{(.95,.95,n)}$	*n*	$g'_{(.95,.95,n)}$
2	26.260	21	2.371
3	7.656	22	2.349
4	5.144	23	2.328
5	4.203	24	2.309
6	3.708	25	2.292
7	3.399	26	2.275
8	3.187	27	2.260
9	3.031	28	2.246
10	2.911	29	2.232
11	2.815	30	2.220
12	2.736	35	2.167
13	2.671	40	2.125
14	2.614	50	2.065
15	2.566	60	2.022
16	2.524	120	1.899
17	2.486	240	1.819
18	2.453	480	1.766
19	2.423	∞	1.645
20	2.396		

* See Appendix I for definition of terms.

Figure VI-1. Reasonable potential analysis flow chart



* See Appendix I for definition of terms.

APPENDIX VII

EXCEPTIONS TO THE CALIFORNIA OCEAN PLAN

TABLE VII-1
EXCEPTIONS TO THE OCEAN PLAN

(GRANTED BY THE STATE WATER RESOURCES CONTROL BOARD)

Year	Resolution	Applicable Provision	Discharger
1977	77-11	Discharge Prohibition, ASBS #23	US Navy San Clemente Island
1979	79-16	Discharge Prohibition for wet weather discharges from combined storm and wastewater collection system.	The City and County of San Francisco
1983	83-78	Discharge Prohibition, ASBS #7	Humboldt County Resort Improvement District No.1
1984	84-78	Discharge Prohibition, ASBS #34	Carmel Sanitary District
1988	88-80	Total Chlorine Residual Limitation	Haynes Power Plant Harbor Power Plant Scattergood Power Plant Alamitos Power Plant El Segundo Power Plant Long Beach Power Plant Mandalay Power Plant Ormond Beach Power Plant Redondo Power Plant
1990	90-105	Discharge Prohibition, ASBS #21	US Navy San Nicolas Island
2004	2004-0052	Discharge Prohibition, ASBS #31	UC Scripps Institution of Oceanography
2006	2006-0013	Discharge Prohibition, ASBS #25	USC Wrigley Marine Science Center
2007	2007-0058	Discharge Prohibition, ASBS #4	UC Davis Bodega Marine Laboratory
2011	2011-0049	Discharge Prohibition, ASBS #6	HSU Telonicher Marine lab
2011	2011-0050	Discharge Prohibition, ASBS #19	Monterey Bay Aquarium
2011	2011-0051	Discharge Prohibition, ASBS #19	Stanford Hopkins Marine Station
2012	2012-0012, as amended on June 19 2012; in 2012-0031	ASBS Discharge Prohibition, General Exception for Storm Water and Nonpoint Sources	27 applicants for the General Exception

* See Appendix I for definition of terms.

APPENDIX VIII
MAPS OF THE OCEAN, COAST, AND ISLANDS

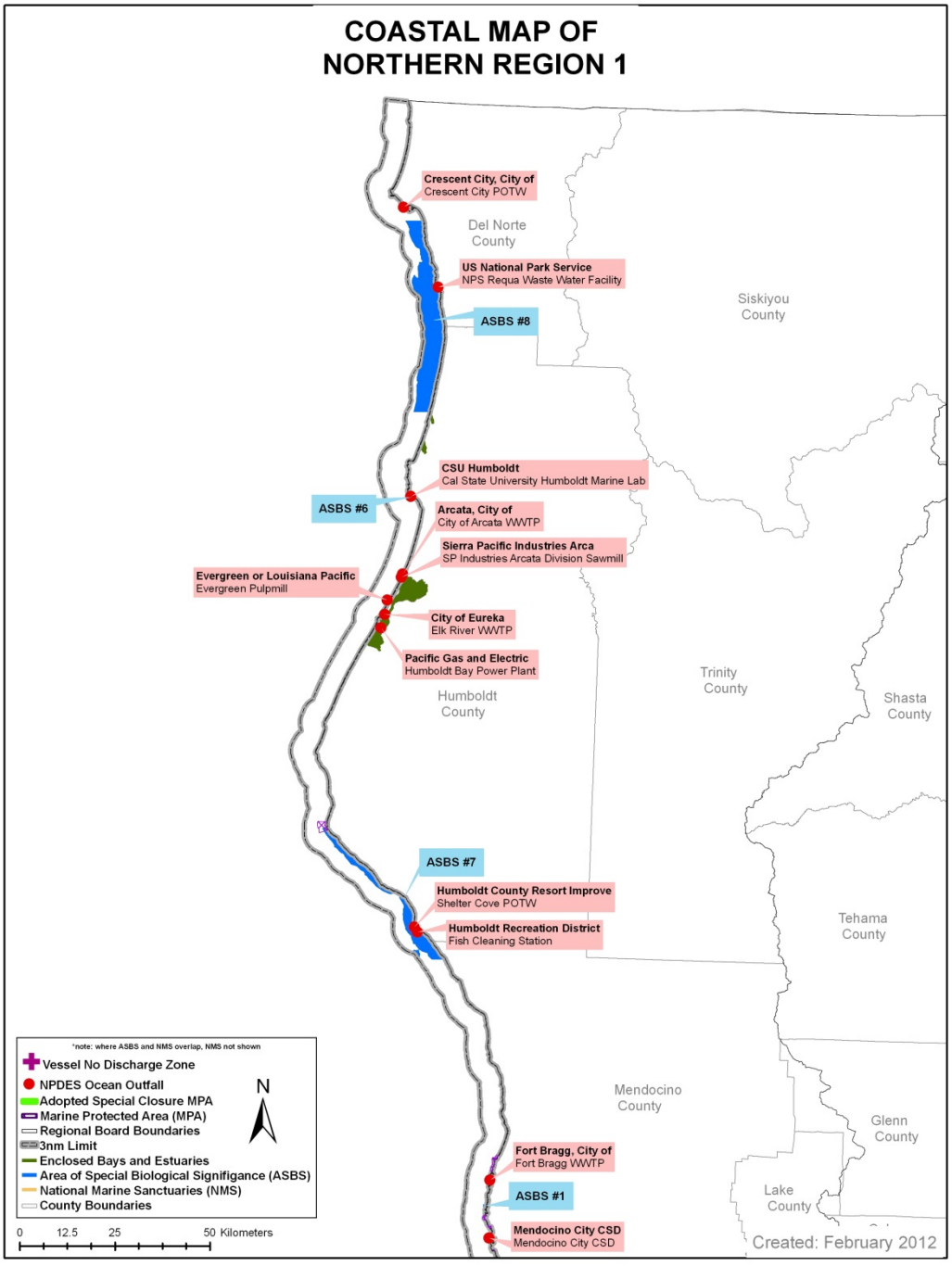


Figure VIII-1. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in northern Region 1.

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* See Appendix I for definition of terms.

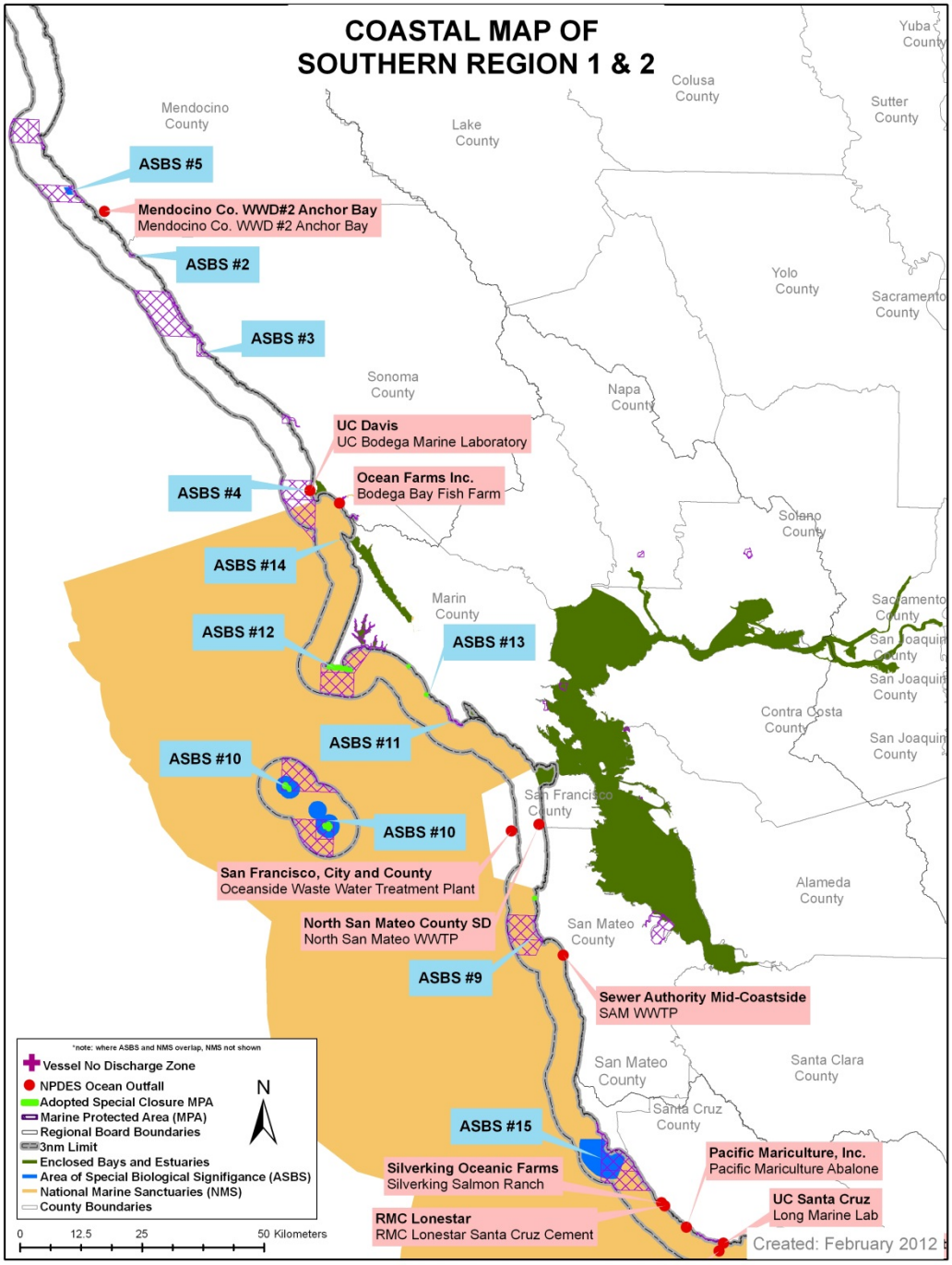

Figure VIII-2. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 1 and Region 2.

* See Appendix I for definition of terms.

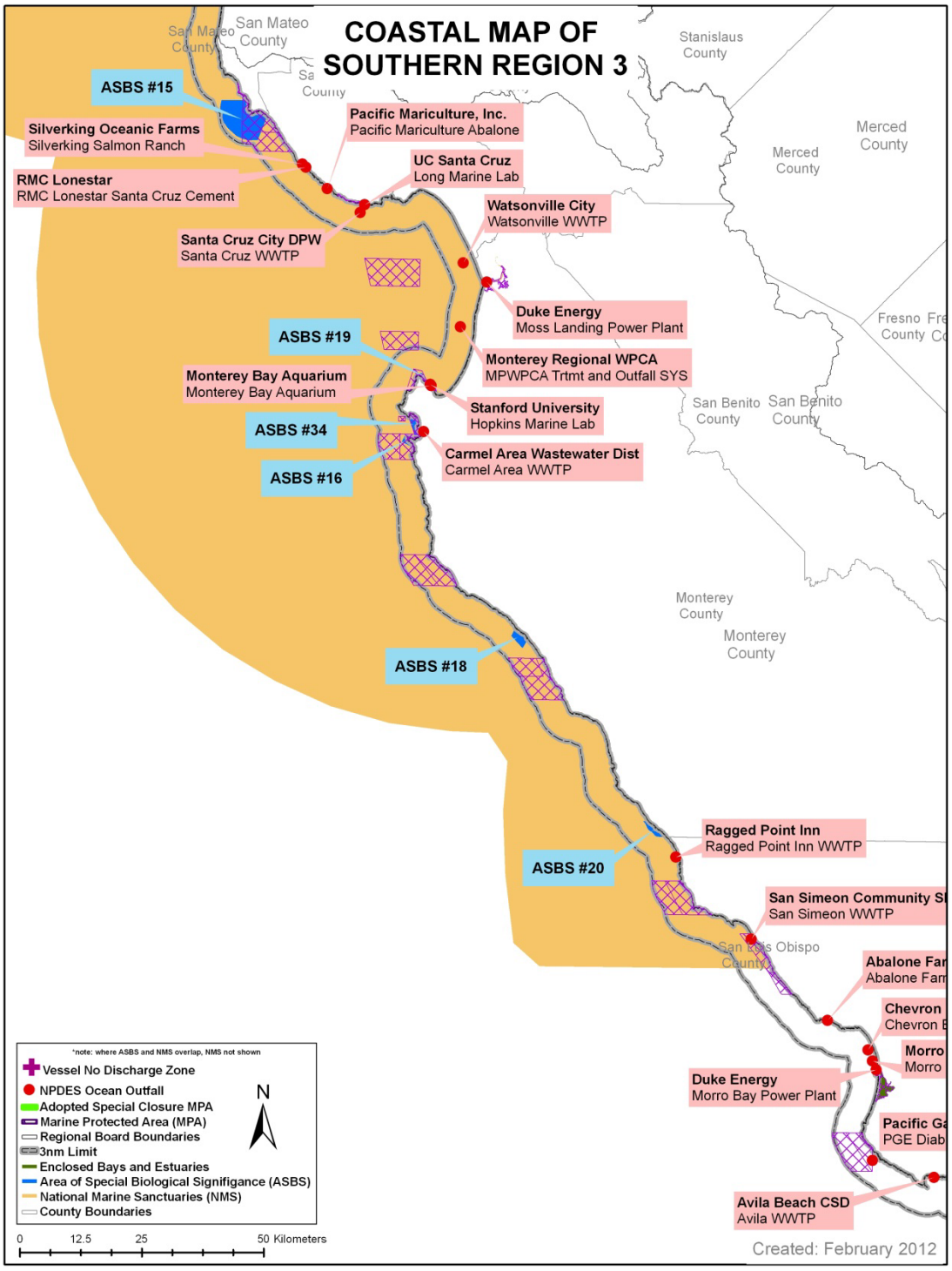

Figure VIII-3. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in northern Region 3.

* See Appendix I for definition of terms.

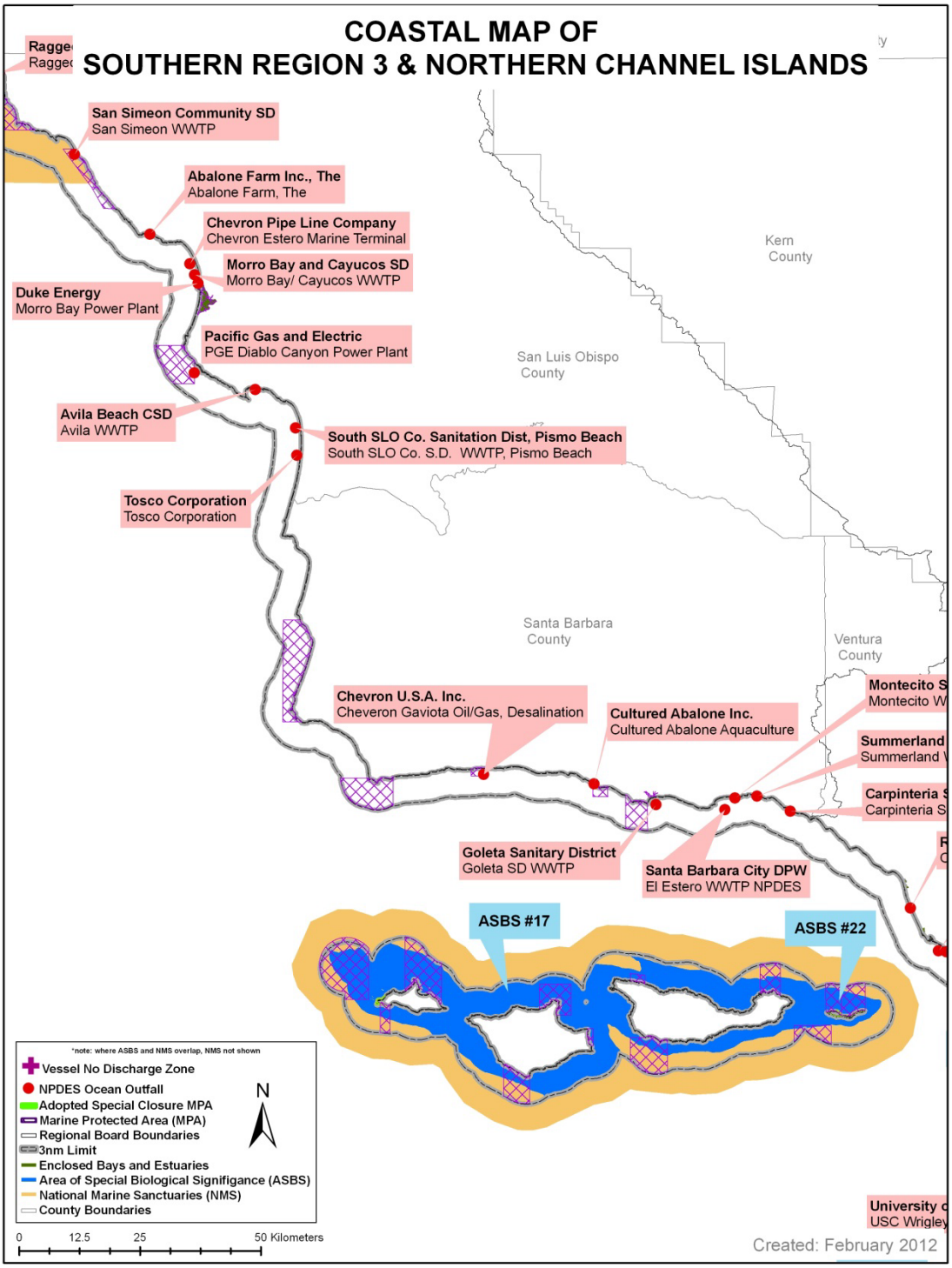

Figure VIII-4. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Region 3 and northern Channel Islands.

* See Appendix I for definition of terms.

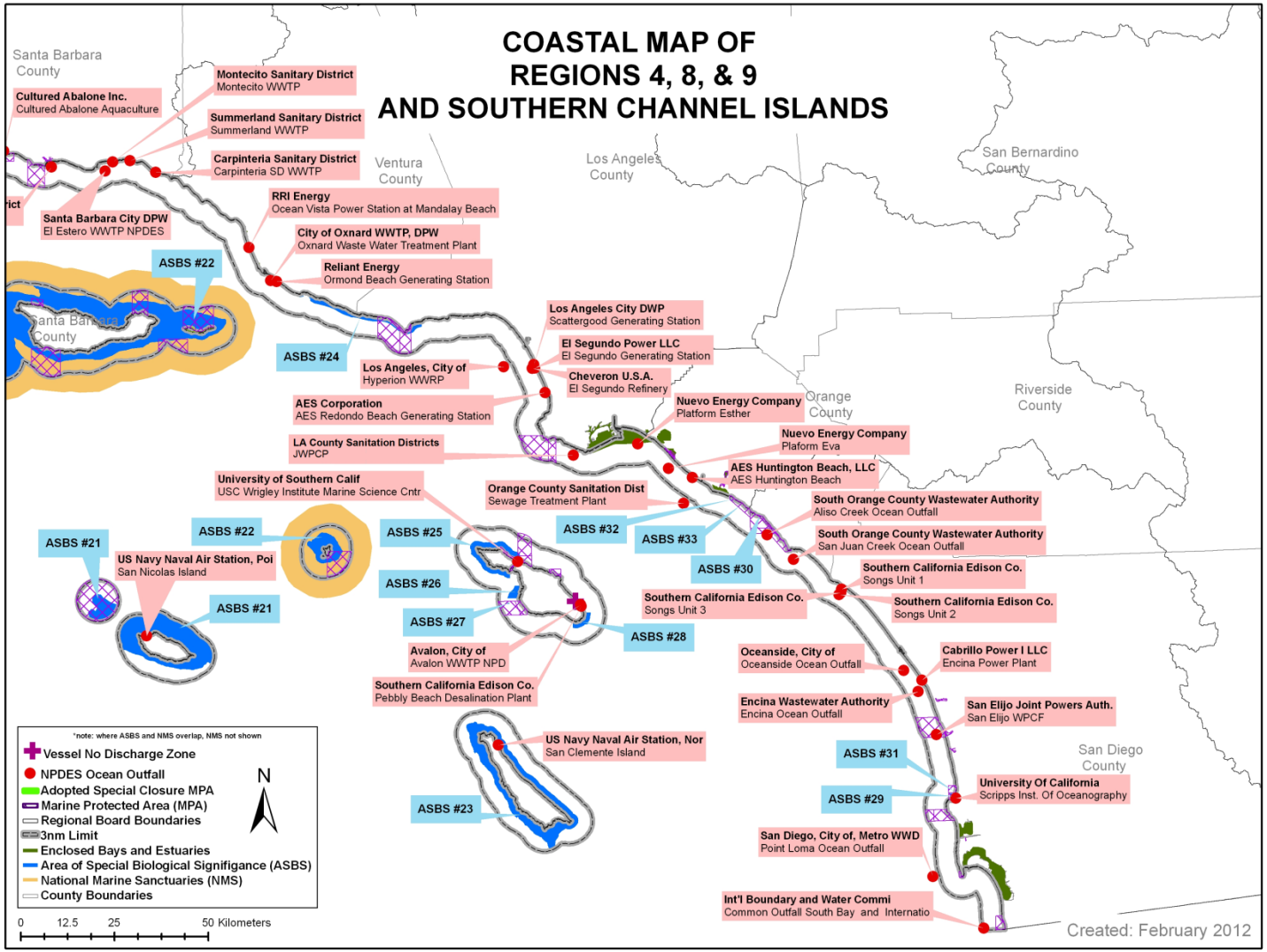

Figure VIII-5. ASBS Boundaries, MPA Boundaries, Wastewater Outfall Points, Marine Sanctuary Boundaries, and Enclosed Bays in southern Channel Islands and Regions 4, 8 and 9.

* See Appendix I for definition of terms.

ATTACHMENT
21

Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options

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Water Quality Control Policy for Addressing Impaired Waters: Regulatory Structure and Options

Preface

The State Water Resources Control Board and the Regional Water Quality Control Boards (Water Boards) are committed to protecting and restoring the waters of California to ensure that all applicable beneficial uses are fully attained. Where waters are not meeting their beneficial uses from anthropogenic sources of pollutants, the Water Boards will use the Total Maximum Daily Load (TMDL) program to craft an implementation plan to ensure that the waters meet all applicable standards as soon as is practicable. The TMDL program remains a high priority program of the Water Boards.

This Policy is intended to ensure that the impaired waters of the state are addressed in a timely and meaningful fashion. In those cases where immediate restoration activities are available, the policy encourages those actions to take place immediately rather than waiting for a regulatory action by the Water Boards. In this respect, the Water Boards are committed to work with all interested parties to develop appropriate plans to restore water bodies to water quality standards. The Water Boards will continue to pursue information from all interested persons in developing such plans and will encourage early restoration activities prior to completion of a TMDL, where such activities will result in improved water quality.

While the Policy allows a TMDL to be established through alternative regulatory actions, it is anticipated that the majority of TMDLs will be established through an implementation plan adopted as a Basin Plan amendment. This is due to the complexity of the problems needing correction for most of the impaired waters. Where alternative regulatory methods are used to establish TMDLs, however, those TMDLs will be incorporated into the Water Quality Management Plan after they are approved. Using existing regulatory programs to ensure waters are restored, where such mechanism exists, will promote a cost effective and timely response that has proven elusive when relying exclusively on basin planning to establish TMDLs.

The Water Boards are committed to use all means to ensure that the waters of the State are protected for the use and enjoyment of the people of the State and that the waters attain the highest water quality that is reasonable, considering all demands being made and to be made of the waters. The Water Boards will continue to use the best information and science available to the program in developing restoration plans for the waters of the State.

I. Addressing Impaired Waters

Section 303(d) of the Clean Water Act (CWA) contains backstop provisions designed to ensure that all state water quality standards are met. The water quality of many waters of the state is currently unacceptable. The Total Maximum Daily Load (TMDL) program was created by the State Board to implement the requirements of these backstop provisions, consistent with state and federal law, for the purpose of ensuring that water quality standards are attained. The TMDL program is the primary program responsible for achieving clean water where traditional controls on point sources have proven inadequate to do so. The program thus is charged with creating plans that consider all sources and causes of impairment, and allocating responsibility for corrective measures, regardless of sources or cause, that will attain water quality standards.

The State Water Resources Control Board (State Board) and Regional Water Quality Control Boards (Regional Boards) are delegated the responsibility for implementing California's Porter Cologne Water Quality Control Act and the federal Clean Water Act (CWA). Pursuant to relevant provisions of both of those acts the State and Regional Boards establish water quality standards, including designated (beneficial) uses and criteria or objectives to protect those uses. Section 303(d) of the CWA (33 USC § 1313(d)) requires the states to identify certain waters within their borders that are not attaining water quality standards and to establish the total maximum daily load (TMDL) for certain pollutants impairing those waters. According to USEPA, a TMDL is a numerical calculation of the amount of a pollutant that a water body can assimilate and still meet standards. A TMDL includes one or more numerical targets that represent attainment of the applicable standards, considering seasonal variations and a margin of safety, in addition to the allocation of the target or load among the various sources of the pollutant. These include waste load allocations (WLAs) for point sources, and load allocations (LAs) for nonpoint sources and natural background. TMDLs established for impaired waters must be submitted to the US Environmental Protection Agency (USEPA) for approval.

CWA section 303(e) requires the states to implement their approved TMDLs through their Continuing Planning Process. The USEPA's regulations do not provide for USEPA approval of TMDL implementation plans (however the regulations do require NPDES permits to be consistent with the assumptions and requirements of TMDLs and available WLAs). TMDL implementation is therefore largely a function of California law, including but not limited to CWC Section 13242, which requires a program of implementation to achieve water quality objectives.

Regional Boards have wide latitude, numerous options, and some legal constraints that apply when determining how to address impaired waters. Irrespective of whether CWA section 303(d) requires a TMDL, the process for addressing waters that do not meet applicable standards must be accomplished through existing regulatory tools and mechanisms. This policy is intended to outline those tools and mechanisms, and explain how the federal requirement to establish TMDLsfits within those confines. This policy also establishes a certification[1] process whereby the Regional Boards can formally recognize regulatory or nonregulatory actions of other entities as appropriate implementation programs when the Regional Boards determine those actions will result in attainment of standards. In addition, implementation activities taken to achieve LAs must be consistent with the SWRCB Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program (NPS Implementation Policy).

This policy is not intended and shall not be construed as limiting the authority of the State Board or the Regional Boards in any manner. A flowchart is included as attachment A, which tracks this discussion.

The following principles apply to the process of resolving impairments in surface waters not attaining standards in California:

[1] The term "certification" has been used in many contexts related to point and nonpoint source pollution control. Its use here is expressly intended to not embody any of those definitions. Unless otherwise indicated, the term "certification", as used in this policy, is limited to describing a process by which the Regional Boards can formally recognize an acceptable alternative implementation program for a TMDL. The term "Certification" is further defined in the glossary.

A. If the water body is neither impaired nor threatened, the appropriate regulatory response is to delist the water body.

The first step in addressing a listing is to identify the scope of the problem. In some cases, this analysis will lead to a conclusion that standards are in fact being attained and the water is not threatened, either because the assumptions underlying the listing were incorrect, or because the impairment has been corrected. In such circumstances, it is appropriate to delist the water body in accordance with the "Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List.".

B. If the failure to attain standards is due to the fact that the applicable standards are not appropriate to natural conditions, an appropriate regulatory response is to correct the standards.

If the water body is impaired, the cause of the impairment must be ascertained. There are five common reasons (see below[2]) that standards are being exceeded. In most cases, a pollution reduction strategy of some sort will be warranted. However, in some instances part or the entire cause of the impairment will be due to problems with the standards themselves. While in most cases the existing standards are appropriate and amenable to TMDL development, periodically investigation during the development of a TMDL or its implementation plan may reveal that the standards may be inappropriate or imprecise, thus rendering water quality attainment impossible unless standards are modified. In such cases, staff will undertake a limited review of the standards. The purpose of standards review during the TMDL process is not to reassess the Water Boards' previous policy determinations that underlie the Beneficial Use Designations or Water Quality Objectives, but rather to ensure that the standards are amenable to an appropriate implementation plan. Modification of standards should not be viewed as "an easy fix" to avoid a TMDL, and review of the appropriateness of the standards will not be considered in every case. Reviewing the appropriateness of the policies underlying standards is complex and involves processes that generally are beyond the scope of TMDL process. Review of standards' underlying policies generally occurs in the triennial review process. Unlike the triennial review process, the TMDL process is not designed to evaluate standards' appropriateness, but to create a strategy to attain those standards that have already been established. If staff determines that the policies underlying the existing standards should be revisited, in lieu of crafting an implementation plan under this policy, the impaired water shall be referred to the Water Quality Standards staff for consideration of an appropriate standards action, through the appropriate processes. Irrespective, it is always necessary to review the standards applicable to the listed waterbody in order to determine the appropriate target or targets. Three typical examples of where standards may need modification are where:

1. **Natural conditions alone are incompatible with the Standards**: This occurs either when natural background levels of a pollutant exceed water quality objectives, or natural background conditions are incompatible with the beneficial uses assigned in the basin plan, or natural background conditions are degrading the water body.

2. **Standards are too broad or too vague**: For example, a water body may extend beyond an area where associated beneficial uses are appropriate, such as the geographic boundaries of an estuarine environment.

[2] This is not intended to be an exclusive list of causes.

3. **Incompatible Uses Exist**: This may occur when two or more uses are incompatible with each other. For instance, wildlife waste may generate pathogen levels that render the water unsuitable for human recreation.

In each of the above situations, revision of the standards themselves may be the best (or only) way to address the impairment. Revision of the standards can include removing uses, establishing subcategories of uses, establishing seasonal uses (all of which may require a Use Attainability Analysis (UAA), establishing a Site-Specific Objective (SSO), or other modification of the water quality standard. When a standards action is deemed appropriate, the State and Regional Board shall follow all applicable requirements, including but not limited to those set forth in part 131 of Title 40 of the Code of Federal Regulations and Article 3 of Division 7, Chapter 4 of the California Water Code.

Additionally, an anti-degradation finding may authorize the lowering of water quality to some degree, which may address the impairment. The anti-degradation policies established in federal regulations and state policy both authorize the lowering of water quality in certain circumstances, where doing so would not impair beneficial uses. If an anti-degradation finding is appropriate, the requirements of 40 CFR § 131.12 and Resolution #68-16 shall be adhered to.

C. The State Board and Regional Boards are responsible for the quality of all waters of the state, irrespective of the cause of the impairment. In addition, a TMDL must be calculated for impairments caused by certain EPA designated pollutants.

The two other common causes or categories of impairment are related to anthropogenic factors. They include waters impaired by pollution and waters impaired by certain EPA designated pollutants. The Porter-Cologne Water Quality Control Act charges the State Board and Regional Boards with the responsibility of protecting the beneficial uses and quality of all waters of the state, irrespective of the cause of the impairment. Thus, if possible, the impairment should be corrected in either event. Presently, the EPA has designated all pollutants as suitable for TMDL calculation under proper technical conditions.

1. **Pollutants**: The term "pollutant" is defined in section 502(6) of the Clean Water Act. Section 303(d) of the Clean Water Act requires TMDLs be established for each impairing "pollutant" that is suitable for TMDL calculation. EPA has determined that under proper technical conditions, all pollutants are suitable for TMDL calculation. Thus, before undertaking an action to correct an impairment, the Loading Capacity of the pollutant must be calculated for impaired waters, and thus the load reductions necessary (considering seasonal variations and a margin of safety) to attain standards. Corrective action will implement the assumptions and requirements of the Loading Capacity using any combination of existing regulatory tools.

2. **Pollution**: The term "pollution" is defined in section 502(19) of the Clean Water Act and section 13050(l) of the California Water Code. When non-pollutant pollution is the cause of the impairment, the Regional Boards may skip the step of calculating the Loading Capacity and proceed immediately to designing corrective action using existing regulatory tools.

D. Whether or not a TMDL calculation is required as described above, impaired waters will be corrected (and implementation plans crafted) using existing regulatory tools

All violations of standards should be redressed, and the Boards may use any combination of existing regulatory tools to do so. Existing regulatory tools include[3] individual or general waste discharge requirements (be they under Chapter 4 or under Chapter 5.5 (NPDES permits) of the Porter-Cologne Water Quality Control Act), individual or general waivers of waste discharge requirements, enforcement actions, interagency agreements, regulations, basin plan amendments, and other policies for water quality control. Basin plan amendments can include adopting new or revised implementation measures, adopting prohibitions, or where appropriate, modifying standards. The priority ranking assigned to an impaired water will help the Regional Boards determine which impairments will be addressed in what order, according to available resources. The following sections describe the different forms in which an implementation plan may be adopted. The requirement to establish the TMDL or Loading Capacity for the pollutant does not change this analysis.

1. If the solution to an impairment will require multiple actions of the regional board that affect multiple persons, the solution must be implemented through a basin plan amendment or other regulation.

The requirement to use a basin plan amendment or other regulation to tie together numerous actions by the Regional Board stems from the California Administrative Procedures Act (APA). Consistent with the APA, any policy, plan, or guideline must be adopted as a regulation in the proper manner before it may be applied. The term "underground regulation" has been used to describe regulations that have not been properly adopted. The APA requirements ensure that persons subject to regulations have the opportunity to participate in the process during which the assumptions underlying an implementation plan are derived. If there were no such process, every regulated person would be subject to subsequent requirements based upon assumptions determined in a previous proceeding to which they were not a party. Accordingly, when an implementation plan would require multiple actions of the Regional Board, the plan itself must be adopted as a separate action to enable interested persons to comment upon the assumptions of the plan, before they are imposed, one by one, on members of the public at large. The Regional Boards generally use the basin planning process to adopt such plans.

2. If the solution to an impairment can be implemented with a single vote of the regional board, it may be implemented by that vote.

When an implementation plan can be adopted in a single regulatory action, such as a permit, a waiver, or an enforcement order, there is no legal requirement to first adopt the plan through a basin plan amendment. The plan may be adopted directly in that single regulatory action. The permittee (or other regulated party), and any other interested persons may challenge all assumptions underlying the implementation plan during that permitting (or other regulatory) action. In such circumstances, a basin plan amendment may be redundant. There may nonetheless be case-specific reasons why a Regional Board may choose to adopt an implementation plan by a basin plan amendment even if it could be implemented by a single vote

[3] This section is not intended to articulate an exhaustive list of tools available to the State Board or Regional Boards to address violations of standards. It is only intended to provide an example of possibilities.

of the Regional Board. There is no error in doing so should the Regional Board, for whatever reason, deem it desirable.

3. **If a solution to an impairment is being implemented by a regulatory action of another state, regional, local, or federal agency, and the Regional Board finds that the solution will actually correct the impairment, the Regional Board may certify that the regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program.**

The Regional Boards and State Board have the ultimate responsibility over water quality protection for all waters in the State. That responsibility does not imply that the State Board or a Regional Board must adopt redundant regulations when they determine that another regulatory body is adequately addressing a water quality problem. Like most state agencies, the State and Regional Boards generally have inadequate resources to timely address each and every water quality problem, and they must therefore, prioritize use of their resources to where they will do the most good. The fact, however, that another regulatory body is addressing a water quality problem is not alone a sufficient basis for a Regional Board to forego remedial action. The Regional Boards may neither delegate nor abdicate their responsibility over the waters of the State. Furthermore, they may not indefinitely defer taking necessary action if another agency is not properly addressing a problem. However, where another agency is constructively involved in efforts to address an impairment, the SWRCB and RWQCB should seek to take those efforts into account and, where appropriate, take advantage of these third-party efforts. Not only does this avoid unnecessary duplication of effort, it can leverage the SWRCB's and RWQCBs' limited staffing and financial resources.

Only when the Regional Board independently determines that a program being implemented by another regulatory entity will be adequate to correct the impairment, may the Regional Board rely upon that program. If a Regional Board makes such findings, and the findings are supported by substantial evidence in the administrative record, the Regional Board may certify that such program will implement the assumptions and requirements of the TMDL. Nothing in this policy should be construed as implying that State may avoid its responsibilities under Water Code sections 13263, 13269, 13377, or any other section of the Porter Cologne Act. In other words, this certification procedure shall not be deemed to allow the Regional Board to rely upon an alternative program where the Regional Board has a legal responsibility to implement its own requirements (such as issuing or waiving WDRs, or imposing certain effluent limitations in permits where such effluent limitations are required by law). The Regional Boards must perform their statutorily mandated responsibilities irrespective of whether another body is also regulating an activity.

Finally, if water quality problems persist, the Regional Board may not indefinitely defer enforcement action to other agencies. The RWQCB can ask the agency to enforce its own requirements, and if they fail to do so in a manner consistent with the assumptions and requirements of the TMDL, the Regional Board must exercise its independent authority.

4. **If a solution to an impairment is being implemented by a non-regulatory action of another entity, and the regional board finds that the solution will actually correct the impairment, the regional board may certify that the non-regulatory action will correct the impairment and if applicable, implement the assumptions of the TMDL, in lieu of adopting a redundant program.**

Similar to subsection c., above, the Regional Boards may rely upon actions by non-regulatory entities, if the Regional Board makes findings, supported by substantial evidence in the record, that a program being implemented by a non-regulatory entity will be adequate to correct the impairment. The fact that the Regional Boards have limited resources to accomplish their water quality mission can and should be used as a basis to encourage interested persons to undertake to abate impairments in the time before the Regional Boards may otherwise be able to address them. For instance, several RWQCBs have had experience working with industry groups, both formally and informally, to develop education and self-regulation within a particular industry. Other organizations have become active in NPS pollution prevention and land restoration efforts through CWA §319(h) grants, State bond grants, or the State Revolving Fund loan program. Many of the partnerships formed to take advantage of these financial resources have developed into self-sustaining third-party organizations. Some are affiliated with RCDs or have developed as part of the Coordinated Resource Management Planning (CRMP) approach; others are watershed groups or have developed their own organizational structure based on other geographic or industry-specific factors. In some situations the organizations accomplish their goals through a mix of public and private partnership efforts. The RWQCB staff has worked with these groups at various levels. The RWQCBs have broad flexibility and discretion in fashioning TMDL implementation programs, and are encouraged to be as innovative and creative as possible, and, as appropriate, to build upon Third-Party Programs

II. Process for adopting TMDLs

Section 1. Definitions:

a) **Certification.** As used in this policy, the term "certification" shall refer to a formal attestation by a Regional Board that a specific program of implementation, proposed by another regulatory or non-regulatory entity, will be consistent with the assumptions and requirements of a Regional Board-established TMDL that is set at a level that will ensure attainment of water quality standards, considering seasonal variations and a margin of safety. The term "certify" or "certifies" shall refer to the act of issuing the certification. A certification under this policy shall not be deemed to confer any other form of certificate or create any other form of certification, including but not limited to those described in sections 1288 or 1341 of Title 33 of the United States Code.

b) **Loading capacity (LC).** The greatest amount of loading that a water can receive without violating water quality standards.

c) **Load allocation (LA).** The portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which can range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading. Wherever possible, natural and nonpoint source loads should be distinguished. (40 CFR 130.2(g))

d) Waste Load allocation (WLA). The portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. WLAs constitute a type of water quality-based effluent limitation (40 CFR 130.2(h)).

e) Margin of Safety (MOS). The required component of the TMDL that accounts for the uncertainty about the relationship between the pollutant loads and the quality of the receiving waterbody (CWA section 303(d)(1)(C)). The MOS is normally incorporated into the conservative assumptions used to develop TMDLs (generally within the calculations or models) and approved by EPA either individually or in state/EPA agreements. This may be referred to as an "implicit" MOS. If the MOS needs to be larger than that which is allowed through the conservative assumptions, additional MOS can be added as a separate component of the TMDL (in this case, quantitatively, a TMDL = LC = WLA + LA + MOS). When the MOS is expressed as a specific reservation or assignment of part of the LC, it may be referred to as an "explicit" MOS.

f) Total Maximum Daily Load (TMDL). The sum of the individual wasteload allocations (WLAs) for point sources, load allocations (LAs) for nonpoint sources and natural background, and a margin of safety (MOS). TMDLs can be expressed in terms of mass per time, toxicity, or other appropriate measures that relate to a state's water quality standard.

Section 2. TMDLs are adopted with programs that implement correction of the impairment. TMDLs may be adopted in any of the following ways:

a) The TMDL may be adopted with and reflected in assumptions underlying a basin plan amendment, or another regulation or policy for water quality control that is designed to guide the Regional Board in correcting the impairment

b) The TMDL may be adopted with and reflected in assumptions underlying a permitting action, enforcement action, or another single regulatory action that is designed by itself to correct the impairment

c) The TMDL may be adopted with and reflected in a resolution or order that certifies either that:

i) A regulatory program has been adopted and is being implemented by another state, regional, local, or federal agency, and the program will correct the impairment; or

ii) A non-regulatory program is being implemented by another entity, and the program will correct the impairment.

d) Subsection c), above, shall not be construed as authorizing the Regional Board to delegate its authority over water quality control to another regulatory or non-regulatory entity. In all cases the Regional Board must determine the LC of the water body, and thus the load reductions necessary (considering seasonal variations and a margin of safety) to attain standards. The Regional Board must exercise its independent discretion to determine whether or not such alternative program is consistent with the LC. As such, any resolution under subsection c), above, must include specific findings, supported by substantial evidence in the record, that demonstrate each of the following about the regulatory or non-regulatory program:

i) The program is consistent with the assumptions and requirements of the TMDL;

ii) Sufficient mechanisms exist to provide reasonable assurances that the program will address the impairment in a reasonable period of time;

iii) Sufficient mechanisms to enforce the program exist or the regional board otherwise has sufficient confidence that the program will be implemented, such that further regulatory action in the form of a TMDL implementation plan by the Regional Board is unnecessary and would be redundant.

The above findings will require a fact-specific inquiry, dependent upon the type of impairment at issue, the identity, authority, and interests of those proposing the alternative program, and a variety of other factors. A lower confidence that the program will remain in place and will succeed can be mitigated by findings that sufficient fallback provisions exist to ensure that the impairment will be addressed in a reasonable period of time if the program is unsuccessful. Such fallback provisions could include instructions that staff commence a regulatory program under section 2.a) or 2.b) above at a time-certain if the impairment has not then been addressed.

e) Any certification under subdivision c) above, may only be issued and remains valid if:

i) A monitoring plan that addresses the impaired water has been adopted or approved by the Regional Board, and it is adhered to;

ii) The program contains conditions that require trackable progress, and such progress is tracked. A timeline must identify the point or points at which regulatory intervention and reversion to Regional Board direct oversight will be triggered if the pace of work lags or fails;

iii) The certification contains a provision setting forth that the it must be revoked by the Regional Board based upon its findings that the program has not been adequately implemented, is not achieving its goals, or is no longer adequate to restore water quality;

iv) For alternative programs intended to control non-point source contributions to an impairment, such programs comport with the requirements of the Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program, including, but not limited to, the Key Elements of an NPS Pollution Control Implementation Program.

Any interested party may file a petition with the State Board pursuant to Water Code section 13320 to review a Regional Board's failure to adequately ensure that the certification remains valid.

f) A Regional Board may delegate the authority to make certifications under section 2.c) to its Executive Officer for non-controversial TMDLs.

g) A certification under section 2.c), above, shall be valid only for the purpose of implementing TMDLs required by section 303(d) of the Clean Water Act. Such a certification shall not be deemed to constitute a "certification" as used in any other section of the Clean Water Act or as used in any other statute.

h) A certification under section 2 c), above, shall include a date upon which the certification will expire, if not reissued. On of before the expiration date, the Regional Board shall review the actions taken to address the impaired waters, and may renew the certification if significant progress has been made to correct the impairment, or the Regional Board may direct staff to develop another regulatory solution to the impairment.

i) When TMDLs are adopted under sections 2.b) or 2.c), above, the TMDLs must be referenced in the relevant Basin Plans before or during the next triennial review. (40 CFR 130.6(c).)

Section 3. State Board Review. The manner of review by the State Board shall depend upon and be consistent with the manner in which the TMDL has been adopted by the Regional Board.

a) Basin Plan amendments are subject to State Board approval pursuant to Water Code section 13245.

b) Permits and orders are subject to State Board review pursuant to Water Code section 13320.

c) Interested persons may file a petition for State Board reconsideration of any resolution or order issuing or denying a certification under section 2.c) above, in the manner described in Division 3, Chapter 28, Article 6, of Title 23 of the California Code of Regulations, however, any such petition shall be filed not later than 30 days after the date of the certification resolution or order by the Regional Board.

Section 4. Transmittal to USEPA and Request for Approval. The TMDL shall be transmitted to USEPA for approval as follows:

a) By the Division of Water Quality, for TMDLs adopted pursuant to Section 2.a).

i) The Division of Water Quality shall not transmit the TMDL for approval until the Office of Administrative Law has concluded any applicable review of the regulations implementing the TMDL.

b) By the Regional Board's Executive Officer, for TMDLs adopted pursuant to Section 2.b) or 2.c).

i) The Division of Water Quality shall prepare a standard transmittal form for use by the Regional Boards.

ii) The Regional Board shall not transmit the TMDL for approval until either the time to file a petition for review with the State Board has lapsed, or the State Board has dismissed any petitions challenging, or has otherwise approved, the certification or order. The Regional Board may transmit the TMDL for approval if a petition is pending and either no request for a stay has been filed, or the State Board has denied the request for a stay.

iii) A copy of each transmittal by a Regional Board shall be sent to the Division of Water Quality.

Section 5. Delisting.

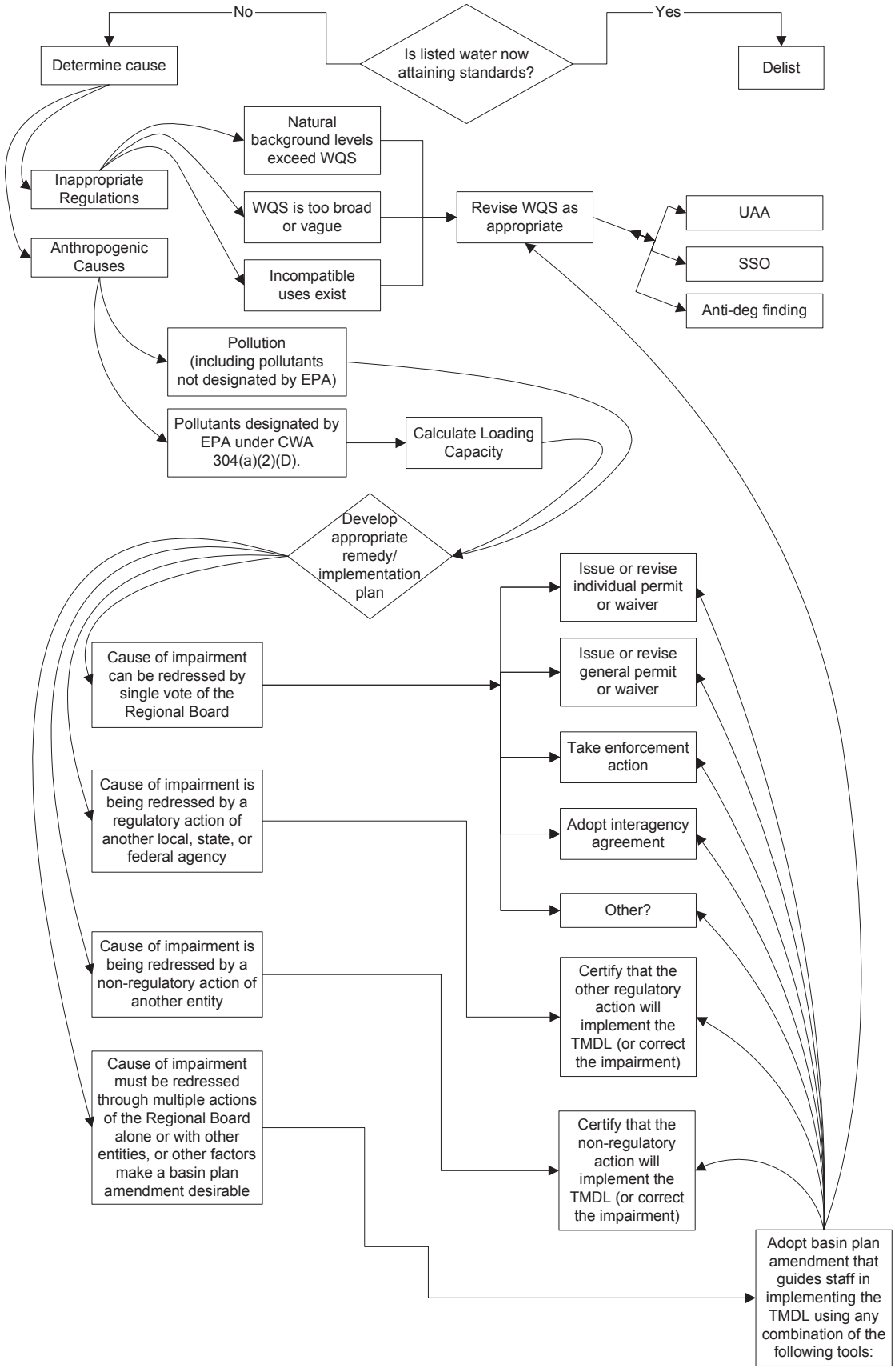
a) When a Regional Board determines that a water body is in fact attaining standards and is not threatened, the Regional Board may on its own motion entertain a resolution recommending the water body be delisted, in lieu of waiting until the next listing cycle. Given the process established by the 303(d) list policy to list and delist waters at regular intervals, failure to take action under this subsection in lieu of waiting until the next 303(d) listing cycle, shall not be deemed inappropriate or improper.

b) No water body shall be deemed delisted pursuant to section 5.a), above, until the State Board has approved the recommendation, and the decision has been transmitted to, and thereafter approved by, USEPA.

Section 6. Existing Authority Preserved.

a) Nothing in this policy shall affect the responsibility of the State Board or any Regional Board to implement the provisions of an applicable Basin Plan or other policy for water quality control, and to ensure that all water quality standards are attained, whether or not a TMDL has yet been established for a given water body. Nor shall any provision of this policy be construed as limiting the authority of the State Board or any Regional Board with respect to any of its existing regulatory tools or processes." Furthermore, where multiple actions of a Regional Board are simply using existing regulatory or enforcement authorities to IMPLEMENT one or more existing regulatory standards, and/or prohibitions, no underground regulation problem is presented and no rulemaking is required because the regulatory standard, and/or prohibition has already been adopted through the proper rulemaking or legislative process.

Attachment A: Impaired Waters Regulatory Decision Tree



Note: After implementation of the chosen regulatory tool(s) the practitioner would start at the beginning of the decision tree to evaluate the effectiveness of the implementation program and, as appropriate, choose an alternative regulatory option to address the water body impairment

ATTACHMENT
22

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2015-0075

In the Matter of Review of

Order No. R4-2012-0175, NPDES Permit No. CAS004001

WASTE DISCHARGE REQUIREMENTS FOR MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) DISCHARGES WITHIN THE COASTAL WATERSHEDS OF LOS ANGELES COUNTY, EXCEPT THOSE DISCHARGES ORIGINATING FROM THE CITY OF LONG BEACH MS4

Issued by the
California Regional Water Quality Control Board,
Los Angeles Region

SWRCB/OCC FILES A-2236 (a)-(kk)

BY THE BOARD:

In this order, the State Water Resources Control Board (State Water Board) reviews Order No. R4-2012-0175 (NPDES Permit No. CAS004001) adopted by the Los Angeles Regional Water Quality Control Board (Los Angeles Water Board) on November 8, 2012. Order No. R4-2012-0175 regulates discharges of storm water and non-storm water from the municipal separate storm sewer systems (MS4s) located within the coastal watersheds of Los Angeles County, with the exception of the City of Long Beach MS4, and is hereinafter referred to as the "Los Angeles MS4 Order" or the "Order." We received 37 petitions challenging various provisions of the Los Angeles MS4 Order. For the reasons discussed herein, we generally uphold the Los Angeles MS4 Order, but with a number of revisions to the findings and provisions in response to issues raised in the petitions and as a result of our own review of the Order.

I. BACKGROUND

The Los Angeles MS4 Order regulates discharges from the MS4s operated by the Los Angeles County Flood Control District, Los Angeles County, and 84 municipal permittees (Permittees) in a drainage area that encompasses more than 3,000 square miles and multiple watersheds. The Order was issued by the Los Angeles Water Board in

accordance with section 402(p)(3)(B) of the Clean Water Act[1] and sections 13263 and 13377 of the Porter-Cologne Water Quality Control Act (Porter-Cologne Act),[2] as a National Pollutant Discharge Elimination System (NPDES) permit to control storm water and non-storm water discharges that enter the area's water bodies from the storm sewer systems owned or operated by the multiple governmental entities named in the Order. The Los Angeles MS4 Order superseded Los Angeles Water Board Order No. 01-182 (2001 Los Angeles MS4 Order), and is the fourth iteration of the NPDES permit for MS4 discharges in the relevant area.

The Los Angeles MS4 Order incorporates most of the pre-existing requirements of the 2001 Los Angeles MS4 Order, including the water quality-based requirement to not cause or contribute to exceedances of water quality standards in the receiving water. The Los Angeles MS4 Order also requires Permittees to comply with new water quality-based requirements to implement 33 watershed-based total maximum daily loads (TMDLs) for the region. The Order links both of these water quality-based requirements to the programmatic elements of the Order by allowing Permittees to comply with the water quality-based requirements, in part, by developing and implementing a watershed management program (WMP) or enhanced watershed management program (EWMP), as more specifically defined in the Order.

Following adoption of the Los Angeles MS4 Order, we received 37 timely petitions challenging various provisions of the Order and, in particular, the provisions implementing TMDLs and integrating water quality-based requirements and watershed-based program implementation. Several petitioners asked that their petitions be held in abeyance;[3] however, due to the number of active petitions also seeking review, we declined to hold those petitions in abeyance at that time.[4] Five petitioners additionally requested that we partially stay the Los Angeles MS4 Order. Following review, the Executive Director of the State Water Board denied the stay requests for failure to comply with the prerequisites for a stay as specified in California Code of Regulations, title 23, section 2053.

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[1] 33 U.S.C. § 1342(p)(3)(B).

[2] Wat. Code, §§ 13263, 13377.

[3] See Cal. Code Regs., tit. 23, § 2050.5, subd. (d).

[4] By letter dated January 30, 2013, we provided an opportunity for petitioners to submit an explanation for why a petition should be held in abeyance notwithstanding the existence of the active petitions. In response, two petitioners, City of Signal Hill and the City of Claremont, argued that their petitions raised unique issues not common to the remaining petitions and therefor appropriate for abeyance. We thereafter denied their requests on July 29, 2013, finding that the unique issues could nevertheless be resolved concurrently with the issues in the other petitions. On October 9, 2013, the City of Claremont withdrew two of the claims in its petition.

We deemed the petitions complete by letter dated July 8, 2013, and, as permitted under our regulations,[5] consolidated the petitions for review.

An issue front and center in the petitions is the appropriateness of the approach of the Los Angeles MS4 Order in addressing what we generally refer to as "receiving water limitations." Receiving water limitations in MS4 permits are requirements that specify that storm water and non-storm water discharges must not cause or contribute to exceedances of water quality standards in the waters of the United States that receive those discharges. In precedential State Water Board Order WQ 99-05 (*Environmental Health Coalition*), we directed that all MS4 permits contain specific language that explains how the receiving water limitations will be implemented. (For clarity, we refer to MS4 permit language that relates to implementation of the permit's receiving water limitations as "receiving water limitations provisions.") We held a workshop on November 20, 2012, concerning receiving water limitations in MS4 permits. The purpose of the workshop was to receive public comment on an issue paper discussing several alternatives to the receiving water limitations provisions currently included in MS4 permits as directed by Order WQ 99-05 (Receiving Water Limitations Issue Paper).[6]

Because the Los Angeles MS4 Order contains new provisions that authorize the Permittees to develop and implement WMP/EWMPs in lieu of requiring compliance with the receiving water limitations provisions, we view our review of the Order as an appropriate avenue for resolving some of the issues raised in our November 20, 2012 workshop. Through notice to all interested persons, we bifurcated the responses to the petitions and solicited two separate sets of responses: (1) Responses to address issues related to whether the WMP/EWMP alternatives contained in the Los Angeles MS4 Order are an appropriate approach to revising the receiving water limitations provisions in MS4 permits (August 15, 2013 Receiving Water Limitations Submissions); and (2) Responses to address all other issues raised in the petitions (October 15, 2013 Responses).[7] We held a workshop on October 8, 2013, to hear public comment on the first set of responses.

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[5] Cal. Code Regs., tit. 23, § 2054.

[6] Information on that workshop is available at <http://www.waterboards.ca.gov/water_issues/programs/stormwater/rwl.shtml> (as of Nov 18, 2014).

[7] We requested the bifurcated responses initially by letter dated July 15, 2013. Subsequent letters on July 29, 2013, and September 18, 2013, clarified the nature of the submissions and extended the submission deadline for the second response.

State Water Board regulations generally require final disposition on petitions within 270 days of the date a petition is deemed complete.[8] However, in this case, we required additional time to review the large number of issues raised in the petitions. When the State Water Board anticipates addressing a petition on the merits after the review period passes, it may indicate that it will review the matter on its own motion.[9] On April 1, 2014, we adopted Order WQ 2014-0056 taking up review of the issues in the petitions on our own motion.[10]

We now resolve the issues in the petitions with this order.

II. ISSUES AND FINDINGS

The 37 petitions raise over sixty contentions claiming deficiencies in the Los Angeles MS4 Order. This Order addresses the most significant contentions. To the extent petitioners raised issues that are not discussed in this Order, such issues are dismissed as not raising substantial issues appropriate for State Water Board review.[11]

Before proceeding to the merits of the petitions, we will resolve several procedural issues.

Requests to Take Official Notice or Supplement the Record with Additional Evidence

We received a number of requests to take official notice of documents not in the administrative record of the adoption of the Los Angeles MS4 Order by the Los Angeles Water Board (hereinafter Administrative Record)[12] and a number of requests to admit supplemental evidence not considered by the Los Angeles Water Board.[13] We reviewed the requests with

[8] Cal. Code Regs., tit. 23, § 2050.5, subd. (b).

[9] See Wat. Code, § 13320, subd. (a); Cal. Code Regs., tit. 23, § 2050.5, subd. (c).

[10] To avoid premature litigation on the petition issues as a result of our review extending past the 270 day-regulatory review period, at our suggestion most of the petitioners asked that their petitions be placed in abeyance until adoption by the State Water Board of a final order. We granted those requests. Simultaneously with adopting this order, we are removing the petitions from abeyance and acting upon them.

[11] *People v. Barry* (1987) 194 Cal.App.3d 158, 175-177; *Johnson v. State Water Resources Control Bd.* (2004) 123 Cal.App.4th 1107, 1114; Cal. Code Regs., tit. 23, § 2052, subd. (a)(1).

[12] The Administrative Record was prepared by the Los Angeles Water Board and is available at <http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/AdminRecordOrderNoR4_2012_0175/index.shtml> (as of Nov. 18, 2014).

[13] Several requests for official notice or to admit supplemental evidence were received concurrently with submission of the petitions, with the August 15, 2013 Receiving Water Limitations Submissions, and with the October 15, 2013 Responses. Additional requests for official notice were submitted concurrently with comments on first and revised public drafts of this order and were opposed by several parties. (Request for Official Notice, Natural Resources Defense Council, Los Angeles Waterkeeper, and Heal the Bay, Jan. 21, 2015; Request for Official Notice, Natural Resources Defense Council, Los Angeles Waterkeeper and Heal the Bay, June 2, 2015.) Although we have reviewed these additional requests for official notice, we have not granted the requests for the various reasons articulated in this section, in Section II.B.8, and in footnote 74.

consideration of whether they were appropriate for notice or admission based on the legal standards governing our proceedings[14] and whether the documents would materially aid in our review of the issues in the proceedings. We grant the requests with regard to documents 1-7 below, and additionally take official notice on our own motion of documents 8, 9, and 10:[15]

1. Order No. 2013-0001-DWQ, NPDES Permit for Storm Water Discharges from Small MS4s, adopted by State Water Board, February 5, 2013;[16]
2. Modified NPDES Permit No. DC0000022 for the MS4 for the District of Columbia issued by the United States Environmental Protection Agency (USEPA), November 9, 2012, and a responsiveness summary issued in support of its original adoption of the permit, October 7, 2011;[17]
3. Administrative Procedures Update Number 90-004 on Antidegradation Policy Implementation for NPDES Permitting, issued by the State Water Board, July 2, 1990;[18]
4. Chapter 7 of the NPDES Permit Writers' Manual, updated by USEPA, September 2010;[19]
5. Letter to the Water Management Administration, Maryland Department of the Environment, issued by USEPA, August 8, 2012;[20]

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[14] For official notice see Cal. Code Regs., tit. 23, § 648.2; Gov. Code, § 11515; Evid. Code, § 452. For admission of supplemental evidence see Cal. Code Regs., tit. 23, § 2050.6.

[15] We note that two documents for which we received requests for official notice are already in the administrative record: USEPA, Memorandum Setting Forth Revisions to the November 22, 2002 Memorandum Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs (Nov. 12, 2010) (Administrative Record, section 10.II, RB-AR23962-23968); USEPA, Chapter 6 of the NPDES Permit Writers' Manual (updated Sept. 2010) (Administrative Record, section 10.IV, RB-AR24905-24932).

[16] County of Los Angeles October 15, 2013 Response, Att. C; also available at <http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/phsii2012_5th/order_final.pdf> (as of Nov. 18, 2014).

[17] Los Angeles Water Board Request for State Water Board to Take Official Notice of Or Accept as Supplemental Evidence Exhibit A through SS (Oct. 15, 2013) (Los Angeles Water Board Request for Official Notice), Exh.'s A, B; also available at <http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/MS4FinalLimitedModDocument/FinalModifiedPermit_10-25-12.pdf> and <http://www.epa.gov/reg3wapd/pdf/pdf_npdes/stormwater/DCMS4/FinalPermit2011/DCMS4FINALResponsivenessSummary093011.pdf> (as of Nov. 18, 2014).

[18] Los Angeles Water Board Request for Official Notice, Exh.C; also available at <http://www.swrcb.ca.gov/water_issues/programs/npdes/docs/apu_90_004.pdf> (as of Nov.18, 2014).

[19] Chapter 7 of USEPA's NPDES Permit Writers' Manual, EPA-833-K-10-001, September 2010 (NPDES Permit Writers' Manual) was submitted as Exhibit C to Natural Resources Defense Council, Los Angeles Waterkeeper and Heal the Bay Request for Official Notice (Dec. 10, 2012) (Environmental Petitioners' Request for Official Notice). The chapter may additionally be accessed through links at <http://water.epa.gov/polwaste/npdes/basics/NPDES-Permit-Writers-Manual.cfm> (as of Nov.18, 2014).

6. Memorandum to the Water Management Division Directors, Regions I-X, and NPDES State Directors, issued by USEPA, 1989;[21]
7. "Guidance on Implementing the Antidegradation Provisions of 40 C.F.R. 131.12," issued by USEPA, Region 9, June 3, 1987;[22]
8. Order WQ 2014-0077-DWQ, amending NPDES Statewide Storm Water Permit for State of California Department of Transportation, Order 2012-0011-DWQ, adopted by State Water Board, May 20, 2014;[23]
9. Statement from USEPA soliciting comments on the USEPA Memorandum Setting forth Revisions to the November 22, 2002 Memorandum Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs (November 12, 2010), issued March 17, 2011.[24]
10. Memorandum, "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,'" issued by USEPA, November 26, 2014.[25]

In addition, we are incorporating the administrative record of the November 20, 2012 workshop on receiving water limitations, including the Receiving Water Limitations Issue Paper and comments by interested persons, into our record for the petitions on the Los Angeles MS4 Order.[26]

(continued from previous page)

[20] Environmental Petitioners' Request for Official Notice, Exh.B, available at <http://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/a2236/a2236m_rfon.pdf> (as of Nov. 18, 2014).

[21] Environmental Petitioners' Request for Official Notice, Exh.D; also available at <http://www.epa.gov/npdes/pubs/owm0231.pdf> (as of Nov. 18, 2014).

[22] Environmental Petitioners' Request for Official Notice, Exh.E; available at <http://www.waterboards.ca.gov/public_notices/petitions/water_quality/docs/a2236/a2236m_rfon.pdf> (as of Nov. 18, 2014).

[23] Available at <http://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2014/wqo2014_0077_dwq.pdf> (as of Nov. 18, 2014).

[24] Available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_tmdlwla_comments.pdf> (as of Nov. 18, 2014).

[25] Available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/EPA_SW_TMDL_Memo.pdf> (as of March 30, 2015).

[26] The Receiving Water Limitations Issue Paper and comments and workshop presentations by interested person are available at <http://www.waterboards.ca.gov/water_issues/programs/stormwater/rwl.shtml>.

Among other requests, we are not granting the requests to take official notice of or supplement the Administrative Record with the notices of intent, workplans, draft programs, and other documents filed by Permittees toward development of WMPs/EWMPs and associated monitoring programs following adoption of the Los Angeles MS4 Order or comments submitted on those documents, or the conditional approvals of several of the programs. With regard to factual evidence regarding actions taken by Permittees to comply with the Los Angeles MS4 Order after it was adopted, we believe it appropriate to close the record with the adoption of the Los Angeles MS4 Order. However, we are keenly aware that the success of the Los Angeles MS4 Order in addressing water quality issues depends primarily on the careful and effective development and implementation of programs consistent with the requirements of the Order; we speak to that issue later in our discussion.

City of El Monte's Amended Petition

Petitioner City of El Monte (El Monte) timely filed a petition on December 10, 2012, challenging a number of provisions of the Los Angeles MS4 Order. Thereafter, on February 19, 2013, El Monte filed an amended petition, based on information it asserted was not available prior to the deadline for submission of the petition.

Water Code section 13320, subdivision (a) provides that a petition for review of a regional water quality control board (regional water board) action must be filed within 30 days of the regional water board's action.[27] The State Water Board interprets that requirement strictly and petitions filed more than 30 days from regional water board action are rejected as untimely. El Monte asserted that the two additional arguments raised in the amended petition were based on information that was not available prior to the deadline for submitting the petition and were therefore appropriate for State Water Board consideration.

Even if we were required by statute or regulation to accept amended petitions based on new information, here, El Monte's new arguments are not supported by information previously unavailable. First, El Monte argues that the Supreme Court's decision in *Los Angeles County Flood Control District v. Natural Resources Defense Council* (2013) 133 S.Ct. 710 invalidated certain provisions of the Los Angeles MS4 Order that require compliance with water quality standards and total maximum daily load requirements through receiving water monitoring. Contrary to El Monte's assertion, the decision by the Supreme Court did not invalidate any requirements of the Los Angeles MS4 Order and did not result in any changes to

[27] See also Cal. Code Regs., tit. 23, § 2050.

the Order. The Supreme Court decision, to the extent it applies to the legal issues before us in this matter, constitutes precedential case law and must be considered in our review of the Los Angeles MS4 Order, but it does not constitute new information that supports an amended petition.[28]

Second, El Monte argues that the Los Angeles Water Board failed to consider various provisions of the California Watershed Improvement Act of 2009[29] when it adopted the Los Angeles MS4 Order. To the extent El Monte believed that the California Watershed Improvement Act was relevant to adoption of the Los Angeles MS4 Order, El Monte had the opportunity to raise that issue in comments before the Los Angeles Water Board and in its timely petition to the State Water Board. Having failed to raise the issue before the Los Angeles Water Board and in its timely petition, El Monte cannot raise the issue in an amended petition.[30]

We reject El Monte's amended petition as untimely.

Environmental Petitioners' Motion to Strike

Petitioners Natural Resources Defense Council, Los Angeles Waterkeeper, and Heal the Bay (Environmental Petitioners), submitted a motion on November 11, 2013, requesting that the State Water Board strike sections of the October 15, 2013 Responses by six petitioners (Motion to Strike). The relevant sections respond to a collateral estoppel argument made by the Environmental Petitioners in their August 15, 2013 Receiving Water Limitations Submission to the State Water Board. Several parties asserted in their petitions that requiring compliance with water quality standards in MS4 permits violates federal law or conflicts with prior State Water Board precedent. The Environmental Petitioners responded in their August 15, 2013 Receiving Water Limitations Submission that these arguments were barred by collateral estoppel because the claims were settled in prior court cases challenging the 2001 Los Angeles MS4 Order. Six of the October 15, 2013 Responses, namely those by the Cities of

[28] We note that the State Water Board has the option of allowing additional briefing when there are material legal developments concerning issues raised in a petition, but we did not find such briefing would aid review of the petitions in this case.

[29] Wat. Code, § 16100 et seq.

[30] In addition to being untimely, El Monte's argument lacks merit. The California Watershed Improvement Act of 2009 grants authority to local government permittees regulated by an MS4 permit to develop and implement watershed improvement plans, but does not limit the authority of a regional water board to impose terms related to watershed management in an MS4 permit. Further, the terms of the WMPs/EWMPs are largely consistent with the watershed improvement plans authorized by the Act, so a permittee can comply with the Los Angeles MS4 Order while also using the authority provided by the California Watershed Improvement Act of 2009 if it so chooses.

Arcadia, Claremont, Covina, Duarte and Huntington Park, San Marino et al.,[31] and Sierra Madre, incorporated a response to the collateral estoppel argument.

We stated in a July 15, 2013 letter that"[i]nterested persons may not use the [October 15] [32] deadline for responses on the remaining petition issues as an opportunity to respond to comments filed on the receiving water limitations approach." We clarified further in a July 29, 2013 letter: "[W]hen submitting subsequent responses to the petitions in accordance with the [October 15] deadline, petitioners and interested persons should not raise new issues related to the specific questions regarding the watershed management program/enhanced watershed management program or respond to any August 15, 2013, submissions; however petitioners and interested persons will not be precluded from responding to specific issues raised in the original petitions on grounds that the issues are related to the receiving water limitations language."

We find that the collateral estoppel responses by the six petitioners are disallowed by the direction we provided in our July 15 and July 29, 2013 letters. However, as will be apparent in our discussion in section II.A, we do not rely on the Environmental Petitioners' collateral estoppel argument in resolving the petitions. Our determination that portions of the October 15, 2013 Responses are disallowed is, therefore, immaterial to the resolution of the issues.[33]

Having resolved the procedural issues, we turn to the merits of the Petitions.

A. Implementation of the Iterative Process as Compliance with Receiving Water Limitations

The Los Angeles MS4 Order includes receiving water limitations provisions that are consistent with our direction in Order WQ 99-05 in Part V.A of the Los Angeles MS4 Order. Part V.A. provides, in part, as follows:

> 1. Discharges from the MS4 that cause or contribute to the violation of receiving water limitations are prohibited.

[31] The cities of San Marino, Rancho Palos Verdes, South El Monte, Norwalk, Artesia, Torrance, Beverly Hills, Hidden Hills, Westlake Village, La Mirada, Vernon, Monrovia, Agoura Hills, Commerce, Downey, Inglewood, Culver City, and Redondo Beach submitted a joint October 15, 2013 Response.

[32] The July 15, 2013 letter set a deadline of September 20, 2013, which was subsequently extended to October 15, 2013.

[33] In a November 21, 2013 letter, we indicated that we would consider the Motion to Strike concurrently with drafting of this Order, but that we would not accept any additional submissions in this matter, including any responses to the Motion to Strike. City of San Marino objected to the letter and submitted an opposition to the Motion to Strike. Several petitioners submitted joinders in City of San Marino's motion. For the same reasons articulated above, we are not accepting these submissions; they would not affect our resolution of the issues.

2. Discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible [footnote omitted], shall not cause or contribute to a condition of nuisance.

3. The Permittees shall comply with Parts V.A.1 and V.A.2 through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the storm water management program and its components and other requirements of this Order including any modifications. . . .[34]

The petitioners that are permittees (hereinafter referred to as "Permittee Petitioners")[35] argue that the above language either means, or should be read and/or clarified to mean, that good faith engagement in the requirements of Part V.A.3, traditionally referred to as the "iterative process," constitutes compliance with Parts V.A.1. and V.A.2. The position put forth by Permittee Petitioners is one we took up when we initiated a process to re-examine the receiving water limitations and iterative process in MS4 permits statewide with our Receiving Water Limitations Issue Paper and the November 20, 2012 workshop. We summarize the law and policy regarding Permittee Petitioners' position again here and ultimately disagree with Permittee Petitioners that implementation of the iterative process does or should constitute compliance with receiving water limitations.

The Clean Water Act generally requires NPDES permits to include technology-based effluent limitations and any more stringent limitations necessary to meet water quality standards.[36] In the context of NPDES permits for MS4s, however, the Clean Water Act does not explicitly reference the requirement to meet water quality standards. MS4 discharges must meet a technology-based standard of prohibiting non-storm water discharges and reducing pollutants in the discharge to the Maximum Extent Practicable (MEP) in all cases, but requiring strict compliance with water quality standards (e.g., by imposing numeric effluent limitations) is at the discretion of the permitting agency.[37] Specifically the Clean Water Act states as follows:

> Permits for discharges from municipal storm sewers –
>
> . . .
>
> (ii) shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers; and

[34] Los Angeles MS4 Order, Part V.A, pp. 38-39.

[35] For ease of reference, where an argument is made by multiple Permittee Petitioners, even if not by all, we attribute that argument to Permittee Petitioners generally, and do not list which of the 37 Permittee Petitioners in fact make the argument. Where only one or two Permittee Petitioners make a particular argument, we have identified the specific Permittee Petitioner(s).

[36] 33 U.S.C. §§ 1311, 1342(a).

[37] 33 U.S.C. § 1342(p)(3)(B); *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159.

> (iii) shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as . . . the State determines appropriate for the control of such pollutants.[38]

Thus, a permitting agency imposes requirements related to attainment of water quality standards where it determines that those provisions are "appropriate for the control of [relevant] pollutants" pursuant to the Clean Water Act municipal storm water provisions.

Under the Porter-Cologne Act, waste discharge requirements must implement applicable water quality control plans, which include the beneficial uses to be protected for a given water body and the water quality objectives reasonably required for that protection.[39] In this respect, the Porter-Cologne Act treats MS4 dischargers and other dischargers even-handedly and anticipates that all waste discharge requirements will implement the water quality control plans. However, when implementing requirements under the Porter-Cologne Act that are not compelled by federal law, the State Water Board and regional water boards (collectively, "water boards") have some flexibility to consider other factors, such as economics, when establishing the appropriate requirements.[40] Accordingly, since the State Water Board has discretion under federal law to determine whether to require strict compliance with the water quality standards of the water quality control plans for MS4 discharges, the State Water Board may also utilize the flexibility under the Porter-Cologne Act to decline to require strict compliance with water quality standards for MS4 discharges.

We have previously exercised the discretion we have under federal law in favor of requiring compliance with water quality standards, but have required less than strict compliance. We have directed, in precedential orders, that MS4 permits require discharges to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters,[41] but have prescribed an iterative process whereby an exceedance of a water quality standard triggers a process of BMP improvements. That iterative process involves reporting of the violation, submission of a report describing proposed improvements to BMPs

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[38] 33 U.S.C. § 1342(p)(3)(B).

[39] Wat. Code, § 13263. The term "water quality standards" encompasses the beneficial uses of the water body and the water quality objectives (or "water quality criteria" under federal terminology) that must be met in the waters of the United States to protect beneficial uses. Water quality standards also include the federal and state antidegradation policy.

[40] Wat. Code, §§ 13241, 13263; *City of Burbank v. State Water Resources Control Bd.* (2005) 35 Cal.4th 613.

[41] State Water Board Orders WQ 98-01 (*Environmental Health Coalition*), WQ 99-05 (*Environmental Health Coalition)*, WQ 2001-15 (*Building Industry Association of San Diego*).

expected to better meet water quality standards, and implementation of these new BMPs.[42] The current language of the existing receiving waters limitations provisions was actually developed by USEPA when it vetoed two regional water board MS4 permits that utilized a prior version of the State Water Board's receiving water limitations provisions.[43] In State Water Board Order WQ 99-05, we directed that all regional boards use USEPA's receiving water limitations provisions.

There has been significant confusion within the regulated MS4 community regarding the relationship between the receiving water limitations and the iterative process, in part because the water boards have commonly directed dischargers to achieve compliance with water quality standards by improving control measures through the iterative process. But the iterative process, as established in our precedential orders and as generally written into MS4 permits adopted by the water boards, does not provide a "safe harbor" to MS4 dischargers. When a discharger is shown to be causing or contributing to an exceedance of water quality standards, that discharger is in violation of the permit's receiving water limitations and potentially subject to enforcement by the water boards or through a citizen suit, regardless of whether or not the discharger is actively engaged in the iterative process.[44]

The position that the receiving water limitations are independent from the provisions that establish the iterative process has been judicially upheld on several occasions. The receiving water limitations provisions of the 2001 Los Angeles MS4 Order specifically have been litigated twice, and in both cases, the courts upheld the provisions and the Los Angeles Water Board's interpretation of the provisions. In a decision resolving a challenge to the 2001 Los Angeles MS4 Order, the Los Angeles County Superior Court stated: "[T]he Regional [Water] Board acted within its authority when it included [water quality standards compliance] in

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[42] State Water Board Order WQ 99-05, pp. 2-3; see also State Water Board Order WQ 2001-15, pp. 7-9. Additionally, consistent with federal law, we found it appropriate to require implementation of BMPs in lieu of numeric water quality-based effluent limitations to meet water quality standards. *See* State Water Board Orders WQ 91-03 (*Citizens for a Better Environment)*, WQ 91-04 (*Natural Resources Defense Council*), WQ 98-01, WQ 2001-15. This issue is discussed in greater detail in Section II.C. of this order.

[43] See State Water Board Orders WQ 99-05, WQ 2001-15.

[44] Several Permittee Petitioners have argued that the State Water Board's opinion in State Water Board Order WQ 2001-15 must be read to endorse a safe harbor in the iterative process. We disagree. Regardless, the State Water Board's position that the iterative process of the subject permit did not create a "safe harbor" from compliance with receiving water limitations was clearly established in subsequent litigation on that order. (See *Building Industry Ass'n of San Diego County v. State Water Resources Control Bd.* (Super. Ct. 2003, No. GIC780263), affd. *Building Industry Assn. of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866.)

the Permit without a 'safe harbor,' whether or not compliance therewith requires efforts that exceed the 'MEP' standard."[45] The lack of a safe harbor in the iterative process of the 2001 Los Angeles MS4 Order was again acknowledged in 2011 and 2013, this time by the Ninth Circuit Court of Appeal. In these instances, the Ninth Circuit was considering a citizen suit brought by the Natural Resources Defense Council against the County of Los Angeles and the Los Angeles County Flood Control District for alleged violations of the receiving water limitations of that order. The Ninth Circuit held that, as the receiving water limitations of the 2001 Los Angeles MS4 Order (and accordingly as the precedential language in State Water Board Order WQ 99-05) was drafted, engagement in the iterative process does not excuse liability for violations of water quality standards.[46] The California Court of Appeal has come to the same conclusion in interpreting similar receiving water limitations provisions in MS4 Orders issued by the San Diego Regional Water Quality Control Board in 2001 and the Santa Ana Regional Water Quality Control Board in 2002.[47]

While we reiterate that the judicial rulings have been consistent with the water boards' intention and position regarding the relationship between the receiving water limitations and the iterative process, we acknowledge that some in the regulated community perceived the 2011 Ninth Circuit opinion in particular as a re-interpretation of that relationship. Our Receiving Water Limitations Issue Paper and subsequent workshop reflected our desire to re-examine the issue in response to concerns expressed by the regulated community in the aftermath of that ruling.

As stated above, both the Clean Water Act and the Porter-Cologne Act afford some discretion to not require strict compliance with water quality standards for MS4 discharges. In each of the discussed court cases above, the court's decision is based on the specific permit language; thus the cases do not address our authority with regard to requiring compliance with water quality standards in an MS4 permit as a threshold matter, and they do not require us to continue to exercise our discretion as we decided in State Water Board Order

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[45] *In re Los Angeles County Municipal Storm Water Permit Litigation* (L.A. Super. Ct., No. BS 080548, Mar. 24, 2005) Statement of Decision from Phase I Trial on Petitions for Writ of Mandate, pp. 4-5, 7. The decision was affirmed on appeal (*County of Los Angeles v. State Water Resources Control Board* (2006) 143 Cal.App.4th 985); however, this particular issue was not discussed in the court of appeal's decision.

[46] *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2011) 673 F.3d. 880, rev'd on other grounds sub nom. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2013) 133 S.Ct. 710, mod. by *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, cert. den. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2014) 134 S.Ct. 2135.

[47] *Building Industry Assn. of San Diego County, supra*,124 Cal.App.4th 866; *City of Rancho Cucamonga v. Regional Water Quality Control Bd.* (2006) 135 Cal.App.4th 1377.

WQ 99-05. Although it would be inconsistent with USEPA's general practice of requiring compliance with water quality standards over time through an iterative process,[48] we may even have the flexibility to reverse[49] our own precedent regarding receiving water limitations and receiving water limitations provisions and make a policy determination that, going forward, we will either no longer require compliance with water quality standards in MS4 permits, or will deem good faith engagement in the iterative process to constitute such compliance.[50]

However, with this Order, we now decline to do either. As the storm water management programs of municipalities have matured, an increasing body of monitoring data indicates that many water quality standards are in fact not being met by many MS4s. The iterative process has been underutilized and ineffective to date in bringing MS4 discharges into compliance with water quality standards. Compliance with water quality standards is and should remain the ultimate goal of any MS4 permit. We reiterate and confirm our determination that provisions requiring compliance with receiving water limitations are "appropriate for the control of . . . pollutants" addressed in MS4 permits and that therefore, consistent with our authority under the Clean Water Act, we will continue to require compliance with receiving water limitations.[51]

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[48] See, e.g. Modified NPDES Permit No. DC0000022 for the MS4 for the District of Columbia, *supra*, fn. 17.

[49] Of course any change of direction would be subject to ordinary principles of administrative law. (See Code Civ. Proc., § 1094.5, subd. (b).)

[50] As such, it is not necessary to address the collateral estoppel arguments raised by the Environmental Petitioners and opposed by Permittee Petitioners. We agree that it is settled law that we have the discretion to require compliance with water quality standards in an MS4 permit under federal and state law. We also agree that it is settled law that the receiving water limitations provisions currently spelled out in our MS4 permits do not carve out a safe harbor in the iterative process. But the question for us is whether we should continue to exercise our discretion to utilize the same approach to receiving water limitations established under our prior precedent, or proceed in a new direction.

[51] Several Permittee Petitioners argued in comments submitted on the first draft of this order that, because we find that we have some discretion under Clean Water Act section 402(p)(3) to not require compliance with receiving water limitations, the Los Angeles Water Board's action in requiring such compliance -- and our action in affirming it -- is pursuant to state authority. (See, e.g., Cities of Arcadia, Claremont, and Covina, Comment Letter, Jan. 21, 2015.) The Permittee Petitioners argue that the action is therefore subject to evaluation in light of the factors set out in Water Code section 13263 and 13241 pursuant to *City of Burbank, supra,* 35 Cal.4th 613. Under *City of Burbank,* a regional water board must consider the factors specified in section 13241 when issuing waste discharge requirements under section 13263, subdivision (a), but only to the extent those waste discharge requirements exceed the requirements of the federal Clean Water Act. (35 Cal.4th at 627.) Nowhere in our discussion in this section do we mean to disavow either that the Los Angeles Water Board acted under federal authority to impose "such other provisions as . . .determine[d] appropriate for the control of . . . pollutants" in adopting the receiving water limitations provisions of the Los Angeles MS4 Order in the first instance or that we are acting under federal authority in upholding those provisions. (33 U.S.C. § 1342(p)(3)(B)(iii).) The receiving water limitations provisions do not exceed the requirements of federal law. We nevertheless also point out that the Los Angeles Water Board engaged in an analysis of the factors under section 13241 when adopting the Order. (See Los Angeles MS4 Order, Att. F, Fact Sheet, pp. F-139 to F-155.)

As we explained in 2001, "[u]rban runoff is causing and contributing to impacts on receiving waters throughout the state and impairing their beneficial uses."[52] More than a decade later, this is still true. By definition, many of our urban waterways will never attain water quality standards and fully realize their beneficial uses if municipal runoff is allowed to continue to cause or contribute to exceedances of water quality standards. Further, the efforts of other dischargers who are required to not cause or contribute to exceedances of water quality standards would be largely in vain if we did not regulate MS4 dischargers with a somewhat even hand.

Such an approach is additionally consistent with the Porter-Cologne Act's emphasis on water quality control plans as the cornerstone of water quality planning and regulation and the act's expectation that all waste discharge requirements will implement the water quality control plans. We believe that direct enforcement of water quality standards is necessary to protect water quality, at a minimum as a back-stop where dischargers fail to meet requirements of the Order designed to achieve progress toward meeting the standards. We will not reverse our precedential determination in State Water Board Order WQ 99-05 that established the receiving water limitations provisions for MS4 permits statewide and reiterate that we will continue to read those provisions consistent with how the courts have: engagement in the iterative process does not excuse exceedances of water quality standards. We accordingly also decline to direct any revisions to the receiving water limitations provisions of the Los Angeles MS4 Order, which are consistent with our precedential language.[53]

Yet, we are sympathetic to the assertions made by MS4 dischargers that the receiving water limitations provisions mandated by our Order WQ 99-05 may result in many years of permit noncompliance, because it may take years of technical efforts to achieve compliance with the receiving water limitations, especially for wet weather discharges.

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[52] State Water Board Order WQ 2001-15, p. 7.

[53] We disagree with Permittee Petitioners' argument that the receiving water limitations in Part V.A of the Los Angeles MS4 Order are confusing, unclear, or overbroad, because they prohibit causing or contributing to a violation of a receiving water limitation rather than a violation of water quality standards. The Los Angeles Water Board defines "receiving water" as "[a] 'water of the United States' in to which waste and/or pollutants are or may be discharged." (Los Angeles MS4 Order, Att. A., p. A-16.) The Los Angeles Water Board further defines "receiving water limitations" as "[a]ny applicable numeric or narrative water quality objective or criterion, or limitation to implement the applicable water quality objective or criterion, for the receiving water as contained in Chapter 3 or 7 of the Water Quality Control Plan for the Los Angeles Region (Basin Plan), water quality control plans or policies adopted by the State Water Board, or federal regulations, including but not limited to, 40 CFR §131.38." (*Ibid.*) Receiving water limitations are therefore the water quality standards, including water quality objectives and criteria, that apply to the receiving water as expressed in the water quality control plan for the region, statewide water quality control plans that specify objectives for water bodies in the region, State Water Board policies for water quality control, and federal regulations.

Accordingly, we believe that the MS4 permits should incorporate a well-defined, transparent, and finite alternative path to permit compliance that allows MS4 dischargers that are willing to pursue significant undertakings beyond the iterative process to be deemed in compliance with the receiving water limitations.

With the WMP/EWMP provisions of the Los Angeles MS4 Order, the Los Angeles Water Board is striving to allow one such alternative compliance path. As such, the fundamental issue for review before us in this matter is whether the Los Angeles MS4 Order's WMP/EWMP provisions constitute a legal and technically sound compliance alternative for achieving receiving water limitations. We discuss and resolve this issue in the next section.

B. WMP/EWMP as Alternative Compliance Options for Complying with Receiving Water Limitations

The WMP/EWMP provisions allow Permittees to choose an integrated and collaborative watershed-based approach to meeting the requirements of the Los Angeles MS4 Order, including the receiving water limitations. Permittees develop a plan, either collaboratively or individually, that addresses water quality priorities within a watershed. Permittees first prioritize water quality issues within each watershed. Permittees may use the WMP/EWMP to address water body-pollutant combinations for which a TMDL has been developed, giving highest priority to those with interim and final compliance deadlines within the permit term. Permittees may also address water body-pollutant combinations for which no TMDL has been developed, but where the water body is impaired or shows exceedances of the standards for the relevant pollutant from an MS4 source. Once prioritization is completed, Permittees assess the sources of the pollutants and select watershed strategies that are designed to eliminate non-storm water discharges to the MS4 that are a source of pollutants, that meet all applicable TMDL-derived interim and final water quality-based effluent limitations (WQBELs) and/or limitations to be met in the receiving water (referred to herein as "other TMDL-specific limitations")[54] pursuant to corresponding compliance schedules, and that ensure that discharges from the MS4 do not cause or contribute to exceedances of receiving water limitations. Except as described below for storm water retention projects, Permittees conduct a "reasonable assurance analysis" for each water body-pollutant combination incorporated into the

[54] Some of the TMDL limitations of the Los Angeles MS4 Order are expressed not as WQBELs but as standards to be met in the receiving water. The Los Angeles MS4 Order refers to these limitations as "receiving water limitations;" however, in order to avoid confusion with the general receiving water limitations in Part V.A., we will use the term "other TMDL-specific limitations." Accordingly, while the Los Angeles MS4 Order uses the term "receiving water limitations" to refer to both the receiving water limitations in part V.A and some of the TMDL-based requirements in Attachments L-R, when we use the term we refer only to the receiving water limitations in part V.A.

WMP/EWMP to demonstrate the ability of the program to meet those objectives. Permittees additionally implement an integrated monitoring and assessment program to determine progress, adapting strategies and measures as necessary.[55]

In addition to all the requirements above, for those Permittees that choose to develop and implement an EWMP, the EWMP provisions also require that Permittees collaborate on multi-benefit regional projects and, wherever feasible, retain all non-storm runoff, as well as all storm water runoff from the 85th percentile 24-hour storm event (hereinafter "storm water retention approach") for the drainage areas tributary to the projects.[56]

The primary controversy concerning the WMP/EWMP provisions of the Los Angeles MS4 Order is the manner in which they interact with the receiving water limitations and the WQBELs and other TMDL-specific limitations. Under certain conditions detailed in the Order, Permittees may be deemed in compliance with the receiving water limitations and the WQBELs and other TMDL-specific limitations by fully implementing the WMP/EWMP, rather than by demonstrating that the receiving water limitations and the WQBELs and other TMDL-specific limitations have actually been achieved. Specifically:

1. Permittees that develop and implement a WMP/EWMP and fully comply with all requirements and dates of achievement for the WMP/ EWMP as established in the Los Angeles MS4 Order, are deemed to be in compliance with the receiving water limitations in Part V.A for the water body-pollutant combinations addressed by the WMP/EWMP.[57]

2. Permittees fully in compliance with the requirements and dates of achievement of the WMP/EWMP are deemed in compliance with the *interim* WQBELs and other TMDL-specific limitations in Attachments L-R for the water body-pollutant combinations addressed by the WMP/EWMP.[58]

3. Permittees implementing an EWMP and utilizing the storm water retention approach in a drainage area tributary to the applicable water body are deemed in compliance with the *final* WQBELs and other TMDL-specific limitations in Attachments L-R for the water body-pollutant combinations addressed by the storm water retention approach.[59]

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[55] Los Angeles MS4 Order, Part VI.C., pp. 49-67.

[56] *Id.*, Part VI.C.1.g., pp. 48-49.

[57] *Id.*, Part VI.C.2.b., p. 52.

[58] *Id.*, Parts VI.C.3.a., p. 53, VI.E.2.d.i.4., pp. 143-44. The Los Angeles MS4 Order establishes separate requirements for Trash TMDLs and the WMP/EWMP are not a means of achieving compliance with the Trash TMDL provisions. (See Part VI.E.5, pp. 147-154.) References to TMDLs in this section exclude the Trash TMDLs.

[59] *Id.*, Part VI.E.2.e.i.(4), p. 145. As with Part VI.E.2.d.i.4, this Part does not apply to Trash TMDLs.

4. Because the Order additionally provides that full compliance with the general TMDL requirements in Part VI.E and the WQBELs and other TMDL-specific limitations in Attachments L through R constitutes compliance with the receiving water limitations in V.A for the specific pollutants addressed by the relevant TMDL, [60] provisions 2 and 3 above also constitute compliance with the receiving water limitations for the particular water body-pollutant combinations.

5. Finally, Permittees that have declared their intention to develop a WMP/EWMP may be deemed in compliance with receiving water limitations and with interim WQBELs with compliance deadlines occurring prior to approval of the WMP/EWMP if they meet certain conditions during the development phase.[61]

Both Environmental Petitioners and Permittee Petitioners put forth a number of arguments to the effect that the WMP/EWMP provisions of the Los Angeles MS4 Order are contrary to federal and state law or reflect poor policy. We discuss each argument below.

1. Anti-backsliding

The Environmental Petitioners argue that the inclusion of the WMP/EWMP in the Los Angeles MS4 Order violates the anti-backsliding provisions of the Clean Water Act and of the federal regulations.[62] The Clean Water Act generally prohibits the relaxation of an effluent limitation established in an NPDES permit when that permit is renewed; the federal regulations include similar provisions. The Environmental Petitioners argue that the WMP/EWMP of the Los Angeles MS4 Order, by allowing a discharger to be deemed in compliance with receiving water limitations, even where a discharger may in fact be causing or contributing to an exceedance of a water quality standard, represent a relaxation of the receiving water limitations provisions contained in the 2001 Los Angeles MS4 Order.[63]

We do not agree with the Environmental Petitioners that the WMP/EWMP provisions of the Los Angeles MS4 Order violate the anti-backsliding provisions of either the Clean Water Act or the federal regulations. Anti-backsliding provisions are an important aspect

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[60] *Id.*, Part VI.E.2.c.ii., p. 143. Although this provision reflects a departure from provisions in previous MS4 permits, the provision has not generated controversy and has not been contested in the petitions. The State Water Board supports this provision in MS4 permits, as discussed at section II.B.5.b. of this order.

[61] *Id.*, Parts VI.C. 2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144.

[62] 33 U.S.C. § 1342(o); 40 C.F.R. §122.44(*l*).

[63] The receiving water limitations of the 2001 Los Angeles MS4 Order (like the receiving water limitations in Section V.A. of the Los Angeles MS4 Order) were modeled on the precedential language in State Water Board Order WQ 99-05.

of the Clean Water Act that generally promote continued progress toward clean water, but the provisions do not apply in all circumstances and are subject to certain exceptions. The 2001 Los Angeles MS4 Order required compliance with receiving water limitations, directed Permittees to achieve those limitations through the iterative process, but retained the Los Angeles Water Board's discretion to enforce compliance with the receiving water limitations at any time. The Los Angeles MS4 Order requires compliance with receiving water limitations, but allows implementation of control measures through the WMPs/EWMPs to constitute such compliance, and reserves direct enforcement of the receiving water limitations to situations where a permittee fails to comply with the WMP/EWMP provisions. The approaches under the prior and current orders are designed to achieve the same results – compliance with receiving water limitations – but through distinct paths that are not easily comparable for purposes of the specific, technical anti-backsliding requirements laid out in federal law.[64] We nevertheless discuss the provisions below.

The Clean Water Act contains both statutory anti-backsliding provisions in section 402(o) and regulatory anti-backsliding provisions in 40 C.F.R. section 122.44(*l*). The Clean Water Act's statutory prohibition against backsliding applies under a narrow set of criteria specified in Clean Water Act section 402(o). First, section 402(o) prohibits relaxing effluent limitations originally established based on best professional judgment, when there is a newly revised effluent limitation guideline.[65] The WMP/EWMP is not derived from an effluent limitation guideline, so this first prohibition is inapplicable. Second, section 402(o) prohibits relaxing effluent limitations imposed pursuant to Clean Water Act sections 301(b)(1)(C) or 303(d) or (e).[66] The receiving water limitations provisions in the 2001 Los Angeles MS4 Order were not

[64] Responding to an argument that NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia violated anti-backsliding requirements by removing certain numeric limitations in the prior permit, USEPA stated: "The Commenter implies that a Permit that replaces a numeric effluent limit with a non-numeric one is somehow automatically less stringent on that parameter. However, the narrative requirement only violates the anti-backsliding prohibition if the two provisions are comparable. . . . In this case, the two provisions are not comparable: EPA has determined that compliance with the performance standards in the Final Permit will result in more water quality protections for the DC MS4's receiving streams than did the previous aggregate numeric limit." (Responsiveness Summary, p. 84, *supra,* fn.17, citing *Communities for a Better Environment v. State Water Resources Control Bd.* (2005) 132 Cal. App. 4th 1313.)

[65] 33 U.S.C. § 1342(o)(1) ("In the case of effluent limitations established on the basis of subsection (a)(1)(B) of this section, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 1314 (b) of this title subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.").

[66] *Ibid.* ("In the case of effluent limitations established on the basis of section 1311 (b)(1)(C) or section 1313 (d) or (e) of this title, a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit except in compliance with section 1313 (d)(4) of this title.").

established based on either section 301(b)(1)(C) or section 303(d) or (e), so this prohibition on backsliding is inapplicable.[67] The receiving water limitations provisions in MS4 permits are imposed under section 402(p)(3)(B) of the Clean Water Act rather than under section 301(b)(1)(C),[68] and are accordingly not subject to the anti-backsliding requirements of section 402(o).

With respect to the regulatory anti-backsliding provisions in 40 Code of Federal Regulations section 122.44(*l*), the non-applicability is less clear cut. USEPA promulgated 40 Code of Federal Regulations section 122.44(*l*)(1) and its predecessor anti-backsliding regulations prior to the Water Quality Act of 1987, which established the municipal permitting requirements of section 402(p)(3)(B). There is ample regulatory history to demonstrate USEPA's intent in establishing the anti-backsliding policy and regulations with respect to evolving technology standards for traditional point sources.[69] We have found no definitive guidance, however, since that time from USEPA or the courts applying the general provisions of section 122.44(*l*) in the context of municipal storm water permits.[70] Further, we have previously noted that anti-backsliding principles may be difficult to assess in the context of non-

[67] The Environmental Petitioners do not argue that the Los Angeles MS4 Order is contrary to Clean Water Act section 303(d)(4) (33 U.S.C. § 1313(d)(4)), which also sets out anti-backsliding requirements. Section 303(d)(4) sets out the conditions under which effluent limitations based on TMDL wasteload allocations may be relaxed. Specifically, effluent limitations for a discharge impacting an impaired water body where standards have not yet been attained may only be relaxed if either the cumulative effect of the revisions still assures the attainment of the water quality standards or the designated use that is not being attained is removed. (33 U.S.C. § 1313(d)(4)(A).) Where a water body has attained standards, effluent limitations may only be relaxed consistent with the federal antidegradation policy. (33 U.S.C. § 1313(d)(4)(B).)

[68] *Defenders of Wildlife*, *supra*, 191 F.3d at pp. 1165-1166.

[69] See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979) (describing codification of predecessor regulation codified at 40 C.F.R. 122.15(i).) In the context of municipal storm water, the MEP standard is the technology standard; the record here supports that MEP, as reflected in the permit conditions, has evolved since the issuance of the 2001 Los Angeles MS4 Order to become more stringent. (See, e.g., Los Angeles MS4 Order, Part VI.D.9.h.vii., p.132, compared to 2001 Los Angeles MS4 Order, Part 4.F.5.c., pp.48-49 [trash controls]; Los Angeles MS4 Order, Part VI.D.7.c., pp. 97-109, as compared to 2001 Los Angeles MS4 Order, Part 4.D.3., pp.36-37 [new development/redevelopment project performance criteria]; Los Angeles MS4 Order, Part VI.D.8.d., pp.113-114, as compared to 2001 Los Angeles MS4 Order, Part 4.E., pp.42-45 [requirements for construction sites less than one acre].)

[70] As requested by the Environmental Petitioners, we took official notice of a Letter to the Water Management Administration, Maryland Department of the Environment, issued by USEPA Region III on August 8, 2012. (See fn. 19). We acknowledge that the letter states at page 3 that a provision in the Prince George County, Maryland, Phase I MS4 draft permit allowing for more time to complete tasks that were required under the previous permit constituted backsliding. The letter refers in passing to section 122.44(*l*)(1), but the letter has no regulatory effect and, further, is devoid of any analysis. The Environmental Petitioners have also pointed us to discussion of the regulatory anti-backsliding provisions in the NPDES Permit Writers' Manual. (NPDES Permit Writers' Manual, p. 7-4.) The relevant section of the NPDES Permit Writers' Manual does not explicitly distinguish between municipal storm water permits and traditional NPDES Permits in its discussion of the applicability of regulatory anti-backsliding provisions; however, nor does it specifically direct application of the anti-backsliding regulatory provisions to municipal storm water permits. We do not find this discussion to be to be determinative on the issue.

quantitative, non-numeric requirements such as BMPs and plans.[71] It is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because, assuming for the sake of argument they do apply, the WMP/EWMP provisions would qualify for an exception to backsliding as discussed below.

Even if the receiving water limitations in MS4 permits could be considered subject to the anti-backsliding requirements of the Clean Water Act or the federal regulations, backsliding would be permissible based on the new information available to the Los Angeles Water Board when it developed and adopted the Los Angeles MS4 Order. The Clean Water Act and federal regulations contain exceptions to the anti-backsliding requirements where new information is available to the permitting authority that was not available at the time of the issuance of the prior permit and that would have justified the imposition of less stringent effluent limitations at that time.[72] The Los Angeles Water Board makes a compelling argument in its October 15, 2013 Response that the development of 33 watershed-based TMDLs adopted since 2001, the inclusion and implementation of three of those TMDLs in the 2001 Los Angeles MS4 Order, and the TMDL-specific and general monitoring and analysis during implementation, have made new information available to the Los Angeles Water Board that fundamentally shaped the WMP/EWMP alternative of the Los Angeles MS4 Order. The Los Angeles Water Board states that the new information resulted in a new understanding that "time to plan, design, fund, operate and maintain [best management practices (BMPs)] is necessary to attain water quality improvements, and these BMPs are best implemented on a watershed scale."[73] The Los Angeles Water Board further points out that, in terms of water supply, there has been a paradigm shift in the last decade from viewing storm water as a liability to viewing it as a regional asset, and that the Los Angeles MS4 Order was drafted to incorporate this new paradigm into its structure.

The WMP/EWMP approach represents a comprehensive attempt to implement the Board's new understanding regarding how to make progress toward achieving water quality

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[71] See Order WQ 96-13 (*Save San Francisco Bay Association*) at pp. 8-10. Although the relevant portion of that decision primarily concerned Clean Water Act section 402(o), its analysis is equally instructive with respect to 40 C.F.R. section 122.44(*l*). (In passing, we note that the order appears to assume that the permit's water quality-based requirements for the MS4 permit were derived pursuant to section 301(b)(1)(C); however, that assumption is in error based on the *Defenders of Wildlife* decision and subsequent State Water Board precedent.)

[72] See 33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(*l*)(1) (anti-backsliding does not apply if the circumstances on which the previous permit was based have materially and substantially changed and would constitute cause for permit modification under 40 C.F.R. section 122.62); 40 C.F.R. § 122.62(a)(2) (stating that new information not available at the time the previous permit was issued is cause for modification); see also 40 C.F.R. §122.44(*l*)(2)(i)(B)(1).

[73] Los Angeles Water Board October 15, 2013 Response, p. 51.

standards as well as supporting the development of new water supplies.[74] The anti-backsliding requirements of the Clean Water Act and the federal regulations thus did not foreclose the incorporation of the WMP/EWMP alternatives into the Los Angeles MS4 Order even though the alternatives allow additional time to achieve receiving water limitations as compared to the immediate compliance required under the 2001 Los Angeles MS4 Order.

We shall amend Finding II.N. and Part III.D.4, page F-20, of Attachment F, Fact Sheet, as follows:

Finding II.N:

N. Anti-Backsliding Requirements. Section 402(o)(2) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit. **The Fact Sheet of this Order contains further discussion regarding anti-backsliding.**

Attachment F, Fact Sheet, Part III.D.4:

4. Anti-Backsliding Requirements. Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. ~~All effluent limitations in this Order are at least as stringent as the effluent limitations in the previous permit.~~ **While this Order allows implementation of Watershed Management Plans/EWMPs to constitute compliance with receiving water limitations under certain circumstances, the availability of that alternative and the corresponding availability of additional time to come into compliance with receiving water limitations, does not violate the anti-backsliding provisions. The receiving**

[74] The Environmental Petitioners argue that information relied on to develop the WMP/EWMP approach was available to the Los Angeles Water Board at the time of the issuance of the 2001 Los Angeles MS4 Order, since regional and watershed based strategies and technologies in storm water planning, as well as the potential benefits of storm water for water supply, were considered prior to the last permit cycle. Similarly, the Environmental Petitioners argue that some of the data gathered through TMDL development was through the process of assessing impairments and through preparing drafts of the TMDL and was therefore available to the Los Angeles Water Board in 2001. (Environmental Petitioners, Written Comments, Jan. 21, 2015, pp. 15-17, 23-25.) The Environmental Petitioners have asked us to take official notice of several documents that support these assertions. It is not necessary for us to do so because we do not disagree with the Environmental Petitioners that some of the information that the Los Angeles Water Board has cited in support of an exception to the anti-backsliding requirements was available at the time of the adoption of the 2001 Los Angeles MS4 Order. We nevertheless concur with the Los Angeles Water Board that the more than a decade of implementation of storm water requirements, as well as the development and implementation of TMDL requirements, since 2001, has, as a whole, fundamentally reshaped our understanding of the physical and time scale on which such measures must be implemented to bring MS4s into compliance with receiving water limitations. Further, we find that all regional water boards are informed by the information gained in the Los Angeles region, so that any regional water board that adopts an alternative compliance path in a subsequent Phase I permit would not be in violation of anti-backsliding requirements, regardless of the particular storm water permitting history of that region.

water limitations provisions of this Order are imposed under section 402(p)(3)(B) of the Clean Water Act rather than based on best professional judgment, or based on section 301(b)(1)(C) or sections 303(d) or (e), and are accordingly not subject to the anti-backsliding requirements of section 402(o). Although the non-applicability is less clear with respect to the regulatory anti-backsliding provisions in 40 Code of Federal Regulations section 122.44(*l*), the regulatory history suggests that USEPA's intent was to establish the anti-backsliding regulations with respect to evolving technology standards for traditional point sources. (See, e.g., 44 Fed.Reg. 32854, 32864 (Jun. 7, 1979)). It is unnecessary, however, to resolve the ultimate applicability of the regulatory anti-backsliding provisions, because the WMP/EWMP provisions qualify for an exception to backsliding as based on new information. The Watershed Management Plan/EWMP provisions of this Order were informed by new information available to the Board from experience and knowledge gained through the process of developing 33 watershed-based TMDLs and implementing several of the TMDLs since the adoption of the previous permit. In particular, the Board recognized the significance of allowing time to plan, design, fund, operate and maintain watershed-based BMPs necessary to attain water quality improvements and additionally recognized the potential for municipal storm water to benefit water supply. Thus, even if the receiving water limitations are subject to anti-backsliding requirements, they were revised based on new information that would support an exception to the anti-backsliding provisions. (33 U.S.C. § 1342(o)(2)(B)(i); 40 C.F.R. § 122.44(l)(1); 40 C.F.R. §122.44(l)(2)(i)(B)(1)).

2. Antidegradation

The Environmental Petitioners argue that the WMP/EWMP provisions of the Los Angeles MS4 Order violate the federal and state antidegradation policies.[75] The federal and state antidegradation policies generally require that the existing quality of water bodies be maintained, unless degradation is justified through specific findings. At a minimum, any degradation may not lower the quality of the water below the water quality standards.[76]

The federal and state antidegradation policies are not identical; however, where the federal antidegradation policy is applicable, the State Water Board has interpreted State Water Board Resolution No. 68-16, the state antidegradation policy, to incorporate the federal antidegradation policy.[77] In the context of the Los Angeles MS4 Order, a federal NPDES permit, compliance with the federal antidegradation policy would require consideration of the following: First, the Los Angeles MS4 Order must ensure that "existing instream uses and the level of

[75] 40 C.F.R. § 131.12; State Water Board Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality Waters in California (State Water Board Resolution No. 68-16).

[76] *Ibid.*

[77] State Water Board Order WQ 86-17 (*Fay*), pp. 16-19.

water quality necessary to protect the existing uses" is maintained and protected.[78] Second, if the baseline quality of a water body for a given constituent "exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected" through the requirements of the Los Angeles MS4 Order unless the Los Angeles Water Board makes findings that (1) any lowering of the water quality is "necessary to accommodate important economic or social development in the area in which the waters are located;" (2) "water quality adequate to protect existing uses fully" is assured; and (3) "the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control" are achieved.[79]

The Los Angeles MS4 Order must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy.[80] In particular, the Los Angeles Water Board must find that not only present, but also anticipated future uses of water are protected, and must ensure "best practicable treatment or control" of the discharges."[81] The baseline quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting action that was consistent with the federal and state antidegradation policies.[82]

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[78] 40 C.F.R. § 131.12(a)(1). This provision has been interpreted to mean that, "[i]f baseline water quality is equal to or less than the quality as defined by the water quality objective, water quality shall be maintained or improved to a level that achieves the objectives." (State Water Board, Administrative Procedures Update, Antidegradation Policy Implementation for NPDES Permitting, 90-004 (APU 90-004), p. 4.) This provision is completely consistent with, and implemented by, the receiving water limitations provisions discussed above.

[79] 40 C.F.R. § 131.12(a)(2); see also State Water Board Resolution No. 68-16, Resolve 2. The federal regulations additionally require strict maintenance of water quality for "outstanding national resources." (40 C.F.R. § 131.12(a)(3).) There are no designated outstanding national resource waters covered by the Los Angeles MS4 Order.

[80] See State Water Board Order WQ 86-17 (*Fay)*, p. 23, fn. 11.

[81] State Water Board Resolution No. 68-16, Resolve 2. Best practicable treatment or control is not defined in Resolution No. 68-16; however, the State Water Board has evaluated what level of treatment or control is technically achievable using "best efforts." (See State Water Board Orders WQ 81-5 (*City of Lompoc*), WQ 82-5 (*Chino Basin Municipal Water District)*, WQ 90-6 (*Environmental Resources Protection Council*).) A Questions and Answers document on Resolution No. 68-16 by the State Water Board states as follows: "To evaluate the best practicable treatment or control method, the discharger should compare the proposed method to existing proven technology; evaluate performance data, e.g. through treatability studies; compare alternative methods of treatment or control; and/or consider the method currently used by the discharger or similarly situated dischargers . . .The costs of the treatment or control should also be considered . . . ." (Questions and Answers, Resolution No. 68-16, State Water Board (Feb. 16, 1995), pp. 5-6.)

[82] APU 90-004, p.4. The baseline for application of the federal antidegradation policy is 1975. For state antidegradation requirements, see also *Asociacion de Gente Unida por el Agua v. Central Valley Water Board* (2012) 210 Cal.App.4th 1255,1270. The baseline for the application of the state antidegradation policy is generally the highest water quality achieved since 1968. However, where a water quality objective for a particular constituent was adopted after 1968, the baseline for that constituent is the highest water quality achieved since the adoption of the *(Continued)*

The Los Angeles MS4 Order contains a conclusory antidegradation finding, but the Fact Sheet contains additional discussion.[83] The Fact Sheet discussion essentially conveys that, where there are high quality waters in the region, the antidegradation requirements are met because the Order requires best practicable treatment or control in the form of MEP and water quality standards compliance and, further, where the water quality is already impaired, the Order requires implementation of TMDL requirements to achieve water quality standards over time. The Fact Sheet also finds that the Los Angeles MS4 Order does not authorize an increase in waste discharges. The Los Angeles Water Board argues that it was not required to make more detailed findings because, using its best professional judgment and available data, it concluded that the Los Angeles MS4 Order would prevent any degradation. For this proposition, the Los Angeles Water Board cites to State Water Board guidance from 1990 (APU 90-004).[84] The guidance may be construed to exempt the Los Angeles Water Board from conducting an extensive pollutant by pollutant analysis for each water body in the region, but it does not exempt the Board from clearly stating its basis for finding that its action is consistent with the antidegradation policies.

The Los Angeles Water Board has provided a more extensive analysis of why the Los Angeles MS4 Order complies with the antidegradation policies in its October 15, 2013 Response. The Los Angeles Water Board argues that most of the water bodies impacted by the Los Angeles MS4 Order are already impaired for multiple constituents and that, even if some of these water bodies may have been higher quality in 1968, a scenario largely contradicted by the available data,[85] the appropriate baseline for the quality of such waters is the level of control achieved under the prior permit. The Los Angeles Water Board further argues that the Los Angeles MS4 Order has provisions that are equally or more stringent than those of the

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(continued from previous page)
objective. Resolution 68-16 requires a comparison of the existing quality to "the quality established in policies as of the date on which such policies become effective." (Resolution 68-16, Resolve 1.)

[83] Los Angeles MS4 Order, Finding II.M; Fact Sheet, Att. F, pp. F19-F20.

[84] APU 90-004, p. 2.

[85] We reviewed the Administrative Record, including the 1998 Clean Water Act section 303(d) List (May 12, 1999) (Administrative Record, section 10.VI.E., RB-AR35684-35733), the 2010 Clean Water Act section 303(d) List (Oct.11, 2011) (Administrative Record, section 10.VI.E., RB-AR35734-35785), Santa Monica Bay Restoration Project, An Assessment of Inputs of Fecal Indication Organisms and Human Enteric Viruses from Two Santa Monica Bay Storm Drains (1990) (Administrative Record, section 10.VI.E, RB-AR43363-43413), Toxic Substances Monitoring Program, 10 Year Summary Report 1978-1987 (Administrative Record, Order No. 01-182, R0044602-0045053) and comments submitted by interested persons to the Los Angeles Water Board (Administrative Record RB-AR1006-1038, RB-AR1100-1128, RB-AR1768-2119, RB-AR2653-2847, RB-AR5642-17888). We found no specific evidence presented to the Los Angeles Water Board of high quality waters in the region with regard to pollutants typically associated with storm water discharges; however, we also recognize that in the absence of specific evidence of high quality waters, a blanket statement that there are no high quality water body-pollutant combinations may be overbroad.

2001 Los Angeles MS4 Order and therefore will not allow water quality to degrade below the level of control achieved under the prior permit.

We agree with the Los Angeles Water Board that the Los Angeles MS4 Order maintains and improves the level of control achieved under the 2001 Los Angeles MS4 Order. We expect that the Los Angeles MS4 Order's TMDL requirements and receiving water limitations, which may be implemented through the WMP/EWMP provisions, will be the means for achieving water quality standards for the majority of degraded water bodies in the region. To assert, as the Environmental Petitioners do, that compliance with the receiving water limitations provisions of the 2001 Los Angeles Order is more stringent than establishing specific implementation requirements with clear deadlines for TMDL and receiving water limitations compliance is misguided. We are concerned with the totality of the provisions in the two permits and find that, viewed from that broader perspective, the Los Angeles MS4 Order is at least as stringent in addressing degradation as its predecessor.[86] The Los Angeles MS4 Order improves on past practices that have been inadequate to protect water quality, and includes a monitoring and assessment program that will identify any changes in water quality.[87] In general, under the Los Angeles MS4 Order, we expect to see a trajectory away from any past degradation, even if there may be some continued short-term degradation.

We are not persuaded, however, that the level of control achieved under the 2001 Los Angeles MS4 Order necessarily represents the baseline for purposes of an antidegradation analysis. The 2001 Los Angeles MS4 Order had only minimal findings regarding antidegradation and it is not apparent that any degradation that may have continued under the conditions of the 2001 Los Angeles MS4 Order was anticipated by the Los Angeles Water Board and supported with appropriate analysis regarding economic and social benefits[88] and best practicable treatment or control. We therefore find that the appropriate baseline remains 1968 or the highest quality of receiving waters attained since 1968. We acknowledge

[86] In making this finding we also recognize that the Permittees may be deemed in compliance with receiving water limitations prior to approval of the WMP/EWMP. (Los Angeles MS4 Order Parts VI.C.2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144.) As discussed further under section II.B.6., we find that the Los Angeles Water Board reasonably exercised its discretion in allowing for compliance during the program development phase and further that the program development phase does not detract from the overall effectiveness of the permit provisions.

[87] *See Asociacion de Gente Unida, supra*, 210 Cal.App.4th at p. 1278.

[88] We note that the administrative record provides evidence that some discharge of storm water is to the maximum benefit of the people of the state because such discharge is necessary for flood control and public safety and helps accommodate development. (See, e.g., Administrative Record, section 10.VI.C, RB-AR30101; RB-AR32557-32558.)

that the evidence in the record indicates that it is unlikely that many water bodies were high quality even as far back as 1968, but we cannot make a blanket statement to that effect.[89]

Despite this conclusion, we will not remand the antidegradation issue to the Los Angeles Water Board for further consideration, but will make the findings ourselves based on the record before us. Our findings are necessarily made at a generalized level. Even if the directive of APU 90-004 to carry out a complete antidegradation analysis for each water body-pollutant combination is applicable here, there is simply insufficient data available (to us or the Los Angeles Water Board) to make such findings. The APU 90-004 contemplates the appropriate antidegradation analysis for a discrete discharge or facility. It has limited value when considering antidegradation in the context of storm water discharges from diffuse sources, conveyed through multiple outfalls, with multiple pollutants impacting multiple water bodies within a municipality, or in this case, region, especially given that reliable data on the baseline water quality from 1968 is not available.[90]

The Environmental Petitioners propose that antidegradation be addressed in subsequent actions of the Los Angeles Water Board by requiring that the reasonable assurance analysis (discussed in greater detail in section II.B.4.c. of this Order) supporting a WMP/EWMP also demonstrate that the proposed control measures will maintain high quality of waters with regard to pollutants for which they are not impaired. We reject this approach for two reasons. First, the Los Angeles Water Board was required under the federal and state antidegradation policies to evaluate whether permit conditions would lead to degradation of high quality waters at the time of permit issuance. Second, requiring Permittees to incorporate an evaluation of all water body-pollutant combinations, including those where there are no impairments or exceedances, would require them to expand the reasonable assurance analysis beyond its useful function and manageable scope.

We shall amend Finding II.M and Part D.3 at pages F-19 to F-20 of Attachment F, the Fact Sheet, as follows:

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[89] See fn. 85.

[90] We note that USEPA did not conduct a detailed antidegradation analysis in issuing NPDES Permit No. DC00000221 for MS4 discharges to the District of Columbia, presumably for similar reasons. The court in *Asociacion de Gente Unida* relied on APU 90-004 in part in rejecting an antidegradation analysis conducted by the Central Valley Regional Water Quality Control Board for discharges of pollutants to groundwater from dairy facilities region-wide, but the court's objection was to the regional water board's reliance on an illusory prohibition of discharge to groundwater in finding that no antidegradation analysis was required, not to the sufficiency of any generalized antidegradation analysis the Board might have conducted in lieu of its reliance on the prohibition. (210 Cal.App.4th at pp. 1271-1273.)

Finding II. M.

M. Antidegradation Policy
40 CFR section 131.12 requires that state water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining the Quality of the Waters of the State"). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge is consistent with the antidegradation provision of section 131.12 and State Water Board Resolution No. 68-16 **as set out in the Fact Sheet.**

Attachment F, Fact Sheet Part III.D.3.

3. Antidegradation Policy. 40 CFR section 131.12[4] requires that the state water quality standards include an antidegradation policy consistent with the federal antidegradation policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining the Quality of the Waters of the State"). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. Resolution No. 68-16 and 40 CFR section 131.12 require the Regional Water Board to maintain high quality waters of the State **unless degradation is justified based on specific findings. First, the Board must ensure that "existing instream uses and the level of water quality necessary to protect the existing uses" are maintained and protected. Second, if the baseline quality of a water body for a given constituent exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected through the requirements of the Order unless the Board makes findings that (1) any lowering of the water quality is necessary to accommodate important economic or social development in the area in which the waters are located; (2) water quality adequate to protect existing uses fully is assured; and (3) the highest statutory and regulatory requirements for all new and existing point sources and all cost-effective and reasonable best management practices for nonpoint source control are achieved. The Board must also comply with any requirements of State Water Board Resolution No. 68-16 beyond those imposed through incorporation of the federal antidegradation policy. In particular, the Board must find that not only present, but also anticipated future uses of water are protected, and must ensure best practicable treatment or control of the discharges. The baseline quality considered in making the appropriate findings is the best quality of the water since 1968, the year of the adoption of Resolution No. 68-16, or a lower level if that lower level was allowed through a permitting action that was consistent with the federal and state antidegradation policies.** ~~until it is demonstrated that any change in quality will~~

~~be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Water Board's policies. Resolution 68-16 requires that discharges of waste be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.~~

The discharges permitted in this Order are consistent with the antidegradation provisions of 40 CFR section 131.12 and Resolution 68-16 **as set out in the Findings below:**~~.~~

1. ~~Many of the water bodies within the area covered by this Order are of high quality. The Order requires the Permittees to meet best practicable treatment or control to meet water quality standards. As required by 40 CFR section 122.44(a), the Permittees must comply with the "maximum extent practicable" technology-based standard set forth in CWA section 402(p).~~ Many of the waters within the area covered by this Order are impaired ~~and~~ **for multiple pollutants discharged through MS4s and are not high quality waters with regard to these pollutants. In most cases, there is insufficient data to determine whether these water bodies were impaired as early as 1968, but the limited available data shows impairment dating back for more than two decades. Many such water bodies are** listed on the State's CWA Section 303(d) List and either the Regional Water Board or USEPA has established TMDLs to address the impairments. **This Order ensures that existing instream (beneficial) water uses and the level of water quality necessary to protect the existing uses is maintained and protected**. This Order requires the Permittees to comply with permit provisions to implement the WLAs set forth in the TMDLs in order to restore the beneficial uses of the impaired water bodies consistent with the assumptions and requirements of the TMDLs. **This Order further requires compliance with receiving water limitations to meet water quality standards in the receiving water either by demonstrating compliance pursuant to Part V.A and the Permittee's monitoring and reporting program pursuant to Part VI.B or by implementing Watershed Management Programs/EWMPs with a compliance schedule.** This Order includes requirements to develop and implement storm water management programs, achieve water quality-based effluent limitations, and effectively prohibit non-storm water discharges through the MS4.

2. To the extent that some of the water bodies within the jurisdiction are high quality waters with regard to some constituents, this Order finds as follows:

a. Allowing limited degradation of high quality water bodies through MS4 discharges is necessary to accommodate important economic or social development in the area and is consistent with the maximum benefit to the people of the state. The discharge of storm water in certain circumstances is to the maximum benefit to the people of the state because it can assist with maintaining instream flows that support beneficial uses, may spur the development of multiple-benefit projects, and may be necessary for flood control, and public safety as well as to accommodate development in the

area. The alternative – capturing all storm water from all storm events – would be an enormous opportunity cost that would preclude MS4 permittees from spending substantial funds on other important social needs. The Order ensures that any limited degradation does not affect existing and anticipated future uses of the water and does not result in water quality less than established standards. The Order requires compliance with receiving water limitations that act as a floor to any limited degradation.

b. The Order requires the highest statutory and regulatory requirements and requires that the Permittees meet best practicable treatment or control. The Order prohibits all non-storm water discharges, with a few enumerated exceptions, through the MS4 to the receiving waters. As required by 40 CFR section 122.44(a), the Permittees must comply with the "maximum extent practicable" technology-based standard set forth in CWA section 402(p), and implement extensive minimum control measures in a storm water management program. Recognizing that best practicable treatment or control may evolve over time, the Order includes new and more specific requirements as compared to Order No. 01-182. The Order incorporates options to implement Watershed Management Programs or EWMPs that must specify concrete and detailed structural and non-structural storm water controls that must be implemented in accordance with an approved time schedule. The Order contains provisions to encourage, wherever feasible, retention of the storm water from the 85th percentile 24-hour storm event.

~~The issuance of this Order does not authorize an increase in the amount of discharge of waste. The Order includes new requirements to implement WLAs assigned to Los Angeles County MS4 discharges that have been established in 33 TMDLs, most of which were not included in the previous Order.~~

3. Compliance Schedules and the Appropriateness of Enforcement Orders

The Environmental Petitioners concede that immediate compliance with receiving water limitations is not achievable in many instances and that some additional time to reach compliance is warranted. They have proposed an alternative to the WMP/EWMP that would incorporate many of the provisions of those programs but require implementation through the mechanism of a time schedule order or other enforcement order rather than as permit conditions. The Los Angeles MS4 Order already provides that Permittees who are out of compliance with final WQBELs and other TMDL-specific limitations may request a time schedule order.[91] Under the alternative proposed by the Environmental Petitioners, all Permittees that are currently out of compliance with receiving water limitations not addressed by a TMDL as well as with interim TMDL requirements with passed compliance deadlines, would be issued a time schedule order or other enforcement order not to exceed the five year term of

[91] Los Angeles MS4 Order, Part VI.E.4., pp.146-147.

the permit. The Permittees would then implement a WMP/EWMP type plan to achieve compliance with the appropriate limitations within the confines of the enforcement order.

In the prior two sections, we found that the WMP/EWMP provisions are not contrary to the anti-backsliding or antidegradation requirements of federal and state law. We therefore disagree with the Environmental Petitioners that the relevant provisions must be stricken from the Order and incorporated instead into an enforcement order for those reasons. We also find that, given that strict compliance with water quality standards is discretionary in MS4 permits, the Los Angeles Water Board was not restricted to limiting the schedule for compliance with receiving water limitations to the term of the Los Angeles MS4 Order.

Further, from a policy perspective, we find that the MS4 Permittees that are developing and implementing a WMP/EWMP should be allowed additional time to come into compliance with receiving water limitations and interim and final TMDLs through provisions built directly into their permit, rather than through enforcement orders. Building a time schedule into the permit itself, as the Los Angeles MS4 Order does, is appropriate because it allows a more efficient regulatory structure compared to having to issue multiple enforcement orders. More importantly, it is appropriate to regulate Permittees in a manner that allows them to strive for compliance with the permit terms, provided no provision of law otherwise precludes including the schedule in the NPDES permit. For example, for traditional point source discharges subject to strict compliance with water quality standards pursuant to section 301(b)(1)(C), the terms of a compliance schedule are dictated by our compliance schedule policy (State Water Board Resolution 2008-0025) and any additional time for compliance could only be under the auspices of an enforcement order outside the permit.[92]

The WMP/EWMP provisions constitute an effort to set ambitious, yet achievable, targets for Permittees; receiving water limitations, on the other hand, while the ultimate goal of MS4 permitting, may not in all cases be achievable within the five-year permit cycle. Generally, permits are best structured so that enforcement actions are employed when a discharger shows some shortcoming in achieving a realistic, even if ambitious, permit condition and not under circumstances where even the most diligent and good faith effort will fail to achieve the required condition. We add that it is our intention to encourage a watershed-based approach to addressing storm water issues going forward and that it would be contrary to that intention to

[92] We also note that the State Water Board's Policy for the Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (2005) (State Implementation Policy) and the CTR itself (40 C.F.R. § 131.38(e)) restrict the scope of compliance schedules for effluent limitations addressing the discharge of toxic pollutants; however the policy does not apply to storm water discharges. (State Implementation Policy, p.3, fn.1.)

structure the watershed-based requirements as an enforcement order. We will not require Permittees that propose and timely implement a WMP/EWMP to request time schedule orders or other enforcement orders as a precondition of being in compliance with the receiving water limitations or interim TMDL requirements of the Los Angeles MS4 Order.

While declining to structure the WMP/EWMP provisions generally as an enforcement order, we acknowledge that time schedule orders are appropriate under some circumstances. We have already noted that the Los Angeles MS4 Order allows a Permittee to request a time schedule order where a final compliance deadline for a state-adopted TMDL has passed and the Permittee believes that additional time to comply with the requirement is necessary.[93] We expect that a Permittee will request a time schedule order also if the Permittee fails to meet a final compliance deadline for a TMDL after the adoption date of the Los Angeles MS4 Order. We will also provide that a Permittee may request a time schedule order if the Permittee fails to meet a final compliance deadline for a receiving water limitation set in the Permittee's WMP/EWMP.

We shall add a new Part VI.C.6.b and revise Part VI.E.4.b as follows:

Part VI.C.6

b. Where a Permittee believes that additional time to comply with a final receiving water limitation compliance deadline set within a WMP/EWMP is necessary, and the Permittee fails to timely request or is not granted an extension by the Executive Officer, a Permittee may, no less than 90 days prior to the final compliance deadline, request a time schedule order pursuant to California Water Code section 13300 for the Regional Water Board's consideration.

Part VI.E.4

b. Where a Permittee believes that additional time to comply with the final water quality-based effluent limitations and/or receiving water limitations is necessary, a Permittee may within 45 days of Order adoption**, or no less than 90 days prior to the final compliance deadline if after adoption of the Order,** request a time schedule order pursuant to California Water Code section 13300 for the Regional Water Board's consideration.

4. Rigor and Accountability in the WMPs/EWMPs

We now turn to a consideration, from a technical as well as policy lens, as to whether the WMPs/EWMPs are structured in a manner that will maximize the likelihood of

[93] *Ibid.*

reaching the ultimate goal of the compliance alternative – achieving receiving water limitations.[94] We can support an alternative approach to compliance with receiving water limitations only to the extent that that approach requires clear and concrete milestones and deadlines toward achievement of receiving water limitations and a rigorous and transparent process to ensure that those milestones and deadlines are in fact met. Conversely, we cannot accept a process that leads to a continuous loop of iterative WMP/EWMP implementation without ultimate achievement of receiving water limitations.

We find below that the WMP/EWMP provisions generally ensure the appropriate rigor, transparency, and accountability, and that, with the few revisions we direct, are designed to lead to achievement of receiving water limitations.[95]

a. Milestones and Compliance Deadlines

We first consider whether the WMP/EWMP provisions require clear, concrete, and finite milestones and deadlines.

For water body-pollutant combinations addressed by TMDLs, the Los Angeles MS4 Order requires the Permittees to incorporate the compliance schedules found in Attachments L through R of the Order, which reflect previously adopted TMDL-based requirements, into the WMP/EWMP, and, as necessary, to develop interim milestones and dates for their achievement.[96] A Permittee that does not thereafter comply with the approved compliance schedule must instead demonstrate compliance with the WQBELs and other TMDL-specific limitations of the Order.[97] For water body-pollutant combinations not addressed by a TMDL, but where the relevant pollutant is one for which the water body is identified as impaired on the Clean Water Act section 303(d) List and the pollutant is in the same class as a TMDL pollutant, the Order requires that the WMP/EWMP incorporate a schedule consistent with the TMDL schedule for the same class pollutant.[98] A Permittee that does not thereafter comply with

[94] From a legal standpoint, our analysis serves to verify that the Los Angeles MS4 Order's alternative compliance approach through WMPs/EWMPs is supported by the findings and by evidence in the record. (*Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506.)

[95] We do not agree with Permittee Petitioners that the WMP/EWMP provisions are precluded by the program requirements of 40 Code of Federal Regulations section 122.26. Nor do we agree that the requirements are vague or lack definition. The WMP/EWMP provisions of the Order are guidelines for development of a subsequent program with more specificity to be approved by the Los Angeles Water Board or its Executive Officer.

[96] Los Angeles MS4 Order, Part VI.C.5.c., pp.64-65.

[97] *Id.*, Part VI.E.2.d.i(4)(c), p.144.

[98] *Id.*, Part VI.C.2.a.i., pp. 49-50.

the approved compliance schedule must instead demonstrate immediate compliance with the receiving water limitations in Part V.A.[99] We will not disturb these provisions.

With regard to exceedances of receiving water limitations not addressed by a TMDL, and where the pollutant is not in the same class as a pollutant addressed by a TMDL, the Order requires that the WMP/EWMP include milestones based on measurable criteria or indicators and a schedule for achieving the milestones. The WMP/EWMP must also incorporate a final date for achievement of receiving water limitations, but that date is circumscribed simply as "as soon as possible."[100] Parts VI.C.2.a.ii.(4) and VI.C.2.a.iii.(2)(c) help clarify the meaning of "as soon as possible:"

> Permittees shall identify enforceable requirements and milestones and dates for their achievement to control MS4 discharges such that they do not cause or contribute to exceedances of receiving water limitations within a timeframe(s) that is as short as possible, taking into account the technological, operation, and economic factors that affect the design, development, and implementation of the control measures that are necessary. The time between dates shall not exceed one year. Milestones shall relate to a specific water quality endpoint (e.g., x% of the MS4 drainage area is meeting the receiving water limitations) and dates shall relate either to taking a specific action or meeting a milestone.[101]

We will make a revision to the compliance schedule provisions to make it clear that the term "as soon as possible" is to be interpreted consistent with the more specific direction cited above. However, because the WMP/EWMP, and therefore the proposed compliance schedule, is subject to public review and comment and approval by the Los Angeles Water Board or its

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[99] *Id.*, Part VI.C.2.c., p.52.

[100] *Id.*, Part VI.C.5.c.iii.(3), p. 65. If the pollutant is not in the same class as those addressed in a TMDL, but the water body is still identified as impaired for that pollutant, the WMP/EWMP must either have a final compliance deadline within the 5 year permit term or Permittees are expected to initiate development of a stakeholder-proposed TMDL and incorporate a compliance schedule consistent with the TMDL. (*Id.*, Part VI.C.2.a. ii., pp. 50-51) (If the exceedances are in a drainage area implementing the storm water retention approach, there is no requirement to initiate the TMDL development process.) The requirement to address receiving water limitations is ongoing. As exceedances are found through monitoring for water body-pollutant combinations not identified on the 303(d) List, Permittees must either meet receiving water limitations or include the water body-pollutant combination in the WMP/EWMP and set enforceable requirements and milestones and dates for their achievement within a time frame that is as short as possible. (*Id.*, Part VI.C.2.a.iii, pp. 51-52.) Permittees are deemed in compliance with receiving water limitations only for water body-pollutant combinations addressed in the WMP/EWMPs. Thus, as pointed out by several interested parties, for lower priority water body-pollutant combinations not incorporated into a WMP/EWMP for which exceedances are detected, Permittees may be in violation of the receiving water limitations. A Permittee always has the ability to reprioritize a water body-pollutant combination from low priority to high priority and amend its WMP/EWMP to incorporate measures to address that water body-pollutant combination.

[101] *Id.*, Parts VI.C.2.a.ii.4, p. 50, VI.C.2.a.iii.(2)(c), p. 51 (identical language).

Executive Officer,[102] we do not find it necessary to constrain the determination of milestones and dates for the achievement of receiving water limitations any further.

We shall amend Part VI.C.5.c.iii.(3)(b) as follows:

(b) A final date for achieving the receiving water limitations as soon as possible**, consistent with Parts VI.C.2.a.ii.(4) & VI.C.2.a.iii.(2)(c)**.

b. Constraints on Extension of Deadlines

The fact that the Los Angeles MS4 Order requires the establishment of concrete and rigorous deadlines within the WMP/EWMP for the achievement of receiving water limitations is critical to ensuring progress on such achievement; however, the Order also contemplates that the deadlines, with the exception of those compliance deadlines established in a TMDL, may be extended.[103] The WMP/EWMP is subject to an adaptive management process. Based on the results of that process the Permittees may propose modifications, including modifications to compliance deadlines and interim milestones, in the Annual Report.[104]

The potential for multiple extensions is nevertheless ameliorated by the fact that extensions of compliance deadlines and interim milestones require Los Angeles Water Board Executive Officer approval,[105] and are accordingly, subject to a 30-day public comment period.[106] The public comment period will allow all other interested persons to weigh in on the appropriateness of any requested extensions. If thereafter dissatisfied with the determination made by the Executive Officer, interested persons may additionally seek review of the Executive Officer's decision by the Los Angeles Water Board.[107] Of course, in cases where no extension

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[102] *Id.*, Part VI.C.4.c., p.56, Table 9, p. 54, Part VI.A.5.b., p. 42, Att. F, Fact Sheet, p. F-42. Under Part VI.A.5.b, "[a]ll documents submitted to the Regional Water Board Executive Officer for approval shall be made available to the public for a 30-day period to allow for public comment."

[103] *Id.*, Parts VI.C.7, p.66, VI.C.8, pp.66-67.

[104] *Id.*, Part, VI.C.8, p.67. Under another provision of the Order, Permittees may at any time request an extension of deadlines for achievement of interim milestones established to address exceedances of receiving water limitations not otherwise addressed by a TMDL. (*Id.*, Part VI.C.6.a., p.65.) (We note that the cited provision refers to "milestones established pursuant to Part VI.C.4.c.ii.(3)," but the intent appears to have been to reference Part VI.C.5.c.iii.(3).) But as we read the Los Angeles MS4 Order, extensions of not just interim deadlines for achievement of milestones but also final compliance deadlines to achieve receiving water limitations are already allowed under the adaptive management provisions of Part VI.C.8.a.ii.: "Based on the results of the adaptive management process, Permittees shall report any modifications, including where appropriate *new compliance deadlines* and interim milestones, with the exception of those compliance deadlines established in a TMDL, necessary to improve the effectiveness of the Watershed Management Program or EWMP, in the Annual Report . . . ." (Emphasis added.)

[105] *Id.*, Parts VI.C.8, p.67, VI.C.6.a., p.65. We recognize that as currently written the adaptive management provisions in effect deem any modifications to the WMPs/EWMPs approved if the Executive Officer "expresses no objections" within 60 days. (*Id.,* Part VI.C.8.a.iii., p. 67.) With our revisions, any deadline extensions must be affirmatively approved by the Executive Officer.

[106] *Id.*, Part VI.A.5.b, p. 42.

[107] *Id.*, Part VI.A.6, p.42.

is available, as with final deadlines established in TMDLs,[108] or where no extension is requested or granted, failure to meet a deadline means that the Permittee will have to comply from that time forward with the receiving water limitations or WQBELs and other TMDL-specific limitations or request a time schedule order. Therefore, Permittees cannot rely on the certainty of a deadline extension, and Permittees have a strong incentive to implement control measures that will in fact get them to compliance by the established deadline. Given that the Permittees and the Los Angeles Water Board are working with limited data regarding storm water impacts and control measure performance, especially where TMDLs have not been developed, we are hesitant to remove all flexibility for deadline extensions, and find that the Order strikes an appropriate balance.

Permittee Petitioners seek even greater flexibility under the WMP/EWMP provisions for adjusting approved control measures and time lines. They advocate for amendments that would allow a Permittee to propose alternative controls or time lines upon a demonstration that required controls for timely achievement of a limitation are either technically infeasible or otherwise constitute a substantial hardship to the Permittee. We have found above that, in the case of final deadlines set in the WMP/EWMP for achievement of receiving water limitations not otherwise addressed in a TMDL, the Los Angeles MS4 Order already provides for an opportunity to propose new deadlines through the adaptive management process. We will make a clarifying revision below to confirm that Permittees may ask for extensions in meeting receiving water limitations not addressed by a TMDL. Technical infeasibility or substantial hardship may be grounds for such a request. The Los Angeles Water Board Executive Officer, in turn, may, after allowing for public review and comment, choose to (1) extend the deadline, (2) decline the extension but approve any time schedule order requested by the Permittee, or (3) decline the extension and not approve a time schedule order, with the result that the Permittee will be out of compliance with the provision of the WMP/EWMP and therefore the receiving water limitations of Part V.A. As stated previously, interested persons may thereafter ask the Los Angeles Water Board to review the Executive Officer's determination.[109]

With regard to final deadlines for WQBELs and other TMDL-specific limitations, we will not amend the WMP/EWMP provisions to add flexibility for extensions. We find that the only option appropriately available to a Permittee unable to meet final deadlines that are set out in a TMDL and incorporated into the Los Angeles MS4 Order and the WMP/EWMPs, is to

[108] *Id.*, Part VI.C.8.a.ii., p.67.

[109] *Id.*, Part VI.A.6, p.42.

request a time schedule order, consistent with Part VI.E.2.e. of the Order, as that Part was amended in section II.B.3. above.[110]

We shall amend Part VI.C.6.a as follows:

a. Permittees may request an extension of deadlines for achievement of interim milestones **and final compliance deadlines** established pursuant to Part VI.C.4**5**.c.iii.~~(3) only~~**, with the exception of those final compliance deadlines established in a TMDL**. Permittees shall provide requests in writing at least 90 days prior to the deadline and shall include in the request the justification for the extension. Extensions ~~shall be subject to approval by~~ **must be affirmatively approved by** the Regional Water Board Executive Officer, **notwithstanding Part VI.C.8.a.iii.**

c. Rigor and Accountability in the Process

We see three additional components of the WMPs/EWMPs as essential to ensuring that the proposed WMPs/EWMPs are in fact designed to achieve receiving water limitations within the appropriate time frame.

First, as documents to be approved by either the Los Angeles Water Board or its Executive Officer, the WMPs/EWMPs are subject to a public review and comment period.[111] Such review includes consideration of proposed control measures, deadlines for achievement of final limitations, and the reasonable assurance analysis that supports the WMP/EWMP. We expect this public process to vet the proposed WMPs/EWMPs and facilitate revisions to strengthen the programs as needed, thereby providing some assurance that approved WMPs/EWMPs will achieve the water quality targets set out.

Second, the requirement for a reasonable assurance analysis in particular is designed to ensure that Permittees are choosing appropriate controls and milestones for the WMP/EWMP.[112] Competent use of the reasonable assurance analysis should facilitate achievement of final compliance within the specified deadlines.[113]

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[110] Final TMDL deadlines are established and incorporated into the Basin Plans during the TMDL development process. That process invites stakeholder participation and the proposed schedule is subject to public review and comment and approval by the relevant regional water board, the State Water Board, and USEPA. The deadlines are established with consideration of the time needed for compliance for all dischargers contributing to an impairment, including industrial and construction storm water dischargers and traditional NPDES dischargers. Although we recognize that it may not always be feasible for municipal storm water dischargers to meet final TMDL deadlines, short of amending the Basin Plan to modify the deadlines (see *California Association of Sanitation Agencies v. State Water Resources Control Board* (2012) 208 Cal.App.4th 1438), we find it appropriate for the dischargers to request time schedule orders rather than be granted an extension within the provisions of the Los Angeles MS4 Order.

[111] See Los Angeles MS4 Order, Parts VI.C.4.d., p. 57, VI.C.6, p. 65, Table 9, p.54; see also id., Part VI.A.5., p. 42.

[112] *Id.*, Part VI.C.5.b.iv.(5), pp. 63-64.

[113] We note that the Los Angeles Water Board has released guidance on the development of a reasonable assurance analysis. The guidance was released after adoption of the Los Angeles MS4 Order and accordingly is not *(Continued)*

Third, the adaptive management provisions of the Order ensure that the Permittees will evaluate monitoring data and other new information every two years and consider progress up to that point on achieving WQBELs and other TMDL-specific limitations. Permittees are required as part of the adaptive management process to propose modifications to improve the effectiveness of the WMP/EWMP and implement those modifications.[114]

While we are supportive of all of these measures, we find that they should be strengthened. As a preliminary matter, we will require the Permittees to submit specific information, concurrently with the two-year adaptive management process, that will assist the Los Angeles Water Board in determining how effective the WMP/EWMP path is in spurring the completion of on-the-ground structural control measures that lead to measurable water quality improvement. As we discuss further in Section II.B.8 of this Order, we will direct the Los Angeles Water Board to report to the State Water Board periodically on the effectiveness of the WMP/EWMP approach and expect the additional information submitted by the Permittees to inform that report.

More significantly, we will add a provision that requires Permittees to comprehensively update the reasonable assurance analysis and the WMP/EWMP, following an opportunity to implement the adaptive management process. Given the limitations inherent in models, as well as the potential incentive to choose the lowest effort and cost level predicted by the model to achieve receiving water limitations,[115] we are concerned that reliance on one initial reasonable assurance analysis is insufficient to ensure that in the long term WMPs/EWMPs will

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part of the Administrative Record. We nevertheless take this opportunity to state that we expect any revisions and updates to the guidance to be subject to a public process as part of reissuance of the Los Angeles MS4 Order.

[114] Los Angeles MS4 Order, Part VI.C.8., pp. 66-67. We add that the adaptive management process will also allow Permittees to revise their WMPs/EWMPs to take advantage of funding opportunities as they arise in the future, including funding opportunities through Assembly Bill 2403 (approved by Governor, June 28, 2014 (2013-2014 Reg. Sess.)) and Proposition 1 (approved by ballot Nov. 4, 2014). We are cognizant of criticism that the adaptive management process is just another version of the ineffective iterative process of the receiving water limitations. These arguments are misplaced. Unlike the iterative process of the receiving water limitations, the adaptive management process is only one component of a series of actions required under the WMP/EWMP and acts as a periodic check to ensure that all the other requirements are achieving the stated goals of the WMP/EWMP within clearly stated deadlines. As our discussion above makes clear, we would not endorse an alternative compliance path with the sole requirement to adaptively manage implemented control measures. Further, the adaptive management process in the Los Angeles MS4 Order differs from the iterative process in that Permittees must carry out the adaptive management process every two years, limiting any discretionary determination as to when the program must be evaluated. (Los Angeles MS4 Order, Part VI.C.8.a.)

[115] The numerical analysis methods and models approved for use by Permittees for estimating hydrologic conditions and contaminant fate and transport in the watersheds should, in principle, be able to propagate any and all known uncertainty to the outputs and results. It is in the public interest that the Los Angeles Water Board communicate this uncertainty to all stakeholders, as the results in most cases will affect the beneficial uses of California waters. Moreover, it is highly desirable that, to the extent possible, the Los Angeles Water Board define a minimum level of uncertainty (or level of confidence) acceptable for a reasonable assurance analysis to be approved.

achieve relevant water quality goals. . Currently, as stated above, the Permittees are required to implement the adaptive management process every two years from the date of program approval. Under the provision we add, the Permittees will be required to comprehensively update the reasonable assurance analysis (including potentially considering whether the model itself and its assumptions require updating) and the WMP/EWMP after several years of adaptive management, based on previous years' monitoring data and other performance measures. The Permittee will submit a full revised package to the Los Angeles Water Board Executive Officer for approval, following public review.

Given that the WMPs/EWMPs in many cases address water quality targets that are to be achieved a decade or more in the future, a periodic, complete re-consideration and recalibration of the assumptions and predictions that support the proposed control measures and implementation schedule in light of new data, above and beyond the two-year adaptive management requirements of the Los Angeles MS4 Order, is essential, notwithstanding the additional time and effort that Permittees must expend on the update. We also recognize that such review is a staff intensive process for the Los Angeles Water Board, but addressing storm water impacts is a priority for that Board. Although we expect that the update will be necessary in most cases, the new requirements provide that the Executive Officer of the Los Angeles Water Board may waive the requirement for an update if the Permittee demonstrates through water quality monitoring that the WMP/EWMP is meeting appropriate targets. Our direction to require a comprehensive update of the reasonable assurance analyses and the WMPs/EWMPs after several cycles of adaptive management should in no way be construed as limiting the Los Angeles Water Board Executive Officer's discretion to request such updates earlier in the implementation process or the obligation of the Permittees to initiate such updates earlier in the implementation process based on the ongoing adaptive management process.

The second added provision will not be relevant for the permit term of the order before us; however, we anticipate that the next iteration of an MS4 Order for the Los Angeles area will closely track the Los Angeles MS4 Order to allow for continued implementation of the WMP/EWMPs.

We shall amend Part VI.C.8 by adding new subsections a.iv. and b. as follows:

a.

iv. Permittees shall report the following information to the Regional Water Board concurrently with the reporting for the adaptive management process:

(1) On-the-ground structural control measures completed;

(2) Non-structural control measures completed;

(3) Monitoring data that evaluates the effectiveness of implemented control measures in improving water quality;

(4) Comparison of the effectiveness of the control measures to the results projected by the RAA;

(5) Comparison of control measures completed to date with control measures projected to be completed to date pursuant to the Watershed Management Program or EWMP;

(6) Control measures proposed to be completed in the next two years pursuant to the Watershed Management Program or EWMP and the schedule for completion of those control measures;

(7) Status of funding and implementation for control measures proposed to be completed in the next two years.

b. Watershed Management Program Resubmittal Process

i. In addition to adapting the Watershed Management Program or EWMP every two years as described in Part VI.C.8.a., Permittees must submit an updated Watershed Management Program or EWMP with an updated Reasonable Assurance Analysis by June 30, 2021, or sooner as directed by the Regional Water Board Executive Officer or as deemed necessary by Permittees through the Adaptive Management Process, for review and approval by the Regional Water Board Executive Officer. The updated Reasonable Assurance Analysis must incorporate both water quality data and control measure performance data, and any other information informing the two-year adaptive management process, gathered through December 31, 2020. As appropriate, the Permittees must consider any new numeric analyses or other methods developed for the reasonable assurance analysis. The updated Watershed Management Program or EWMP must comply with all provisions in Part VI.C. The Regional Water Board Executive Officer will allow a 60-day public review and comment period with an option to request a hearing. The Regional Water Board Executive Officer must approve or disapprove the updated Watershed Management Program or EWMP by June 30, 2022. The Executive Officer may waive the requirement of this provision, following a 60-day public review and comment period, if a Permittee demonstrates through water quality monitoring data that the approved Watershed Management Program or EWMP is meeting appropriate water quality targets in accordance with established deadlines.

5. Determination of Compliance with Final Requirements

a. Compliance with Final TMDL Requirements[116]

Part VI.E.2.e.i.4. of the Los Angeles MS4 Order provides that Permittees will be deemed in compliance with the final WQBELs and other TMDL-specific limitations if "[i]n drainage areas where Permittees are implementing an EWMP, (i) all non-storm water and (ii) all storm water runoff up to and including the volume equivalent to the 85th percentile, 24 hour event is retained for the drainage area tributary to the applicable receiving water."[117] Part VI.E.2.e.i.4 is one of four options available to the Permittee in Part VI.E.2.e. to be deemed in compliance with WQBELs and other TMDL-specific limitations. The other three options allow a Permittee to establish compliance with a final WQBEL or other TMDL-specific limitation by showing that (1) there are no violations of the final WQBEL; (2) there are no exceedances of the receiving water limitation for the specific pollutant in the receiving water at or downstream of the Permittee's outfall, or (3) there is no direct or indirect discharge from the Permittee's MS4 to the receiving water during any relevant time period.[118] These three options ensure that either the receiving water limitations or WQBELs and other TMDL-specific limitations are in fact being complied with. In contrast, the storm water retention approach assumes compliance with *final* WQBELs and other TMDL-specific limitations, and accordingly, compliance with the receiving water limitations in Part V for the relevant water body-pollutant combinations,[119] even if the final WQBELs and other TMDL-specific limitations are not actually being achieved. The Environmental Petitioners argue that the Los Angeles Water Board has failed to establish through findings and record evidence that the storm water retention approach will in fact achieve compliance with the WQBELs and other TMDL-specific limitations and that the Los Angeles

[116] The Los Angeles MS4 Order additionally deems compliance with *interim* WQBELs and other TMDL-specific limitations if the "Permittee has submitted and is fully implementing an approved" WMP/EWMP. (Los Angeles MS4 Order, Part VI.E.2.d.i.(4), p. 143; see also *id.*, Part VI.C.3.a., p. 53.) Because Permittees are required to incorporate into the WMP/EWMP compliance schedules "compliance deadlines occurring within the permit term for all applicable interim . . . water quality-based effluent limitations and/or receiving water limitations in Part VI.E and Attachments L through R," we expect that in most cases full implementation of the WMP/EWMP necessarily results in compliance with interim WQBELs and other TMDL-specific limitations. However, to the extent this is not the result reached, we find that requiring implementation of the WMP/EWMP with control measures designed to achieve interim WQBELs and other TMDL-specific limitations, in lieu of showing actual compliance with any *interim* numeric requirements, is consistent with the assumptions and requirements of the wasteload allocations of the relevant TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).)

[117] Los Angeles MS4 Order, Part VI.E.2.e.i.(4), p. 145.

[118] *Id.*, Part VI.E.2.e.i.(1)-(3), pp. 144-45.

[119] We note again that Part VI.E.2.c.i. states that Part VI.E establishes the manner of achieving compliance with the receiving water limitations in Part V.A where the receiving water limitations are associated with water body-pollutant combinations addressed in a TMDL.

MS4 Order's reliance on the storm water retention approach for final compliance determination is therefore contrary to the law.

We are supportive of the EWMP's use of the storm water retention approach as a technical requirement. Retention of storm water is likely to be an effective path to water quality improvement. Furthermore, in addition to preventing pollutants from reaching the receiving water except as a result of high precipitation events (which also generally result in significant dilution in the receiving water), the storm water retention approach has additional benefits including recharge of groundwater, increased water supply, reduced hydromodification effects, and creation of more green space to support recreation and habitat.[120]

We have some concerns, however, with the lack of verification in the Los Angeles MS4 Order that final WQBELs and other TMDL-specific limitations or receiving water limitations will in fact be met as a result of implementation of the storm water retention approach. We acknowledge that, in most cases, the final TMDLs have deadlines outside of the permit term for the Los Angeles MS4 Order and that, therefore, with regard to those, our concerns are more theoretical at this point than immediate. Nevertheless, we agree with the Environmental Petitioners that the evidence in the Administrative Record is not sufficient to establish that the storm water retention approach will in all cases result in achievement of final WQBELs and other TMDL-specific limitations and, more importantly, are concerned that the Order itself does not incorporate clear requirements that would provide for such verification in the process of implementation.

With regard to evidence in the Administrative Record, it is clear that the storm water retention approach is a promising approach for achieving compliance with receiving water limitations, with multiple additional environmental benefits. But the research regarding the storm water retention approach is still in early stages and we cannot say with certainty at this point that implementation will lead to compliance with receiving water limitations in all cases.[121]

With that conclusion in mind, we look to the Los Angeles MS4 Order itself to determine if there are sufficient additional provisions to assure that, in the long run, the storm water retention approach will achieve the ultimate goal of compliance with receiving water limitations. We first note that the Order does not require a reasonable assurance analysis when

[120] See e.g. Administrative Record, section 10.VI.C**,** RB-AR29263-29311, RB-AR32318-32350.

[121] We reviewed the citations to the Administrative Record provided in the Los Angeles Water Board October 15, 2013 Response and in the October 15, 2013 Responses of many of the Petitioners. We find that the cited studies show the storm water retention to be a promising approach to meeting water quality standards, but do not establish, at a sufficiently high level of confidence, that the storm water retention approach will definitively achieve compliance with the receiving water limitations.

a Permittee opts for the storm water retention approach. Permittees are required to conduct a reasonable assurance analysis for each water body-pollutant combination addressed by a WMP, with the objective of demonstrating the ability of the controls to ensure that MS4 discharges achieve applicable WQBELs and do not cause or contribute to exceedances of receiving water limitations.[122] The relevant provisions reference EWMPs, but elsewhere the Order states that the reasonable assurance analysis is only required for areas covered by the EWMP where retention of the 85th percentile, 24-hour storm event is not feasible.[123] The Fact Sheet also implies that the requirement for a reasonable assurance analysis is confined to situations where the storm water retention approach is not feasible.[124] In sum, then, Permittees that choose to develop and implement an EWMP are required to conduct a reasonable assurance analysis for each waterbody-pollutant combination addressed by the EWMP, except in the drainage areas that are tributary to the storm water retention projects.

The fact that the storm water retention approach does not require a reasonable assurance analysis prior to implementation to demonstrate the ability of the approach to achieve compliance with the limitations is mitigated in part by required monitoring and adaptive management to verify compliance following implementation. Although the provision could be clearer, we read the language "[i]n drainage areas where Permittees are implementing an EWMP" in Part VI.E.2.e.i.(4) to require Permittees to be in compliance with all aspects of the EWMP, including the monitoring and adaptive management provisions of Parts VI.C.7 and 8, to be deemed in compliance with final limitations through the storm water retention approach. As we read the Order, a Permittee's showing that it has retained all non-storm water and all storm water up to and including the volume equivalent to the 85th percentile, 24-hour event, establishes compliance, but only if the Permittee continues to conduct monitoring and adapt the EWMP in response to the monitoring. The Los Angeles Water Board appears to read the Order the way we do, as it states in its October 15, 2013 Response that "the Permit requires monitoring and adaptive management, which will continue to inform the Los Angeles Water Board regarding the efficacy of this storm water retention approach in conjunction with implementation of the other storm water management program elements and any needed

[122] Los Angeles MS4 Order, Part VI.C.5.b.iv.(5), pp. 63-64.

[123] *Id.*, Part VI.C.1.g., p. 48.

[124] *Id.*, Att. F, Fact Sheet, p. F-39.

modifications to the approach."[125] The Los Angeles Water Board further states in comments submitted on a draft of this order, as follows:

> The Los Angeles MS4 Order does not exclude EWMPs or areas within an EWMP where the stormwater retention standard is achieved from the integrated watershed monitoring, assessment and adaptive management processes. Neither does the Los Angeles MS4 Order specify or contemplate an end to the monitoring, assessment and adaptive management processes in the case of a Watershed Management Program (WMP) or EWMP. These required elements, including receiving water and outfall monitoring, evaluation of these monitoring data, and modification of the EWMP to improve its effectiveness, will be continually conducted throughout the Watershed Management Area addressed by the EWMP. . . . The Los Angeles Water Board understood that these regional multi-benefit projects would take time to implement and that Permittees needed to be afforded this time in the Los Angeles MS4 Order. The Los Angeles Water Board will continually evaluate progress during the implementation period. If, as full implementation nears, some Receiving Water Limitations are still not achieved, the Los Angeles Water Board and State Water Board have a variety of tools that can be used at a regional or statewide level including reconsideration of TMDLs, Basin Planning actions, policy development and permitting, among others.[126]

We will make a revision to Part VI.E.2.e.i. to make it clear that the Permittee must be in compliance with all other requirements of the EWMP in addition to implementation of the storm water retention approach in order to be deemed in compliance with the final WQBELs and other TMDL-specific limitations.

With no definitive evidence in the record establishing that the storm water retention approach will achieve final requirements, no reasonable assurance analysis required at the outset, and reliance only on subsequent monitoring and adaptive management to improve results if final limitations are not in fact achieved, the storm water retention approach does not provide a level of assurance of success that would lead us to conclude that its implementation, with nothing else, is sufficient to constitute compliance with final WQBELs and other TMDL-specific limitations. We understand that there are nevertheless very good reasons to encourage its use. Certainly for all non-storm water and for all storm water generated in storms up to the 85th percentile storm, the storm water retention approach achieves compliance because there is no discharge. And there are significant benefits beyond water quality, including most importantly benefits to water supply. We also believe that public projects requiring investment of this magnitude are unlikely to be carried out without a commitment from the water boards that Permittees will be considered in compliance even if the resulting improvement in water quality

[125] Los Angeles Water Board, October 15, 2013 Response, p. 62.

[126] Los Angeles Water Board, Comment Letter, January 21, 2015, pp. 2-3.

does not rise all the way to complete achievement of the final WQBELs and other TMDL-specific limitations.

We are not willing to go as far as saying that compliance with the storm water retention approach alone constitutes compliance with final WQBELs and other TMDL-specific limitations for all time, regardless of the actual results.[127] Nonetheless, we anticipate that implementation of such projects will bring the drainage area most and, in many cases, all of the way to achievement of water quality standards. Where there is still a gap in required water quality improvement, we expect the Executive Officer of the Los Angeles Water Board to require appropriate actions, consistent with the provisions of the Los Angeles MS4 Order and the Los Angeles Water Board's stated interpretation of those provisions,[128] to close that gap with additional control measures in order for the Permittee to be considered in compliance with the WQBEL or other TMDL-specific limitation. There are various mechanisms to provide assurances that additional control measures will be implemented to achieve the WQBEL or other TMDL-specific limitation, and in some instances, it may be appropriate for the Los Angeles Water Board to issue a time schedule order governing the implementation of further control measures. Further, as acknowledged by the Los Angeles Water Board in its comments, in some circumstances, reconsideration of the underlying TMDLs and the final deadlines within those TMDLs may instead be warranted.[129] We additionally recognize that municipal storm water management is an area of continued development and, with continued research and data evaluation, water quality standards may evolve and become more nuanced or sophisticated over time.

While we decline to interpret the storm water retention approach to, in and of itself, constitute compliance with final WQBELs and other TMDL-specific limitations, we emphasize here that any additional control measures to reach compliance that may be required by the Los Angeles Water Board must not require changes to installed storm water retention projects. Any revisions should be prospective in nature and should not disturb projects that Permittees have already installed in good faith to comply with the provisions of their EWMP.

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[127] Further, Permittees still have substantial incentive to develop and implement an EWMP. If a permittee pursues an EWMP, it will be deemed in compliance with the receiving water limitations during the EWMP development phase, and it may also recognize significant non-water quality benefits.

[128] Los Angeles Water Board, Comment Letter, January 21, 2015, pp. 2-3. As explained in footnote 110, at this time we see limited options available to the Los Angeles Water Board in addressing compliance with final deadlines for WQBELs and other TMDL-specific limitations.

[129] We also acknowledge the need for and commit to supporting state-wide solutions for source reduction as appropriate, similar to the brake pad legislation adopted to address copper discharges. (Senate Bill 346 (approved by the Governor September 27, 2010).)

Ultimately, we must set out to verify through appropriate monitoring that final WQBELs and other TMDL-specific limitations can be achieved through the storm water retention approach, or be willing to revise that approach. However, new or additional measures required at that point should be additive to the storm water retention approach measures already installed.

In sum, despite the uncertainty inherent in allowing the storm water retention approach, we concur in its use in the Los Angeles MS4 Order, with the clarification that ultimate compliance is subject to continued planning, monitoring and adaptive management. We shall amend Part VI.E.2.e.i. as follows:

> i. A Permittee shall be deemed in compliance with an applicable final water quality-based effluent limitation and final receiving water limitation for the pollutant(s) associated with a specific TMDL if any of the following is demonstrated:
>
> . . .
>
> (4) In drainage areas where Permittees are implementing an EWMP, (i) all non-storm water and (ii) all storm water runoff up to and including the volume equivalent to the 85th percentile, 24 hour event is retained for the drainage area tributary to the applicable receiving water**, and the Permittee is implementing all requirements of the EWMP, including, but not limited to, Parts VI.C.7 and VI.C.8 of this Order**. This provision (4) shall not apply to final trash WQBELs.

b. Compliance with Final Receiving Water Limitations

The Los Angeles MS4 Order states that for receiving water limitations associated with water-body pollutant combinations addressed in a TMDL, compliance with the TMDL requirements of the Order in Part VI.E and Attachments L through R constitutes compliance with the receiving water limitations in Part V.A.[130] In other words, if there is an exceedance for a pollutant in a water body that has a TMDL addressing that pollutant, as long as the Permittee is complying with the requirements for the TMDL, the Permittee is deemed in compliance with the receiving water limitation. No petitioner has contested this provision and we find that it constitutes an appropriate approach to compliance with receiving water limitations for water body-pollutant combinations that are addressed by a TMDL.

For exceedances of receiving water limitations for a water body-pollutant combination not addressed by a TMDL, as previously discussed, the Permittee must either incorporate control measures to address the exceedances into the Permittee's WMP/EWMP or comply directly with the receiving water limitations provisions of Part V.A of the Order. For

[130] Los Angeles MS4 Order, Part VI.E.2.c.ii., p. 143.

Permittees that choose the WMP/EWMP approach, the WMP/EWMP must incorporate "a final date for achieving the receiving water limitation."[131] To the extent the Permittee does not achieve the limitation by that final date and does not request and receive an extension, the Permittee has "fail[ed] to meet [a] requirement or date for its achievement in an approved Watershed Management Program or EWMP"[132] and is immediately subject to the receiving water limitations provisions of the Order, with the same result that it is out of compliance. In other words, implementation of non-structural and structural control measures in accordance with the timelines established in the WMP/EWMP constitutes compliance with the receiving water limitations up until the final deadline for achievement of the relevant receiving water limitation; however, at the deadline for final compliance, there must be verification of achievement based on the receiving water limitation itself. While we find that the Order provisions lead to this result as written, for the sake of greater clarity, we will specifically state that final compliance with receiving water limitations must be determined through verification that the receiving water limitation is actually being achieved.

We shall amend Part VI.C.2.c. as follows:

> **c.** If a Permittee fails to meet any requirement or date for its achievement in an approved Watershed Management Program or EWMP, the Permittee shall be subject to the provisions of Part V.A. for the waterbody-pollutant combination(s) that were to be addressed by the requirement. **For water body-pollutant combinations that are not addressed by a TMDL, final compliance with receiving water limitations is determined by verification through monitoring that the receiving water limitation provisions in Part V.A.1 and 2 have been achieved.**

c. Compliance with the Non-Storm Water Discharge Prohibition

The Environmental Petitioners suggest that the Los Angeles MS4 Order is unclear as to whether compliance with the WMP/EWMP may also constitute compliance with the non-storm water discharge prohibition of the Order. We disagree that the Los Angeles MS4 Order is unclear on this issue. The Permittees' obligation to comply with the receiving water limitations and WQBELs and other TMDL-specific limitations in Parts V.A and VI.E is independent of the Permittees' obligation to comply with the effective prohibition of non-storm water discharges in Part III.A. The several provisions stating that Permittees will be deemed to be in compliance with the receiving water limitations of the Los Angeles MS4 Order for implementing the WMP/EWMP specifically reference Parts V.A and VI.E of the Order and not

[131] *Id.*, Part VI.C.5.c.iii.(3)(b), p. 65.

[132] *Id.*, Part VI.C.2.c., p. 52.

III.A.[133] This notwithstanding, Parts VI.C.1.d and VI.C.5.b.iv.(2) require that a Permittee's WMP/EWMP include program elements and control measures to effectively prohibit non-storm water discharges consistent with Part III.A and Part VI.D.4.d or VI.D.10. Therefore, a Permittee's implementation of program elements and control measures consistent with Part III.A and Part VI.D.4.d or VI.D.10, through its approved WMP/EWMP, may provide a mechanism for compliance with Part III.A. Although we accordingly see no need to direct revisions to the Order, we provide this clarification here to respond to the Environmental Petitioners' concern and address any confusion that may exist.

6. "Safe Harbor" During the Planning Phase for the WMP/EWMP

Under the Los Angeles MS4 Order, a Permittee that has declared its intention to develop a WMP/EWMP is deemed in compliance with the receiving water limitations and with interim WQBELs with due dates prior to approval of the WMP/EWMP for the water body-pollutant combinations the WMP/EWMP addresses, provided it meets certain conditions, even though the Permittee is developing, not implementing the WMP/EWMP. Specifically, the Permittee is deemed in compliance if the Permittee (1) provides timely notice of its intent to develop a WMP/EWMP; (2) meets all interim and final deadlines for development of a WMP/EWMP; (3) targets implementation of watershed control measures in the existing program

[133] Los Angeles MS4 Order, Parts VI.C.2.b., p. 52, VI.C.3.a., p. 53, VI.E.2.c.ii., p. 143, VI.C. 2.d., pp. 52-53, VI.E.2.d.i.(4)(d), p. 144. To the extent that a non-storm water discharge authorized by Part III.A may be causing or contributing to an exceedance of receiving water limitations in V.A, compliance with the WMP/EWMP provisions would constitute compliance with the receiving water limitations and any relevant interim WQBELs and other TMDL-specific limitations, as long as the WMP/EWMP addresses the water body-pollutant combination for that water body. However, the discharger would have to additionally comply with requirements in Part III.A. and Part VI.D.4.d or VI.D.10 through its approved WMP/EWMP for conditionally exempt non-storm water discharges that are found to cause or contribute to an exceedance in the receiving water. (See *id.*, Part III.A.4.c.-e., pp. 31-32.) We disagree that every discharge from a Permittee's MS4 to the receiving water of non-storm water that is not specifically authorized under Part III.A will necessarily be subject to enforcement under the Los Angeles MS4 Order. Section 402(p)(3)(B)(ii) of the Clean Water Act imposes a requirement to "effectively prohibit" non-storm water discharges. Part III.A of the Los Angeles MS4 Order effectuates that requirement with a requirement for the Permittee to prohibit non-storm water discharges: "Each Permittee shall, for the portion of the MS4 for which it is an owner or operator, prohibit non-storm water discharges through the MS4 to receiving waters, except where such discharges are . . . [listing exceptions]." (Los Angeles MS4 Order, Part III.A.1, p. 27.) The Los Angeles MS4 Order incorporates a specific and detailed programmatic requirement – the Illicit Connections and Illicit Discharges Elimination Program – for the Permittees to achieve their obligation to effectively prohibit non-storm water discharges. (Los Angeles MS4 Order, Parts VI.D.4.d., pp. 81-86, VI.D.10, pp. 137-141.) We recognize that even the most comprehensive efforts to address unauthorized non-storm water discharges may not eliminate all such discharges. Where a Permittee is fully implementing its Illicit Connections and Illicit Discharges Elimination Program, either pursuant to Parts VI.D.4.d. or VI.D.10, or by incorporation of customized actions into a WMP/EWMP as approved by the Los Angeles Water Board (see Los Angeles MS4 Order Part VI.D.1.a., p. 67), we would expect any enforcement action under Part III.A to be supported by a fact-specific analysis of the nature and source of the unauthorized non-storm water discharge and the efforts of the Permittee to prohibit the discharge.

to address known contributions of pollutants; and (4) receives approval of the WMP/EWMP within the specified time periods.[134]

The Environmental Petitioners object to the availability of a "safe harbor" during the planning phase. We disagree with the Environmental Petitioners that providing a "safe harbor" in the planning phase is disallowed by applicable law -- see our discussion of anti-backsliding requirements in section II.B.1. and antidegradation requirements in section II.B.2. However, we understand that deeming a discharger in compliance with receiving water limitations during the planning phase, not just the implementation phase, could weaken the incentive for Permittees to efficiently and timely seek approval of a WMP/EWMP and to move on to implementation. It is the implementation of the WMP/EWMP that will in fact lead to progress toward compliance with receiving water limitations; the planning phase is essential, but should be only as long as necessary for a well-planned program with carefully analyzed controls to be developed. Given the significance of the water quality issues addressed by the WMP/EWMPs, it is paramount that implementation begin as soon as feasible. Accordingly, the "safe harbor" in the planning phase is appropriate only if it is clearly constrained in a manner that sustains incentives to move on to approval and implementation and is structured with clear, enforceable provisions.

Having reviewed the planning sections of the WMP/EWMP provisions carefully, we find that the Los Angeles MS4 Order does sufficiently constrain the planning phase, so that the "safe harbor" provided is not unreasonable. As already stated, compliance is deemed only if the Permittee is meeting the relevant deadlines for development and approval of the WMP/EWMP.[135] There are no provisions in the Order that allow for extensions to these deadlines. If a Permittee fails to obtain approval within the allowed number of months for the development of a WMP/EWMP, the Order states that the Permittee must then instead demonstrate actual compliance with receiving water limitations and with applicable interim WQBELs.[136] The Los Angeles MS4 Order is also clear that achievement of any TMDL-associated final deadlines occurring prior to the approval deadlines for the WMP/EWMP cannot be excused through commitment to planning for a WMP/EWMP.[137]

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[134] *Id.*, Parts VI.C.2.d., p. 52, VI.C.3.b., p. 53, VI.E.2.d.i.(4)(d), p. 144.

[135] *Id.*, Parts VI.C.2.d., p. 52, VI.C.3.b., p. 53, VI.E.2.d.i.(4)(d), p. 144.

[136] *Id.*, Part VI.C.4.e., p. 58.

[137] *Id.*, Parts VI.C.3.c., p. 53, VI.C.4.d.iii, p. 58. Under Part VI.C.4.d.iii., Permittees must ensure that MS4 discharges achieve compliance with interim, in addition to final, trash WQBELs during the planning phase.

Further, Permittees are subject to a number of conditions during the planning phase that will ensure that progress toward achievement of receiving water limitations is not put on hold pending approval of the plan. These include requirements to put in place Low Impact Development (LID) ordinances and green streets policies[138] and to continue to implement watershed control measures in the existing storm water management programs, including those to eliminate non-storm water discharges,[139] but in a manner that is targeted to address known pollutants.[140]

Given the clear, enforceable requirements limiting the planning phase of the WMP/EWMP provisions, we find that the Los Angeles MS4 Order's inclusion of provisions deeming compliance with the receiving water limitations and with interim WQBELs during development of the programs is reasonable.

In fact, we are concerned that the Los Angeles Water Board has left no room for any deviation from the prescribed development schedule for WMP/EWMPs. A Permittee working in good faith to develop a WMP/EWMP over multiple months may encounter an issue that requires it to ask for a short extension on an interim or final deadline. Under such circumstances, the Los Angeles Water Board should be able to consider the request for the extension, rather than have its hands tied and have to reject a WMP/EWMP based on lack of timeliness. We will add a provision to the Order that provides the Los Angeles Water Board or its Executive Officer discretion in granting such extensions, but the Permittee will not be deemed in compliance with the applicable receiving water limitations and WQBELs during the period of the extension.

We shall add a new Part VI.C.4.g. as follows:

g. Permittees may request an extension of the deadlines for notification of intent to develop a Watershed Management Program or EWMP, submission of a draft plan, and submission of a final plan. The extension is subject to approval by the Regional Water Board or the Executive Officer. Permittees that are granted an extension for any deadlines for development of the WMP/EWMP shall be subject to the baseline requirements in Part VI.D and shall demonstrate compliance with receiving water limitations pursuant to Part V.A. and with applicable interim water quality-based effluent limitations in Part VI.E pursuant to subparts VI.E.2.d.i.(1)-(3) until the Permittee has an approved WMP/EWMP in place.

[138] *Id.*, Part VI.C.4.c., pp. 56-57.

[139] *Id.*, Part VI.C.4.d.i.-ii., pp. 57-58.

[140] *Id.*, Parts VI.C.2.d.iii., pp. 52-53, VI.C.3.b.iii., p. 53, VI.E.2.d.i.(4)(d)(3), p. 144.

7. Conclusion

In conclusion, we uphold the WMP/EWMP provisions as a reasonable alternative compliance option for meeting receiving water limitations and uphold the WMP/EWMP provisions in all other aspects, except as specifically stated above. We find that the WMP/EWMP approach is a clearly defined, implementable, and enforceable alternative to the receiving water limitations provisions that we mandated in Order WQ 99-05, and that the alternative provides Permittees an ambitious, yet achievable, path forward for steady and efficient progress toward achievement of those limitations while remaining in compliance with the terms of the permit.

We direct all regional water boards to consider the WMP/EWMP approach to receiving water limitations compliance when issuing Phase I MS4 permits going forward.[141] In doing so, we acknowledge that regional differences may dictate a variation on the WMP/EWMP approach, but believe that such variations must nevertheless be guided by a few principles.[142] We expect the regional water boards to follow these principles unless a regional water board makes a specific showing that application of a given principle is not appropriate for region-specific or permit-specific reasons.

1. The receiving water limitations provisions of Phase I MS4 permits should continue to require compliance with water quality standards in the receiving water and should not deem good faith engagement in the iterative process to constitute such compliance. The Phase I MS4 permits should therefore continue to use the receiving water limitations provisions as directed by State Water Board Order WQ 99-05.

[141] We acknowledge that small MS4s permitted under the statewide General Permit for WDRs for Storm Water Discharges from Small MS4s (Order No. 2013-0001-DWQ) (General Phase II MS4 Permit) have similar practical issues as Phase I permittees in complying with receiving water limitations. Nevertheless, because the General Phase II MS4 Permit is issued by the State Water Board, not the regional water boards, we limit our guidance to regional water boards to the Phase I permits. The State Water Board is committed to working with small MS4s, the regional water boards, and interested persons in developing an alternative compliance option for the General Phase II MS4 Permit.

[142] In considering appropriate guidance for regional water boards drafting alternative compliance paths in municipal storm water permits, we have reviewed the proposed "strategic compliance program" model language that was submitted by the California Stormwater Quality Association (CASQA) and supported in whole or in part by a number of interested persons. (CASQA August 15, 2013 Receiving Water Limitations Submission, Attachment A, Section E.) While we have not in these proceedings adopted the CASQA language, or, for that matter, any specific language, for alternative compliance path provisions, regional water boards remain free to consider and incorporate the CASQA approach into their municipal storm water permits to the extent they determine and document that the approach, including any modifications, satisfies the principles we set out in this section as well as all other direction we have provided in this order.

2. The Phase I MS4 permits should include a provision stating that, for water body-pollutant combinations with a TMDL, full compliance with the requirements of the TMDL constitutes compliance with the receiving water limitations for that water body-pollutant combination.
3. The Phase I MS4 permits should incorporate an ambitious, rigorous, and transparent alternative compliance path that allows permittees appropriate time to come into compliance with receiving water limitations without being in violation of the receiving water limitations during full implementation of the compliance alternative.
4. The alternative compliance path should encourage watershed-based approaches, address multiple contaminants, and incorporate TMDL requirements.
5. The alternative compliance path should encourage the use of green infrastructure and the adoption of low impact development principles.
6. The alternative compliance path should encourage multi-benefit regional projects that capture, infiltrate, and reuse storm water and support a local sustainable water supply.
7. The alternative compliance path should have rigor and accountability. Permittees should be required, through a transparent process, to show that they have analyzed the water quality issues in the watershed, prioritized those issues, and proposed appropriate solutions. Permittees should be further required, again through a transparent process, to monitor the results and return to their analysis to verify assumptions and update the solutions. Permittees should be required to conduct this type of adaptive management on their own initiative without waiting for direction from the regional water board.

8. Direction to the Los Angeles Water Board to Report to the State Water Board on Implementation

We recognize that our review has been limited to the provisions of the Los Angeles MS4 Order. The success of the WMP/EWMP approach depends in large part on the steps that follow adoption of these provisions, i.e., the effort invested by Permittees in developing WMPs/EWMPs that truly address the stringent provisions of the Order, the precision with which the Los Angeles Water Board reviews the draft programs and requires revisions, and, most importantly, the actual implementation and appropriate enforcement of the programs once approved. The work going forward must ensure that the WMPs/EWMPs in fact exhibit the rigor and accountability the provisions of the Los Angeles MS4 Order demand. We expect that the Los Angeles Water Board will make careful oversight and enforcement a priority and that they will be aided in this process by the public review and comment opportunities built into the terms of the Order.

The process of developing the WMPs/EWMPs is currently ongoing -- the Los Angeles Water Board has been reviewing draft and revised draft WMPs and workplans for EWMPs – and, although we have been asked by the Environmental Petitioners to take official notice of some of the submissions and conditional approvals in the process, it is premature for the State Water Board to speak to the sufficiency of the resulting WMPs/EWMPs until the Los Angeles Water Board, with full input from the stakeholders, has had the opportunity to consider, revise, and finally approve the programs. We note again that all documents submitted to the Los Angeles Water Board Executive Officer for approval are subject to a 30-day public comment period[143] and that any formal determination or approval by the Executive Officer may be reviewed by the Los Angeles Water Board upon request by an interested person.[144] And an interested person may petition the State Water Board to review an action or failure to act of the Los Angeles Water Board.[145]

Once the WMPs/EWMPs are approved, ensuring that they are diligently and timely implemented must remain a top priority for the Los Angeles Water Board. We expect that the Los Angeles Water Board will continue to work cooperatively and closely with the Permittees, the Environmental Petitioners, and other interested persons in this process, but that the Board will also use its enforcement authority to ensure that appropriate progress is made toward water quality goals. We intend to remain involved in this process, as we must learn statewide from the successes and shortcomings of the approach we are endorsing with this order. We accordingly direct the Los Angeles Water Board to report to us on progress in implementation of the WMPs/EWMPs, and progress in improving water quality during this and the next permit term by February 28, 2018, by February 29, 2020, and by March 31, 2022. Specifically, we ask that the Los Angeles Water Board report on region-wide data for the following:

- On-the-ground structural control measures completed;
- Non-structural control measures completed;
- Monitoring data that evaluates the effectiveness of implemented control measures in improving water quality;

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[143] Los Angeles MS4 Order, Part V.A.5.b, p. 42.

[144] *Id*., Part V.A.6, p. 42.

[145] Wat. Code, § 13320. On April 28, 2015, the Executive Officer of the Los Angeles Water Board conditionally approved several submitted WMPs. On May 28, 2015, the Environmental Petitioners filed a petition challenging the conditional approvals and requesting review by the Los Angeles Water Board and by the State Water Board of the Executive Officer's determination.

- Comparison of the effectiveness of the control measures to the results projected by the reasonable assurance analyses;
- Comparison of control measures completed to date with control measures projected to be completed to date pursuant to the WMPs/EWMPs;
- Control measures proposed to be completed in the next two years pursuant to the WMPs/EWMPs and the schedule for completion of those control measures;
- Status of funding and implementation for control measures proposed to be completed in the next two years;
- Trends in receiving water quality related to pollutants typically associated with storm water;
- Available permit compliance data, including requests for compliance extensions;
- Enforcement actions taken and results.

In addition to covering the above information, the third report shall summarize and reflect the comprehensive information gathered through the updates of the reasonable assurance analyses and WMPs/EWMPs conducted by the Permittees in the second permit term.

C. Appropriateness of TMDL Requirements

Section 303(d) of the Clean Water Act requires the water boards to identify impaired water bodies that do not meet water quality standards after applying required technology-based effluent limitations.[146] TMDLs are developed by either the regional water boards or by USEPA in response to section 303(d) listings of impaired water bodies. A TMDL is defined as the sum of the individual wasteload allocations for point sources of pollution, the load allocations for nonpoint sources of pollution, and the contribution from background sources of pollution,[147] and represents the maximum amount of a pollutant that a water body may receive and still achieve water quality standards. TMDLs developed by regional water boards include implementation provisions[148] and are typically incorporated into the regional water board's water quality control plan.[149] TMDLs developed by USEPA typically contain the total load and load allocations required by section 303(d), but do not set out comprehensive implementation provisions.[150] Most TMDLs are not self-executing, but instead rely upon subsequently-issued permits to impose requirements on discharges that implement the TMDLs' wasteload

[146] 33 U.S.C. § 1313(d).

[147] 40 C.F.R. § 130.2(i).

[148] Wat. Code, §§ 13050, subd. (j), 13242.

[149] See 40 C.F.R. §§ 130.6(c)(1).

[150] *Am. Farm Bureau Fed'n v. U.S. E.P.A.* (M.D. Pa. 2013) 984 F. Supp. 2d 289, 314.

allocations.[151] The Los Angeles MS4 Order includes TMDL-specific requirements that implement 33 TMDLs (twenty-five adopted by the Los Angeles Water Board, seven established by USEPA, and one adopted by the Santa Ana Regional Water Quality Control Board that assigned requirements to two Permittees of the Los Angeles MS4 Order) in Part VI.E and in Attachments L-R.

Petitioners raise a number of challenges to the TMDL-based requirements of the Los Angeles MS4 Order. We take up several of those arguments in this section.[152]

1. Inclusion of Numeric WQBELs

Permittee Petitioners argue that the numeric WQBELs incorporated into the Los Angeles MS4 Order as TMDL-based limitations are contrary to the Clean Water Act and to state law and policy. We disagree.

Under the federal regulations implementing the Clean Water Act, effluent limitations in NPDES permits developed to achieve water quality standards must be consistent with the assumptions and requirements of any available wasteload allocation for the discharge.[153] In addition, the Porter-Cologne Act requires that waste discharge requirements implement any relevant water quality control plans,[154] including TMDL requirements that have been incorporated into the water quality control plans. The Los Angeles MS4 Order incorporates numeric WQBELs and other limitations that the Los Angeles Water Board found are consistent with the TMDL requirements applicable to the Permittees.

Permittee Petitioners argue that there is no requirement under federal law for incorporation of TMDL requirements into an MS4 permit and that the inclusion of the requirements in Part VI.E and in Attachments L-R was therefore at the discretion of the Los Angeles Water Board. They point out, as we acknowledged in section II.A, that MS4 discharges must meet a technology-based standard of prohibiting non-storm water discharges and reducing pollutants in the discharge to the MEP, but that requirements to strictly meet water quality standards are at the discretion of the permitting agency.[155] Because TMDL requirements are a path to achieving water quality standards, the Permittee Petitioners argue, the Los Angeles Water Board had the discretion not to include them in the Los Angeles MS4 Order.

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[151] *City of Arcadia v. EPA* (N.D. Cal. 2013) 265 F.Supp.2d 1142, 1144-1145.

[152] We note that we do not take up any arguments that challenge the terms of the TMDLs. Those arguments should have been made during the public process when the TMDLs were adopted. They are untimely now.

[153] 40 C.F.R. § 122.44(d)(1)(vii)(B).

[154] Wat. Code, § 13263, subd. (a).

[155] 33 U.S.C. § 1342(p); *Defenders of Wildlife*, *supra*, 191 F.3d 1159.

Answering the question of whether the Los Angeles Water Board was required under federal law to strictly effectuate TMDL compliance through the Los Angeles MS4 Order is a largely irrelevant exercise because we have already reaffirmed in this order that we will continue to require water quality standards compliance in MS4 permits. Further, given the back-stop nature of TMDLs, and the fact that each set of dischargers must meet their share of the allocation to reach the total reductions set out, a regime in which municipal storm water dischargers were given a pass on TMDL obligations would render the promise of water quality standards achievement through TMDLs illusory. This is especially true in a large urbanized area where pollutants in storm water constitute a significant share of the impairment and where other dischargers would be disproportionately burdened if MS4s were not held to their allocations. Although not dispositive, we also note that USEPA has assumed in guidance (discussed in more detail below) issued on storm water and TMDL implementation that MS4 permits must incorporate effluent limitations consistent with the assumptions and requirements of relevant wasteload allocations.[156] To the extent the TMDL provisions of the Clean Water Act and the federal regulations could be read to preclude mandatory incorporation of wasteload allocations into an MS4 permit, effluent limitations consistent with those load allocations should nevertheless be required under Clean Water Act section 402, subsection (p)'s direction that the MS4 permit shall require "such other controls" as the permitting authority determines "appropriate for the control of such pollutants."[157] Finally, for TMDLs incorporated into water quality control plans, the implementation plan associated with the TMDL applies to all dischargers named, including MS4 permittees, and the MS4 permits must be consistent with the direction in the water quality control plan.[158]

Having found that the Los Angeles Water Board acted in a manner consistent with federal and state law when it developed WQBELs to address applicable TMDLs, we next turn to whether *numeric* WQBELs were appropriate. We find that the Los Angeles Water Board

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[156] USEPA, Memorandum, "Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs," (Nov. 22, 2002) (2002 USEPA Memorandum); see also USEPA, Memorandum, "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs,' " (Nov. 26, 2014) (2014 USEPA Memorandum). The 2014 USEPA Memorandum replaced a memorandum with the same title issued on November 12, 2010, which was subsequently opened to public comment. (USEPA Statement (March 17, 2011), available at <http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_tmdlwla_comments.pdf> (as of Nov. 18, 2014).)

[157] 33 U.S.C. § 1342(p)(3)(B)(iii). See, e.g., State Water Board Orders WQ 91-03, WQ 91-04, WQ 98-01, WQ 99-05, WQ 2001-15.

[158] Wat. Code, § 13263, subd. (a); see also *State Water Res. Control Bd. Cases* (2006) 136 Cal. App. 4th 674, 730 (noting the obligation of the water boards to follow the program of implementation included in a water quality control plan).

acted within its legal authority when establishing numeric WQBELs, and further that its choice of numeric WQBELs was a reasonable exercise of its policy discretion.

In the context of MS4 discharges, effluent limitations in NPDES permits may be expressed in the form of either numeric limitations or best management practices (BMPs). The federal regulations specifically state that BMP-based effluent limitations may be used to control pollutants for storm water discharges.[159] USEPA has issued two memoranda, on November 22, 2002 (2002 USEPA Memorandum), and on November 26, 2014 (2014 USEPA Memorandum), providing guidance to the states on translating wasteload allocations for storm water into effluent limitations in NPDES Permits.[160] The 2002 USEPA Memorandum contemplated that "the NPDES permitting authority will review the information provided by the TMDL . . . and determine whether the effluent limit is appropriately expressed using a BMP approach (including an iterative BMP approach) or a numeric limit."[161] The 2002 USEPA Memorandum further stated that "EPA expects that most WQBELs for NPDES-regulated municipal . . . storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances."[162] The 2014 USEPA Memorandum, after noting the increased information available to the permitting agencies after more than a decade of experience with setting wasteload allocations and effluent limitations, explained that:

> Where the TMDL includes WLAs for stormwater sources that provide numeric pollutant loads, the WLA should, where feasible, be translated into effective, measurable WQBELs that will achieve this objective. This could take the form of a numeric limit, or of a measurable, objective BMP-based limit that is projected to achieve the WLA. . . . The permitting authority's decision as to how to express the WQBEL(s), either as numeric effluent limitations or as BMPs, with clear, specific, and measurable elements, should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying

[159] 40 C.F.R. § 122.44(k)(2); see also 33 U.S.C. § 1342(p)(3)(B)(iii). 40 Code of Federal Regulations section 122.44(k)(3) further contemplates that BMP-based effluent limitations are appropriate where it is infeasible to develop a numeric effluent limitation.

[160] 2002 USEPA Memorandum; 2014 USEPA Memorandum. In addition to the two memoranda, USEPA published guidance titled "Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits" ((Sept. 1996) 61 Federal Register 57425), which recommended inclusion of BMPs in first-round permits, and expanded or better-tailored BMPs in subsequent permits. In 2005, the State Water Board assembled a blue ribbon panel to address the feasibility of including numeric effluent limits as part of NPDES municipal, industrial, and construction storm water permits. The panel issued a report dated June 19, 2006, which included recommendations as to the feasibility of including numeric limitations in storm water permits. The report concluded that it was not feasible, at that time, to set enforceable numeric effluent limitations for municipal storm water discharges.

[161] 2002 USEPA Memorandum, p. 5.

[162] *Id.*, p. 2.

> WLA, including the nature of the stormwater discharge, available data, modeling results, and other relevant information.[163]

Both options – to choose BMP-based WQBELs or to choose numeric WQBELs – were legally available to the Los Angeles Water Board. In adopting numeric WQBELs, the Los Angeles Water Board analyzed the specific facts and circumstances surrounding storm water discharges in the region and reasonably concluded that numeric WQBELs were warranted because storm water discharges constituted a significant contributor to the water quality standards exceedances in the area and the exceedances had not been to date resolved through BMP-based requirements. Moreover, the Los Angeles Water Board concluded that it could feasibly develop numeric WQBELs following the extensive work already conducted to develop the TMDLs, which involved analyzing pollutant sources and allocating loads using empirical relationships or quantitative models. We will not second-guess the determination of the Los Angeles Water Board, given its extensive and unique role in developing the TMDLs and the permit to implement the TMDLs, that numeric WQBELs were appropriate for the Los Angeles MS4 Order.[164]

We emphasize, however, that we are not taking the position that numeric WQBELs are appropriate in all MS4 permits or even with respect to certain TMDLs within an MS4 permit. In a recent amendment to State Water Board Order 2011-0011-DWQ, NPDES Statewide Storm Water Permit for State of California Department of Transportation (Caltrans),[165] we found BMP-based TMDL requirements to be "consistent with the assumptions and requirements of the WLAs" of the TMDLs applicable to Caltrans. That determination was based on a number of factors including the fact that Caltrans, a single discharger, was named in over 80 TMDLs statewide, the fact that Caltrans had relatively little contribution to the exceedances in each of those TMDLs, and the consideration that there was significant efficiency to be gained by streamlining and standardizing control measure implementation throughout Caltrans' statewide storm water program. Similarly, regional water boards may find BMP-based requirements to be appropriate based on TMDL-specific, region-specific, or permittee-specific

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[163] 2014 USEPA Memorandum, p. 6.

[164] The Los Angeles Water Board incorporated a discussion in the Fact Sheet of how the TMDL wasteload allocations were translated into numeric WQBELs in order to implement the TMDLs in the Los Angeles MS4 Order. (Los Angeles MS4 Order, Att.F, Fact Sheet, pp. F-89-F-100). See 40 C.F.R. § 124.8. We are not independently reviewing the calculations and analyses underlying the specific numeric limitations arrived at by the Los Angeles Water Board; rather, our review has been limited to a determination of whether the choice of numeric rather than BMP-based limitations was reasonable. To the extent any petitioners asked us to independently review the issue in their petitions seeking review of the Order, the issue is dismissed. See fn. 11.

[165] State Water Board Order WQ 2014-0077-DWQ.

considerations. In many ways, the Los Angeles MS4 Order was uniquely positioned to incorporate numeric WQBELs because of the extensive TMDL development in the region in the past decade and the documented role of MS4 discharges in contributing to the impairments addressed by those TMDLs. Thus, while we decline to remove the numeric WQBELs from the Los Angeles MS4 Order, we also decline to urge the regional water boards to use numeric WQBELs in all MS4 permits.[166]

2. Requirement for Reasonable Potential Analysis

The federal regulations implementing NPDES permitting require the permitting authority to establish WQBELs for point source discharges when those discharges cause, have the "reasonable potential" to cause, or contribute to an excursion above water quality standards.[167] Permittee Petitioners argue that the Los Angeles Water Board did not conduct an appropriate reasonable potential analysis prior to imposing numeric WQBELs. The argument is misguided. The Los Angeles Water Board established that the MS4 discharges can cause or contribute to exceedances of water quality standards through the process of developing TMDLs and assigning wasteload allocations. At the permitting stage, the Los Angeles Water Board's legal obligation was to develop WQBELs "consistent with the assumptions and requirements of any wasteload allocation" in the TMDLs,[168] and not to reconsider reasonable potential.[169]

3. USEPA-Established TMDLs

USEPA has established seven TMDLs that include wasteload allocations for MS4 discharges covered by the Los Angeles MS4 Order. In contrast to state-adopted TMDLs, USEPA-established TMDLs do not contain an implementation plan or schedule for achievement of the wasteload allocations,[170] with the effect that Permittees must comply with wasteload allocations immediately. To avoid this result, the regional water board may either adopt a

[166] Relying on the 2014 USEPA Memorandum, Permittee Petitioners also argue that the Los Angeles Water Board was required to disaggregate storm water sources within applicable TMDLs. The 2014 USEPA Memorandum only encourages permit writers to assign specific shares of the wasteload allocation to specific permittees during the permitting process, reasoning that permit writers may have more detailed information than the TMDL writers to assign reductions for specific sources. (2014 USEPA Memorandum, p.8.) In an MS4 system as complex and interconnected as that covered under the Los Angeles MS4 Order, we do not expect the permitting authority to be able to disaggregate wasteload allocations by discharger. Further, as discussed in section II.F. on joint responsibility, the Los Angeles MS4 Order has provided a means for Permittees with commingled discharges to demonstrate that they are not responsible for any given exceedance of a limitation.

[167] 40 C.F.R. § 122.44(d)(1)(iii).

[168] 40 C.F.R. § 122.44(d)(1)(vii)(B).

[169] See USEPA, NPDES Permit Writers Manual (updated September 2010), Chapter 6, section 6.3.3.

[170] See, e.g., *Am. Farm Bureau Fed'n v. U.S. E.P.A., supra,* 984 F. Supp. 2d at p. 314.

separate implementation plan as a water quality control plan amendment[171] or issue the Permittee a compliance order with a compliance schedule.[172] For the seven USEPA-established TMDLs applicable to the Permittees, the Los Angeles Water Board authorizes Permittees subject to a wasteload allocation in a USEPA-established TMDL to propose control measures that will be effective in meeting the wasteload allocation, and a schedule for their implementation that is as short as possible, as part of a WMP/EWMP. [173] Permittees that do not submit an adequate WMP/EWMP are required to demonstrate compliance with the wasteload allocations immediately.[174]

Permittee Petitioners argue that the Los Angeles Water Board has acted inconsistently in requiring BMP-based compliance with the USEPA-established TMDLs but requiring numeric WQBELs for the state-established TMDLs. We have already stated above in section C.1 that the permitting authority has discretion to choose between BMP-based and numeric effluent limitations depending on fact-specific considerations. The Los Angeles Water Board was not restricted to choosing one single uniform approach to implementing all 33 TMDLs in the Los Angeles MS4 Order. In fact, straight-jacketing NPDES permit writers to choose one approach to the exclusion of another, even within the confines of a single MS4 permit, would run afoul of USEPA's expectations in the 2014 USEPA Memorandum for a fact-specific, documented justification for the permit requirements included to implement a wasteload allocation.

The Environmental Petitioners argue that the provisions are contrary to law because they excuse Permittees from complying with final numeric wasteload allocations as long as they are implementing the BMPs proposed in the WMP/EWMP. The approach taken by the Los Angeles MS4 Order to compliance here is similar to the provisions for compliance with receiving water limitations that are not otherwise addressed by a TMDL: The Permittee proposes control measures and a timeline that is as short as possible and is considered in compliance with the final numeric limitations while implementing the control measures consistent with the schedule. We find that, given the absence of an implementation plan with final compliance deadlines specified in the Los Angeles Water Board's water quality control

[171] Wat. Code, § 13242.

[172] *Id.*, See, e.g., § 13300.

[173] The Los Angeles MS4 Order's Fact Sheet states that the Los Angeles Water Board may choose to adopt implementation plans or issue enforcement orders in the future. (Los Angeles MS4 Order, Att. F, Fact Sheet, p. F-111.)

[174] Los Angeles MS4 Order, Part VI.E.3., pp. 145-146.

plan, this approach is consistent with the assumptions and requirements of the relevant wasteload allocations. We will not revise the provisions.

D. Non-Storm Water Discharge Provisions

Permittee Petitioners argue that the non-storm water discharge provisions of the Los Angeles MS4 Order are contrary to the Clean Water Act. Specifically, Permittee Petitioners assert that the Los Angeles MS4 Order improperly regulates non-storm water discharges from the MS4 to the receiving waters by imposing the prohibition of discharge "through the MS4 to the receiving waters" and by imposing WQBELs and other numeric limitations, rather than the MEP standard, on dry weather discharges.

The Los Angeles MS4 Order states that "[e]ach Permittee shall, for the portion of the MS4 for which it is an owner or operator, prohibit non-storm water discharges through the MS4 to receiving waters" with certain exceptions including discharges separately regulated under an NPDES permit and discharges conditionally exempt from the prohibition consistent with the federal regulations.[175] Permittee Petitioners take issue with the imposition of the prohibition "through the MS4 to receiving waters" because the language does not track the specific requirement of the Clean Water Act that the MS4 permit "include a requirement to effectively prohibit non-stormwater discharges *into the storm sewer."* (Emphasis added.)[176]

We find the variation in language to be a distinction without a difference. Whether the Los Angeles MS4 Order prohibits non-storm water discharges *into* the MS4 or *through* the MS4 to receiving waters, the intent and effect of the prohibition is to prevent non-exempt non-storm water discharges from reaching the receiving waters.[177] The legal standard governing non-storm water – effective prohibition -- is not altered because the Los Angeles MS4 Order imposes the prohibition at the point of entry into the receiving water rather than the point of entry into the MS4 itself. Instructively, USEPA has used the terms "into," "from," and "through" interchangeably when describing the prohibition.[178]

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[175] *Id.*, Part III.A, pp 27-33.

[176] 33 U.S.C. § 1342(p)(3)(B)(ii).

[177] The Los Angeles Water Board notes that the language in the Los Angeles MS4 Order is not significantly changed from the version in the 2001 Los Angeles MS4 Order, which prohibited non-storm water discharges "into the MS4 and watercourses." The Board additionally asserts that phrasing the prohibition as "through the MS4 to receiving waters" provides Permittees with greater flexibility to use measures that control non-storm water after it enters the MS4, including regional solutions such as low-flow diversions and catch-basin inserts.

[178] See, e.g., 55 Fed. Reg. 47990, 47995-47996 ("Section 402(p)(B)(3) of the CWA requires that permits for discharges *from municipal separate storm sewer systems* require the municipality to 'effectively prohibit' non-storm water discharges *from the municipal separate storm sewer*…Ultimately, such non-storm water discharges *through a municipal separate storm sewer* must either be removed from the system or become subject to an NPDES permit. . . . *(Continued)*

Permittee Petitioners' objection to the phrasing of the prohibition in the Los Angeles MS4 Order appears to be based largely on the assumption that prohibiting non-storm water discharges at the point of entry into the receiving water rather than at the point of entry into the MS4 allows the Los Angeles Water Board to impose requirements on those discharges that would otherwise not be available under the Clean Water Act and federal regulations. We disagree.

As a preliminary matter, regardless of the phrasing of the non-storm water discharge prohibition, MEP is not the standard that governs non-storm water discharges. Permittee Petitioners have asserted that, for non-storm water discharges that enter the MS4, MEP is the governing standard just as it is for storm water discharges. This assertion misinterprets the statute. The Clean Water Act imposes two separate standards for regulation of non-storm water and storm water in an MS4 permit: The MS4 permit "shall include a requirement to effectively prohibit non-stormwater discharges" into the MS4, and "shall require controls to reduce the discharge of pollutants to the maximum extent practicable. . . ."[179] Although the statute imposes the MEP standard to control of "pollutants" rather than specifically to "pollutants in storm water," any reading of section 402(p)(3)(B)(iii) to apply generally to both non-storm water and storm water would render the effective prohibition of non-storm water in section 402(p)(3)(B)(ii) meaningless. The federal regulations confirm the distinction between the treatment of storm water and non-storm water by establishing requirements to prevent illicit discharges from entering the MS4.[180] While the regulations have no definition for "non-storm water discharges," illicit discharges most closely represent the statutory term and are defined as "any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit . . . and discharges resulting from firefighting activities."[181] Further, contrary to assertions by Permittee Petitioners, the definition of storm water in the federal regulations is not inclusive of dry weather discharges. The federal regulations define storm water as "storm water runoff, snow melt runoff, and surface runoff and

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The CWA prohibits the point source discharge of non-storm water not subject to an NPDES permit *through municipal separate storm sewers to waters of the United States*." (Emphasis added.))

[179] 33 U.S.C. § 1342(p)(3)(b)(iii).

[180] 40 C.F.R. § 122.26(d)(2)(iv)(B).

[181] *Id.*, § 122.26(b)(2). The preamble to the regulations states: "Today's rule defines the term 'illicit discharge' to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit." (55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).)

drainage."[182] Surface runoff and drainage cannot be understood to refer to dry weather discharges where USEPA has specifically stated in the preamble to the relevant regulations that it would not expand the definition of storm water to include "a number of classes of discharges which are not in any way related to precipitation events."[183] Accordingly, dry weather discharges are not a component of storm water discharges subject to the MEP standard.[184]

Second, the Los Angeles Water Board's legal authority to impose TMDL-based WQBELs and other limitations on dry weather discharges is derived not from the phrasing of the discharge prohibition in the statute but from the TMDLs themselves, as well as the Clean Water Act direction to require "such other provisions" as the permitting authority "determines appropriate for the control of such pollutants." We have already found that the Los Angeles MS4 Order reasonably (and legally) incorporated numeric WQBELs and other limitations to implement the TMDLs. The Los Angeles Water Board's authority to impose the limitations for dry weather conditions is accordingly independent of the provisions establishing the non-storm water effective prohibition.

Permittee Petitioners also assert that requiring compliance with the non-storm water discharge prohibition through and from the MS4 would frustrate enforcement of the illicit connection and illicit discharge elimination programs of the Los Angeles MS4 Order, which continue to require the Permittee to prohibit illicit discharges and connections *to* the MS4.[185] On this point, we agree with the Los Angeles Water Board that the illicit connection and illicit discharge elimination program is a means to implement the non-storm water prohibition and independently implementable and enforceable. We are more sympathetic to the argument by Permittee Petitioners that, in the context of a complex MS4 system with commingled discharges, the prohibition of discharges through the MS4 to the receiving waters poses greater compliance challenges than a prohibition of discharges into the MS4; however, the Los Angeles MS4 Order's Monitoring and Reporting Program contains a procedure by which a Permittee will notify the Board and the upstream jurisdiction when non-exempted, non-storm water discharges pose an issue in commingled discharges.[186] Further, the Los Angeles Water Board states in its

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[182] 40 C.F.R. § 122.26(b)(13).

[183] 55 Fed. Reg. 47990, 47995 (Nov. 16, 1990).

[184] We disagree that the phrasing of the non-storm water discharge prohibition in the Los Angeles MS4 Order means that *any* dry weather discharges from the MS4 could be construed as a violation of the Clean Water Act for the same reasons articulated in footnote 133 of this order.

[185] Los Angeles MS4 Order, Parts VI.A.2.a.iii, p. 40, VI.D.4.d., p. 81-86, VI.D.10, p. 137-141.

[186] Los Angeles MS4 Order, Att. E, Monitoring and Reporting Program, Part IX.F.6, p. E-27.

October 15, 2013 Response that the upstream jurisdiction would then have the responsibility to further investigate and address the discharge.[187] The challenge of addressing compliance and enforcement in the context of interconnected MS4s and commingled discharges is a challenge pervasive in the MS4 regulatory structure and not unique to non-storm water discharges. We are not sufficiently persuaded by Permittee Petitioners' arguments regarding compliance to disturb the non-storm water prohibitions as currently established in the Los Angeles MS4 Order.

E. Monitoring Provisions

Relying on Water Code sections 13165, 13225, and 13267, Permittee Petitioners argue that the Los Angeles Water Board was required to conduct a cost-benefit analysis to support the monitoring and reporting requirements of the Los Angeles MS4 Order. Because the monitoring and reporting provisions of the Los Angeles MS4 Order are incorporated pursuant to federal law, the cited provisions are inapplicable here. The monitoring and reporting provisions of the Los Angeles MS4 Order were established under the Clean Water Act and USEPA's regulations.[188] Further, under state law, Water Code section 13383, rather than Water Code section 13267, controls monitoring and reporting requirements in the context of NPDES permitting, and that provision does not include a requirement to ensure that the burden, including costs of the report, bear a reasonable relationship to the need for the report.[189]

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[187] Los Angeles Water Board, October 15, 2013 Response, p. 33 & fn. 116.

[188] See 33 U.S.C. §§ 1318, 1342(a)(2); 40 C.F.R. §§ 122.26(d)(2)(i)(F), 122.26(d)(2)(iii)D), 122.41(h), 122.41(j), 122.41(*l*), 122.42(c),122.44(i), 122.48.

[189] Permittee Petitioners argue that the cost considerations of Water Code sections 13225 and 13267 are relevant to the Los Angeles MS4 Order notwithstanding the fact that it was issued under federal authority because the requirements of those section are not inconsistent with the requirements of section 13383. (See Water Code, §13372, subd. (a) ("To the extent other provisions of this division are consistent with the requirements for state programs . . . those provisions apply . . . ").) This exact assertion was taken up by the trial court in litigation challenging the 2001 Los Angeles MS4 Order and decided in favor of the Los Angeles Water Board. The trial court stated: "As noted in *Silkwood v. Kerr-McGee Corp.* (1984) 464 U.S. 238, the Court held, in part: 'state law is still preempted. . . where the state law stands as an obstacle to the accomplishment of the full purposes and objectives of Congress.' (464 U.S. at p. 248.) Applying Water Code sections 13225 and 13267 would stand, in the words of *Silkwood* as: 'an obstacle to the accomplishment of the full purposes and objectives of [the federal law].' (Ibid)." (*In re Los Angeles County Municipal Storm Water Permit Litigation* (L.A. Super. Ct., No. BS 080548, Mar. 24, 2005) Statement of Decision from Phase II Trial on Petitions for Writ of Mandate, at pp.19-20 (Administrative Record, section 10.II., RB-AR23197-23198.). Further, we note that Water Code section 13383, subdivision (c) specifically references subdivision (c) of section 13267 when establishing facility inspection requirements; in contrast, section 13383, subdivision (a) does not reference subdivision (b) of section 13267, which incorporates the requirement that "[t]he burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." Water Code section 13383, subdivision (a), was therefore arguably intended to stand in place of the requirements in section 13267(b). Finally, even where authority to impose a monitoring and reporting requirement is clearly derived from Water Code section 13267, the provision requires consideration of the costs and benefits of monitoring and reporting, but not a full cost-benefit analysis. We therefore find that the Los Angeles Water Board did not fail to meet its legal obligations by not carrying out a full cost-benefit analysis specific to the monitoring and reporting requirements of the Los Angeles MS4 Order. However, in making this finding, in no way do we mean to disavow the significance of cost consideration in permitting actions, even where not specifically required by law. We note again that the Los Angeles Water Board carefully considered the costs of *(Continued)*

Moreover, the monitoring and reporting requirements of the Los Angeles MS4 Order do not exceed the requirements of the Clean Water Act and the federal regulations.[190] In particular, we find that the receiving water monitoring requirements of the Order are reasonable in light of the need to identify water quality exceedances and evaluate progress in compliance with water quality standards. The argument made by several Permittee Petitioners that the federal regulations allow only two types of monitoring – effluent and ambient – for compliance is without support in the relevant regulations. The relevant law is clear that the permitting authority is required to incorporate monitoring and reporting requirements sufficient to determine compliance with the permit conditions.[191] In contrast, nothing in the Clean Water Act or the regulations states that requiring wet weather receiving water monitoring is beyond the authority of the permitting agency.[192] Further, accepting such a constrained interpretation of the Clean Water Act's monitoring requirements would undermine storm water permitting assessment. Excluding wet weather receiving water monitoring would preclude storm water dischargers from assessing the impacts of their discharges on waters of the United States during the events for which they are primarily being permitted—storm events. We find nothing in the text or preamble of the federal regulations to support a narrow interpretation of monitoring to exclude wet weather receiving monitoring.

To the extent Permittee Petitioners are arguing that the MEP standard, applied at the outfall, constrains the permitting authority's discretion to require monitoring beyond the outfall, we also find no support in the law for that proposition. We have already stated that we will continue to require compliance with water quality standards in MS4 permits. Wet weather receiving water monitoring is fundamental to assessing the effects of storm water discharges on water quality and determining the trends in water quality as Permittees implement control

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compliance with the Los Angeles MS4 Order generally as summarized in the Fact Sheet. (See Los Angeles MS4 Order, Att. F, Fact Sheet, pp. F-144-F-149.) Further, the Los Angeles Water Board considered monitoring costs-related comments on earlier drafts of the Los Angeles MS4 Order, and, in a number of cases, where presented with an argument that a cost related to a particular monitoring requirement was not commensurate with the benefits to be received from that requirement, made revisions to the requirement. (See, e.g., Administrative Record, section 8, RB-AR19653-19654, RB-AR19666, RB-AR19674, RB-AR19681.)

[190] The Los Angeles Water Board provided its rationale for the receiving water monitoring requirements in the Fact Sheet of the Los Angeles MS4 Order. (Los Angeles MS4 Order, Att. F, Fact Sheet, F-113-F-137.)

[191] See 33 U.S.C. § 1318(a)(2); 40 C.F.R. § 122.26(d)(2)(i)(F). While we do not interpret these requirements to mean that each and every permit condition must have a corresponding monitoring and reporting requirement, neither do we see any constraints on the water boards' authority to establish monitoring and reporting requirements.

[192] Permittee Petitioners reference language in the federal regulations concerning "effluent and ambient monitoring" (40 C.F.R. § 122.44(d)(1)(vi)(C)(3)) and appear to be using the phrase as support for their argument. That section is inapposite as it applies to situations where a State has not established a water quality objective for a pollutant present in the effluent and instead establishes effluent limitations on an indicator parameter for the pollutant of concern.

measures. Compliance may be determined at the outfall – for example, where a permittee determines that the discharge does not exceed an applicable WQBEL or receiving water limitation – but outfall monitoring alone cannot provide the broader data related to trends in storm water discharge impacts on the receiving water. Accordingly, receiving water monitoring is a legal and reasonable component of the monitoring and reporting program. Further, because Permittees are responsible for impacts to the receiving waters resulting from their MS4 discharges, Permittees may be required to participate in monitoring not only in receiving waters within their jurisdiction but also in monitoring all receiving waters that their discharges impact.

We will make no revisions to the Monitoring and Reporting provisions of the Order.

F. Joint Responsibility

In the extensive and interconnected system regulated by the Los Angeles MS4 Order, discharges originating from one Permittee's MS4 frequently commingle with discharges from other Permittees' MS4s within or outside of the Permittee's jurisdiction. Permittee Petitioners argue that the Los Angeles MS4 Order improperly ascribes responsibility to all Permittees with commingled discharges where those commingled discharges exceed a WQBEL or cause or contribute to exceedances of receiving water limitations. Specifically, Permittee Petitioners take issue with the fact that the Los Angeles MS4 Order ascribes "joint responsibility"[193] to the co-Permittees without a showing that a particular Permittee has in fact discharged the pollutant causing or contributing to the exceedance.

The Los Angeles Water Board counters that the joint responsibility regime is consistent with the intent of the Clean Water Act and further that it does not compel a Permittee to clean up the discharge of another Permittee. The Los Angeles Water Board points to two provisions for this latter proposition. First, even with joint responsibility, Permittees that have commingled MS4 discharges need only comply with permit conditions relating to discharges from the MS4 for which they are owners or operators.[194] Second, even where joint responsibility is presumed, a Permittee may subsequently counter the presumption of joint responsibility by

[193] "Joint responsibility" is the term used in the Los Angeles MS4 Order. (See Los Angeles MS4 Order, Part II.K.1, p. 23 ("'Joint responsibility' means that the Permitttees that have commingled MS4 discharges are responsible for implementing programs in their respective jurisdictions, or within the MS4 for which they are an owner and/or operator, to meet the water quality-based effluent limitations and/or receiving water limitations assigned to such commingled MS4 discharges.") As defined by the Los Angeles Water Board and as discussed below, this term does not have the same meaning and scope as the legal doctrine of "joint liability."

[194] Los Angeles MS4 Order, Parts II.K.1, pp. 23-24, VI.A.4.a., p. 41; 40 C.F.R. § 122.26(a)(3)(vi); see also, *id*., Part VI.E.2.b.ii., p. 142 (stating in the context of TMDL requirements that, where discharges are commingled and assigned a joint WLA, "each Permittee is only responsible for discharges from the MS4 for which they are owners and/or operators.")

affirmatively demonstrating that its MS4 discharge did not cause or contribute to the relevant exceedances.[195]

Given the size and complexity of the MS4s regulated under the Los Angeles MS4 Order and the challenges inherent in designing a monitoring program that could parse out responsibility for each individual Permittee, we find that a joint responsibility regime is a reasonable approach to assigning initial responsibility for an exceedance. The Los Angeles MS4 Order provisions addressing TMDLs also appropriately take a joint responsibility approach, given that the wasteload allocations from which the WQBELs and other TMDL-specific limitations are derived are most frequently expressed as joint allocations shared by all MS4 dischargers in the watershed. We further agree with the Los Angeles Water Board that the regime is one that is permissible under applicable law. The Clean Water Act contemplates that MS4 permits may be issued on a system-wide or jurisdiction-wide basis[196] and the federal regulations anticipate the need for inter-governmental cooperation.[197] Further, the United States Court of Appeal, Ninth Circuit, recently stated in *Natural Resources Defense Council v. County of Los Angeles* (2013) 725 F.3d 1194 that the permitting authority has wide discretion concerning the terms of a permit, including the manner in which permittees share liability.[198]

Yet, we also find that joint responsibility in an MS4 Order is only appropriate if the ultimate responsibility for addressing an exceedance rests with those permittees that actually cause or contribute to the exceedance in question. The re-issued Los Angeles MS4 Order contains additional specificity and monitoring, beyond that contained in the 2001 Los Angeles MS4 Order, to document compliance and the presence or absence of an individual municipality's contribution of pollutants to the storm water. For this reason, the general reasoning of the Ninth Circuit's 2013 *Natural Resources Defense Council v. County of Los Angeles* decision finding liability based solely on the presence of pollutants above water quality standards in the receiving waters is of limited forward-looking importance. Generally, in the context of MS4 permits, we do not sanction joint responsibility to the extent that that joint

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[195] *Id.*, Part VI.E.2., pp.141-42; see also id., Part II.K.1, pp. 23-24.

[196] 33 U.S.C. § 1342(p)(3)(B)(i).

[197] See 40 C.F.R. §§ 122.26(d)(2)(i)(D), 122.26(d)(2)(iv), 122.26(d)(2)(vii).

[198] *Natural Resources Defense Council v. County of Los Angeles* (9th Cir. 2013) 725 F.3d 1194, 1205, fn. 16, cert. den. *Los Angeles County Flood Control Dist. v. Natural Resources Defense Council* (2014) 134 S.Ct. 2135. The Ninth Circuit went on to find that, based on the specific language of the 2001 Los Angeles MS4 Order, the Permittees were jointly liable for exceedances detected by mass emissions monitoring.

responsibility would require each Permittee to take full responsibility for addressing violations, regardless of whether, and to what extent, each permittee contributed to the violation.[199]

The Los Angeles MS4 Order does not impose such a joint responsibility regime where each Permittee must take full responsibility for addressing other Permittees' violations. In addition to clearly stating that permittees are responsible only for their contribution to the commingled discharges, the Los Angeles MS4 Order provides that Permittees may affirmatively show that their discharge did not cause or contribute to an exceedance. Joint responsibility, as applied by the Los Angeles MS4 Order, is thus consistent with our expectation that ultimate responsibility for addressing an exceedance rests with those Permittees that actually cause or contribute to the exceedance and consistent with the regulatory direction that co-permittees need only comply with permit conditions relating to discharges from the MS4 for which they are owners or operators.

While the result is that the burden rests on the Permittee to demonstrate that its commingled discharge is not the source of an exceedance, rather than on the Los Angeles Water Board to demonstrate that a Permittee's commingled discharge is causing or contributing to the exceedance, the result is not contrary to law. The Los Angeles Water Board has the initial burden to show that a violation of the Los Angeles MS4 Order has occurred,[200] but the Board can do so by establishing an exceedance of a limitation by jointly responsible Permittees and need not identify the exact source of the exceedance. This scheme represents a reasonable policy approach to a complicated compliance question where the Permittees are more closely familiar than the Los Angeles Water Board with their outfalls and their discharges in the extensive and interconnected MS4 network.

We are, however, concerned that the Los Angeles MS4 Order's treatment of the joint responsibility issue is too narrow. The Los Angeles Water Board addresses the issue of joint responsibility primarily in the context of compliance with the TMDL requirements of the Order. Commingled discharges pose the same questions of assigning responsibility where receiving water limitations are exceeded in water bodies receiving MS4 discharges from multiple jurisdictions, but where the pollutant is not addressed by a TMDL. A similar approach to

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[199] In a "joint and several liability" scheme, a plaintiff may collect his or her entire damages from any one defendant, and the defendants must then rely on principles of indemnity or contribution to apportion ultimate liability amongst themselves. (See *American Motorcycle Assn. v. Superior Court of Los Angeles County* (1978) 20 Cal. 3d 578, 586-590.) Because the Los Angeles MS4 Order's joint responsibility scheme does not equate to joint liability, and because we do not find such liability appropriate from a policy perspective, we do not address Petitioners' legal arguments as to whether joint or joint and several liability in the storm water context would be consistent with applicable law.

[200] See e.g. *Sackett v. E.P.A.* (9th Cir. 2010) 622 F.3d 1139 rev'd on other grounds *Sackett v. E.P.A.* (2012) 132 S. Ct. 1367.

assigning responsibility for addressing the exceedances is appropriate there. We will add new language to the Los Angeles MS4 Order mirroring Part VI.E.2.b., but applying the principles more generally.

We also take this opportunity to emphasize that all MS4 permits should be drafted to avoid one potential, but likely unintended, result arising from *Natural Resources Defense Council v. County of Los Angeles*. The broadest reading of the Ninth Circuit's holding following remand from the U.S. Supreme Court would assign joint liability to all Permittees for any exceedance at a monitoring location designated for the purpose of compliance determination, even if the particular pollutant is not typically found in storm water and has a likely alternative source such as an industrial discharger or waste water treatment plan. Providing municipalities an opportunity to demonstrate that they did not contribute to a pollutant present in receiving waters above standards will prevent this outcome.

We shall amend Part VI.B. as follows:

B. Monitoring and Reporting Program (MRP) Requirements

1. Dischargers shall comply with the MRP and future revisions thereto, in Attachment E of this Order or may, in coordination with an approved Watershed Management Program per Part VI.C, implement a customized monitoring program that achieves the five Primary Objectives set forth in Part II.A. of Attachment E and includes the elements set forth in Part II.E. of Attachment E.

2. Compliance Determination for Commingled Discharges

a. For commingled discharges addressed by a TMDL, a Permittee shall demonstrate compliance with the requirements of Part E as specified at Part E.2.b.

b. For commingled discharges not addressed by a TMDL, a Permittee shall demonstrate compliance with the requirements of Part V.A as follows:

i. Pursuant to 40 CFR section 122.26(a)(3)(vi), each Permittee is only responsible for discharges from the MS4 for which they are owners and/or operators.

ii. Where Permittees have commingled discharges to the receiving water, or where Permittees' discharges commingle in the receiving water, compliance in the receiving water shall be determined for the group of Permittees as a whole unless an individual Permittee demonstrates that its discharge did not cause or contribute to the exceedance, pursuant to subpart iv. below.

iii. For purposes of compliance determination, each Permittee is responsible for demonstrating that its discharge did not cause or contribute to an exceedance of the receiving water limitation in the target receiving water.

iv. A Permittee may demonstrate that its discharge did not cause or contribute to an exceedance of a receiving water limitation in one of the following ways:

(1) Demonstrate that there was no discharge from the Permittee's MS4 into the applicable receiving water during the relevant time period;

(2) Demonstrate that the discharge from the Permittee's MS4 was controlled to a level that did not cause or contribute to the exceedance in the receiving water;

(3) Demonstrate that there is an alternative source of the pollutant that caused the exceedance, that the pollutant is not typically associated with MS4 discharges, and that the pollutant was not discharged from the Permittee's MS4; or

(4) Demonstrate that the Permittee is in compliance with the Watershed Management Programs provisions under VI.C.

G. Separation of Functions in Advising the Los Angeles Water Board

Petitioners Cities of Duarte and Huntington Park (Duarte and Huntington Park) argue that their rights to due process of law were violated when the same attorneys advised both the Los Angeles Water Board staff and the Board itself in the course of the proceedings to adopt the Los Angeles MS4 Order. We disagree and reaffirm our position that permitting actions do not require the water boards to separate functions when assigning counsel to advise in development and adoption of a permit.

A water board proceeding to adopt a permit, including an NPDES permit, waste discharge requirements, or a waiver of waste discharge requirements, is an adjudicative proceeding subject to the Administrative Procedure Act's administrative adjudication statutes in Government Code section 11400 et seq.[201] Section 11425.10, part of the "Administrative Adjudication Bill of Rights," provides that "[t]he adjudicative function shall be separated from the investigative, prosecutorial, and advocacy functions with the agency . . . ."[202] In accordance with

[201] See Cal. Code Regs., tit. 23, § 648, subd. (b).

[202] Gov. Code, § 11425.10, subd. (a)(4). Subdivision (a)(4) references section 11425.30, which addresses disqualification of a presiding officer that has served as "investigator, prosecutor, or advocate" in the proceeding or its preadjudicative stage or is subject to "the authority, direction, or discretion" of a person who has served in such roles.

this directive, the water boards separate functions in all enforcement cases, assigning counsel and staff to prosecute the case, and separate counsel and staff to advise the board.

In a permitting action, water board counsel have an advisory role, not an investigative, prosecutorial, or advocacy role. Permitting actions are not investigative in nature and there is no consideration of liability or penalties that would make the action prosecutorial in nature. Further, while both counsel and staff are expected to develop recommendations for their boards, the role of counsel and staff is not to act as an advocate for one particular position or party concerning the permitting action, but to advise the board as neutrals, with consideration of the legal, technical, and policy implications of all options before the board. In the case of counsel, such consideration and advice includes not just legal evaluation of the substantive options for permitting but also of procedural issues such as admissibility of the evidence, conduct of the hearing, and avoidance of board member conflicts. Because counsel and staff are advisors to the board rather than advocates for a particular position, the same counsel may advise staff in the course of development of the permit and the board in the adoption proceedings.

A primary purpose of separation of functions in adjudicatory proceedings is the need to prevent improper ex parte communications.[203] The exceptions to the ex parte communications rules further support the position that counsel advising board staff may also advise the board itself. While section 11430.10 of the Government Code generally prohibits communications concerning issues in a pending administrative proceeding between the presiding officer and an employee of the agency that is a party,[204] one exception provides that a communication "for the purpose of assistance and advice to the presiding officer," in this case the board, "from a person who has not served as investigator, prosecutor, or advocate in the proceeding or its preadjudicative stage" is permissible. Even if board counsel could be considered an advocate in the proceeding, another provision (specifically referencing the water boards) excepts the communication from the general ex parte communications rules. A communication is not an ex parte communication if:

> (c) The communication is for the purpose of advising the presiding officer concerning any of the following matters in an adjudicative hearing that is nonprosecutorial in character:

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[203] See *Dept. of Alcoholic Beverage Control v. Alcoholic Beverage Control Appeals Bd.* (2006) 40 Cal.4th 1, 9-10.

[204] Government Code section 11430.10 prohibits communications between an employee that is a "party" to a pending proceeding and the presiding officer. We disagree that Los Angeles Water Board staff, as an advisor to the Board, was a "party" to the proceedings for adoption of the Los Angeles MS4 Order, but, even if staff could be considered a party, the cited exceptions to the ex parte communications rules would apply.

> . . .
> (2) The advice involves an issue in a proceeding of the San Francisco Bay Conservation and Development Commission, California Tahoe Regional Planning Agency, Delta Protection Commission, Water Resources Control Board, or a regional water quality control board.[205]

The fact that communications that would otherwise be considered prohibited ex parte communications are specifically permitted in non-prosecutorial adjudicative proceedings of the water boards further supports the position that the water boards are not obligated by law to separate functions in permitting actions.

We acknowledge that there may be some unique factual circumstances under which a permitting proceeding could violate due process or the Administrative Procedure Act because board counsel either acted or gave the appearance of acting as a prosecutor or advocate. Duarte and Huntington Park point to a writ of mandate issued by the Los Angeles Superior Court in 2010,[206] holding that a 2006 proceeding to incorporate provisions of the Santa Monica Bay Beaches TMDL into the 2001 Los Angeles MS4 Order was not fairly conducted because Los Angeles Water Board counsel had acted as an advocate for Board staff, directly examining Board staff witnesses, cross-examining witnesses called by permittees, objecting to questions asked by permittees, and making a closing argument on behalf of Board staff, while simultaneously advising the Board. The proceedings to adopt the Los Angeles MS4 Order did not follow the type of adversarial structure that led the Superior Court to find a violation of separation of functions in the 2006 proceedings.[207] Further, nothing in the conduct of the Los Angeles Water Board attorneys in the Los Angeles MS4 Order proceedings leads us to find that they acted as advocates for a particular position or party, rather than as advisors to the Board.

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[205] Gov. Code, § 11430.30. We note that the Law Revision Commission comments on section 11430.30, subdivision (c), state that "[s]ubdivision (c) applies to nonprosecutorial types of administrative adjudications, such as . . . proceedings . . . setting *water quality protection…requirements."* (Emphasis added.) The notes further state that "[t]he provision recognizes that the length and complexity of many cases of this type may as a practical matter make it impossible for any agency to adhere to the restrictions of [ex parte communications], given limited staffing and personnel." (25 Cal.L.Rev.Comm. Reports 711 (1995).) We agree that the lengthy and complex nature of permitting proceedings, and the limited staffing resources of the water boards, caution against an expansive interpretation of separation of functions in non-prosecutorial adjudications.

[206] *County of Los Angeles v. State Water Resources Control Board* (Super. Ct., Los Angeles Co. (June 2, 2010, Minute Order) No. BS122724) (Administrative Record, section 10.II, RB-AR23665-23667.)

[207] We also note that, although the writ directed that petitioners were entitled to a new hearing "in which the same person does not act as both an advocate before the Board and an advisor to the Board," the writ had no direct bearing on the separate proceedings to adopt the Los Angeles MS4 Order. In any case, as discussed, Board attorneys did not act as advocates in the proceedings to adopt the Los Angeles MS4 Order.

The two specific cases pointed to by Duarte and Huntington Park – advice by Board counsel to Board member Mary Ann Lutz regarding recusal due to ex parte communications and advice to the Board generally on the lack of a cost-benefit analysis requirement in federal law – may be contrary to the legal position held by Duarte and Huntington Park, but there is nothing in the record to suggest that the advice was driven by biased advocacy for a Board staff position.[208] In the absence of such evidence, we find no reason to depart from the general rule that separation of functions is not required in a permitting proceeding[209] and find that Los Angeles Water Board counsel acted in accordance with applicable laws in advising Board staff and the Board itself.

H. Signal Hill's Inclusion in the Order

The City of Signal Hill (Signal Hill) argues that the Los Angeles Water Board acted contrary to relevant law when it issued the system-wide Los Angeles MS4 Order that included Signal Hill, even though Signal Hill had submitted an application for an individual permit.[210] We disagree.

Signal Hill points out that the federal regulations allow an operator of an MS4 to choose between submitting an application jointly with one or more other operators for a joint permit or individually for a distinct permit.[211] However, the choice of application does not necessarily dictate the type of permit that the permitting authority ultimately deems appropriate. The permitting authority in turn has discretion to determine if the permit should be issued on a

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[208] See Administrative Record**,** section 7, RB-AR18309-18316, RB-AR18397-18400 (Transcript of Proceedings on Oct. 4, 2012), section 7, RB-AR18892-18894 (Transcript of Proceedings on Oct. 5, 2012).

[209] Although *Morongo Band of Mission Indians v. State Water Resources Control Board* (2009) 45 Cal.4th 731 concerned an enforcement proceeding and therefore is not on point for our legal determination above, we take note of the direction by the California Supreme Court that separation of functions in an administrative tribunal should not be expanded beyond its appropriate scope: "In construing the constitutional due process right to an impartial tribunal, we take a more practical and less pessimistic view of human nature in general and of state administrative agency adjudicators in particular . . . [and where proper procedure is followed and in the absence of a specific demonstration of bias or unacceptable risk of bias] we remain confident that state administrative agency adjudicators will evaluate factual and legal arguments on their merits, applying the law to the evidence in the record to reach fair and reasonable decisions." (*Morongo Band of Mission Indians, supra*, at pp. 741-742.)

[210] Signal Hill was one of several permittees under the 2001 Los Angeles MS4 Order that elected not to submit an application jointly with the other permittees for the renewed permit. The other parties have not challenged their inclusion under the Los Angeles MS4 Order. The Los Angeles Water Board rejected Signal Hill's application as incomplete; however, our determination that the Los Angeles Water Board had the discretion to issue the system-wide Los Angeles MS4 Order is not dependent on that fact.

[211] 40 C.F.R. § 122.26(a)(3)(iii). Signal Hill has also cited regulations applicable to Small MS4s at 40 Code of Federal Regulations sections 122.30 through 122.37. These regulations are not applicable here because the Los Angeles Water Board has designated the Greater Los Angeles County MS4, which includes the incorporated cities and the unincorporated areas of Los Angeles County within coastal watersheds, as a large MS4 pursuant to 40 Code of Federal Regulations section 122.26(b)(4).

jurisdictional or system-wide basis.[212] While the federal regulations do not specifically state that, in exercising that discretion, the permitting authority may override the permit applicant's preference for an individual permit, nothing in the regulations constrains its authority to do so. Section 122.26(a)(3)(iii) of 40 Code of Federal Regulations does not require the permitting authority to take any specific action in response to the submission of an individual application. And sections 122.26(a)(3)(ii) and 122.26(a)(3)(iv) provide that the permitting authority "may issue" system-wide or distinct permits. The preamble to the regulations similarly contemplates wide discretion for the permitting authority to choose system-wide permits, including a permit that would allow an entire system in a geographical region to be designated under one permit.[213] Particularly because the option of a system-wide permit would be significantly frustrated if MS4 operators were allowed to opt out at their discretion, the most reasonable reading of the regulations is that the permitting authority, not the applicant, makes the ultimate decision as to the scope of the permit that will be issued. Accordingly, we find that the Los Angeles Water Board had the discretion under the relevant law to issue the Los Angeles MS4 Order with Signal Hill as a permittee.

We also find that the Los Angeles Water Board's decision regarding Signal Hill was appropriately supported by findings in the Order and in the Fact Sheet.[214] Finding C of the Los Angeles MS4 Order, as well as discussion in the Fact Sheet,[215] establishes that the Los Angeles Water Board found a system-wide permit to be appropriate for a number of reasons, including that Permittees' MS4s comprise a large interconnected system with frequently commingled discharges, that the TMDLs to be implemented apply to the jurisdictional areas of multiple Permittees, that the passage of Assembly Bill 2554[216] in 2010 provided a potential means for funding collaborative water quality improvement plans among Permittees, and that the results of an online survey conducted by Los Angeles Water Board staff showed that the

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[212] 33 U.S.C. § 1342(p)(3)(B)(i); 40 C.F.R. § 122.26(a)(1)(v), (a)(3)(ii), (a)(3)(iv).

[213] See 55 Fed. Reg. 47990, 48039-48043 (preamble to the Phase I regulations noting that section 122.26(a)(3)(iv) would allow an entire system in a geographical region to be designated under one permit and further discussing that sections 122.26(a)(1)(v) and (a)(3)(ii) allow the permitting authority broad discretion in issuing system-wide permits).

[214] *Topanga Assn.*, *supra*, 11 Cal.3d at 515.

[215] Los Angeles MS4 Order, Part II.C., pp. 14-15; id., Att. F, Fact Sheet, pp. F-15-F-18.

[216] Assembly Bill No. 2554, Chapter 602, an act to amend sections 2 and 16 of the Los Angeles County Flood Control Act (Chapter 755 of the Statutes of 1915), relating to the Los Angeles County Flood Control District, Sept. 30, 2010 (Administrative Record, section 10.VI.C., RB-AR29172-29179). The Bill allows the Los Angeles County Flood Control District to assess a property-related fee or charge, subject to voter approval in accordance with proposition 218, for storm water and clean water programs.

majority of Permittees favored either a single MS4 permit for Los Angeles County or several watershed-based permits.

Signal Hill points out that the reasons enumerated by the Los Angeles Water Board as grounds for issuance of a system-wide permit did not preclude the Los Angeles Water Board from issuing an individual permit to the City of Long Beach (Long Beach).[217] The Los Angeles Water Board has provided the rationale for distinguishing Signal Hill and Long Beach in its October 15, 2013 Response. The Los Angeles Water Board explains that Long Beach has had an individual permit for more than a decade and that, unlike Signal Hill, it was not permitted under the 2001 Los Angeles MS4 Order. The Board's decision to issue a separate permit to Long Beach was originally the result of a settlement agreement that resolved litigation on the MS4 permit issued by the Los Angeles Water Board in 1996, and Long Beach has a proven track record in implementing the individual permit while cooperating with Permittees under the Los Angeles MS4 Order.[218] We find that the Los Angeles Water Board reasonably distinguished between Long Beach and the Permittees under the Los Angeles MS4 Order in making determinations as to individual permitting. We will not reverse its determination but we will add a brief statement reflecting that reasoning to the Fact Sheet.

We shall amend section III.D.1.a. at page F-18, Attachment F, Fact Sheet, as follows:

> The Regional Water Board determined that the cities of Signal Hill and Downey, the five upper San Gabriel River cities, and the LACFCD are included as Permittees in this Order. **In making that determination, the Regional Water Board distinguished between the permitting status of those cities and the permitting status of the City of Long Beach at this time because the City of Long Beach has a proven track record in implementing an individual permit and developing a robust monitoring program under that individual permit, as well as in cooperation with other MS4 dischargers on watershed based implementation. While all other incorporated cities with discharges within the coastal watersheds of Los Angeles County, as well as Los Angeles County and the Los Angeles County Flood Control District, are permitted under this Order,** ~~I~~individually tailored permittee requirements are provided in this Order, where appropriate.

[217] Signal Hill is located in the geographical middle of Long Beach and is entirely surrounded by that city.

[218] Los Angeles Water Board, October 15, 2013 Response, p. 25, fn. 78.

III. CONCLUSION

Based on the above discussion, we conclude as follows:

1. Although we are not bound by federal law or state law to require compliance with water quality standards in municipal storm water permits, we will not depart from our prior precedent regarding compliance with water quality standards. The regional water boards shall continue to require compliance with receiving water limitations in municipal storm water permits through incorporation of receiving water limitations provisions consistent with State Water Board Order WQ 99-05.

2. However, we find that municipal storm water dischargers may not be able to achieve water quality standards in the near term and therefore that it is appropriate for municipal storm water permits to incorporate a well-defined, transparent, and finite alternative path to permit compliance that allows MS4 dischargers that are willing to pursue significant undertakings beyond the iterative process to be deemed in compliance with the receiving water limitations.

3. We find that the WMP/EWMP provisions of the Los Angeles MS4 Order, with minor revisions that we incorporate herein, are an appropriate alternative to immediate compliance with receiving water limitations. The WMP/EWMP provisions are ambitious, yet achievable, and include clear and enforceable deadlines for the achievement of receiving water limitations and a rigorous and transparent process for development and implementation of the WMPs/EWMPs.

4. We find that the WMP/EWMP provisions do not violate anti-backsliding requirements.

5. We find that the WMP/EWMP provisions do not violate antidegradation requirements; however, we find that the antidegradation findings made by the Los Angeles Water Board are too cursory and revise those findings consistent with the federal and state antidegradation policies.

6. We find that issuance of time schedule orders is appropriate where a final receiving water limitations deadline set in the WMP/EWMP or a final TMDL-related deadline is not met; however we find that the WMP/EWMP compliance schedule need not otherwise be structured as an enforcement order.

7. We clarify the WMP/EWMP provisions to make it clear that final compliance with receiving water limitations and final WQBELs and other TMDL-specific limitations must be verified through monitoring.

8. We clarify the WMP/EWMP provisions to make it clear that Permittees may request extensions of deadlines incorporated into the WMPs/EWMPs except those final deadlines established in a TMDL. However, any deadline extensions must be approved by the Executive Officer after public review and comment.

9. In order to add greater rigor and accountability to the process of achieving receiving water limitations, we revise the WMP/EWMP provisions to add that the Permittees must comprehensively evaluate new data and information and revise the WMPs/EWMPs, including the supporting reasonable assurance analysis, by June 30, 2021, for approval by the Executive Officer.

10. We find that the storm water retention approach is a promising approach to achieving receiving water limitations, but also find that the Administrative Record does not support a finding that the approach will necessarily lead to achievement of water quality standards in all cases. We revise the WMP/EWMP provisions to clarify that, in the case of implementation of an EWMP with the storm water retention approach, if compliance with a final WQBEL or other TMDL-specific limitation is not in fact achieved in the drainage area, a Permittee will be considered in compliance with the relevant limitation only if the Permittee continues to adaptively manage the EWMP to achieve ultimate compliance with the WQBEL or other TMDL limitation.

11. We find reasonable the WMP/EWMP provisions that allow permittees to be deemed in compliance with receiving water limitations during the planning and development phase of the WMP/EWMP. We revise the WMP/EWMP provisions to state that, if a Permittee fails to meet one of the deadlines, the Permittee may still develop a WMP/EWMP for approval by the Los Angeles Water Board or its Executive Officer; however, the Permittee will not be deemed in compliance with receiving water limitations or WQBELs and other TMDL-specific limitations during the subsequent WMP/EWMP development period.

12. We recognize that the Los Angeles MS4 Order WMP/EWMP compliance path alternative may not be appropriate in all MS4 permits. In order to provide guidance to regional water boards preparing Phase I MS4 permits, we lay out several principles to be followed in drafting receiving water limitations compliance alternatives: Phase I MS4 permits should (1) continue to require compliance with water quality standards in accordance with our Order WQ 99-05; (2) allow compliance with TMDL requirements to constitute compliance with receiving water limitations; (3) provide for a compliance

alternative that allows permittees to achieve compliance with receiving water limitations over a period of time as described above; (4) encourage watershed-based approaches, address multiple contaminants, and incorporate TMDL requirements; (5) encourage the use of green infrastructure and the adoption of low impact development principles; (6) encourage the use of multi-benefit regional projects that capture, infiltrate, and reuse storm water; and (7) require rigor, accountability, and transparency in identification and prioritization of issues in the watershed, in proposal and implementation of control measures, in monitoring of water quality, and in adaptive management of the program. We expect the regional water boards to follow these principles unless the regional water board makes a specific showing that application of a given principle is not appropriate for region-specific or permit-specific reasons.

13. We recognize that the success of the WMP/EWMP approach depends in large part on the steps that follow adoption of the provisions, including the development and approval of rigorous WMPs/EWMPs and the implementation and appropriate enforcement of the programs once approved. We direct the Los Angeles Water Board to periodically report specific information to the State Water Board regarding implementation of the WMPs/EWMPs, including on-the-ground structural control measures completed, monitoring data evaluating the effectiveness of such measures, control measures proposed to be completed and proposed funding and schedule, trends in receiving water quality related to storm water discharges, and compliance and enforcement data.

14. We find that the Los Angeles Water Board acted in a manner consistent with the law when establishing numeric WQBELs. We further find that the development of numeric WQBELs was a reasonable exercise of the Los Angeles Water Board's policy discretion, given its experience in developing the relevant TMDLs and the significance of storm water impacts in the region. However, we find that numeric WQBELs are not necessarily appropriate in all MS4 permits or for all parameters in any single MS4 permit.

15. We find that the Los Angeles Water Board's choice of BMP-based WQBELs, to be proposed by the Permittee in the WMP/EWMP to address USEPA-established TMDLs was reasonable.

16. We find that the Los Angeles Water Board did not act contrary to federal law when it prohibited the discharge of non-storm water "through the MS4 to receiving water" instead of "into" the MS4. Regardless of the exact wording of the prohibition, the standard that applies to non-storm water is the requirement of "effective prohibition." However, the Los Angeles Water Board also has authority to regulate any dry weather discharges from the MS4s under the applicable TMDLs.

17. We find that the monitoring and reporting provisions of the Los Angeles MS4 Order are consistent with applicable law and reasonable.

18. We find that assigning joint responsibility for commingled discharges that cause exceedances is not contrary to applicable law. Given the size and complexity of the MS4s regulated under the Los Angeles MS4 Order, the joint responsibility regime also constitutes a reasonable policy choice. The Los Angeles MS4 Order specifically allows a permittee to avoid joint responsibility by demonstrating that its commingled discharge is not the source of an exceedance.

19. We find that representation of the Los Angeles Water Board and the Los Angeles Water Board staff by the same attorneys in the proceedings to adopt the Los Angeles MS4 Order was lawful and reasonable.

20. We find that the Los Angeles Water Board acted in a manner consistent with applicable law and reasonably when it issued a system-wide permit that included Signal Hill.

Addressing the water quality impacts of municipal storm water is a complex and difficult undertaking, requiring innovative approaches and significant investment of resources. We recognize and appreciate the commendable effort of the Los Angeles Water Board to come up with a workable and collaborative solution to the difficult technical, policy, and legal issues, as well as the demonstrated commitment of many of the area's MS4 dischargers and of the environmental community to work with the Los Angeles Water Board in the development and implementation of the proposed solution. We also recognize the extensive work that interested persons from across the state, including CASQA, have invested in assisting us in understanding how the watershed-based alternative compliance approach developed by the Los Angeles Water Board may inform statewide approaches to addressing achievement of water quality requirements. While storm water poses an immediate water quality problem, we believe that a rigorous and transparent watershed-based approach that emphasizes low impact development, green infrastructure, multi-benefit projects, and capture, infiltration, and reuse of storm water is

a promising long-term approach to addressing the complex issues involved. We must balance requirements for and enforcement of immediate, but often incomplete, solutions with allowing enough time and leeway for dischargers to invest in infrastructure that will provide for a more reliable trajectory away from storm water-caused pollution and degradation. We believe that the Los Angeles MS4 Order, with the revisions we have made, strikes that balance at this stage in our storm water programs, but expect that we will continue to revisit the question of the appropriate balance as the water boards' experience in implementing watershed-based solutions to storm water grows.

IV. ORDER

IT IS HEREBY ORDERED that the Los Angeles MS4 Order is amended as described above in this order. The Los Angeles Water Board is directed to prepare a complete version of the Los Angeles MS4 Order (including any necessary non-substantive conforming corrections), post the conformed Los Angeles MS4 Order on its website, and distribute it as appropriate.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held June 16, 2015.

AYE:	Chair Felicia Marcus Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore Board Member Dorene D'Adamo
NAY:	None
ABSENT:	None
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

ATTACHMENT
23

CONFORMED (04/07/15)

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

The State Water Resources Control Board adopted Order 2012-0011-DWQ on:	September 19, 2012
The Executive Director of the State Water Resources Control Board issued Order WQ 2014-0006-EXEC on:	January 17, 2014
The State Water Resources Control Board adopted Order WQ 2014-0077-DWQ on:	May 20, 2014
The Executive Director of the State Water Resources Control Board issued Order WQ 2015-0036-EXEC on:	April 7, 2015
The amendments to Order 2012-0011-DWQ contained in Order 2015-0036-DWQ are effective on:	**April 7, 2015**

CERTIFICATION

The undersigned, Clerk to the State Water Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 19, 2012.

AYE: Chairman Charles R. Hoppin
Vice Chair Frances Spivy-Weber
Board Member Tam M. Doduc
Board Member Steven Moore
Board Member Felicia Marcus

NAY: None

ABSENT: None

ABSTAIN: None

Jeanine Townsend
Clerk to the Board

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STATEWIDE STORM WATER PERMIT WASTE DISCHARGE REQUIREMENTS (WDRS) FOR STATE OF CALIFORNIA DEPARTMENT OF TRANSPORTATION

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CALIFORNIA STATE WATER RESOURCES CONTROL BOARD
ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

FINDINGS

The State Water Resources Control Board (State Water Board) finds that:

Permit Application

1. The State of California, Department of Transportation (hereafter the Department) has applied to the State Water Board for reissuance of its statewide storm water permit and waste discharge requirements to discharge storm water and permitted non-storm water to waters of the United States under the National Pollutant Discharge Elimination System (NPDES) permit program.

Background and Authority

Permit Background

2. Prior to issuance of the Department's first statewide storm water permit (Order No. 99-06-DWQ), the Regional Water Boards regulated storm water discharges from the Department's storm drain systems with individual permits. On July 15, 1999, the State Water Board adopted a statewide permit to consolidate storm water permits previously adopted by the Regional Water Boards. This statewide permit regulates storm water and non-storm water discharges from the Department's properties and facilities, and discharges associated with operation and maintenance of the State highway system. The Department's properties include all Right-of-Way (ROW) owned by the Department. The Department's facilities include, but are not limited to, maintenance stations/yards, equipment storage areas, storage facilities, fleet vehicle parking and maintenance areas and warehouses with material storage areas.

Federal Authority

3. In 1987, the United States Congress amended the federal Clean Water Act (CWA) and added section 402(p), which established a framework for regulating municipal and

industrial storm water discharges under the NPDES Permit Program. On November 16, 1990, the U.S. Environmental Protection Agency (U.S. EPA) promulgated federal regulations for controlling pollutants in storm water runoff discharges (known as Phase I storm water regulations). Phase I storm water regulations require permit coverage for storm water discharges from large and medium Municipal Separate Storm Sewer Systems (MS4s), certain categories of industrial facilities, and construction activities disturbing five or more acres of land. On December 8, 1999, U.S. EPA promulgated regulations, known as Phase II storm water regulations, which require NPDES permit coverage for storm water discharges from small MS4s and construction sites which disturb one to five acres of land.

State Authority

4. California Water Code (Wat. Code) section 13376 provides that any person discharging or proposing to discharge pollutants to waters of the United States within the jurisdiction of the state shall apply for and obtain Waste Discharge Requirements (WDRs). (For this permit, the State term "WDRs" is equivalent to the federal term "NPDES permits" as used in the Clean Water Act). The State Water Board issues this Order pursuant to section 402 of the Clean Water Act and implementing regulations adopted by U.S. EPA and chapter 5.5, division 7 of the California Water Code (commencing with § 13370 et seq.). It shall serve as an NPDES permit for point source discharges to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with § 13260 et seq.). Applicable State regulations on discharges of waste are contained in the California Code of Regulations (Cal. Code Regs.), tit. 23, Division 3, Chapter 9.

Storm Water Definition

Storm Water Discharge

5. Storm water discharges consist only of those discharges that originate from precipitation events. Storm water is defined in the Code of Federal Regulations (40 C.F.R. § 122.26(b)(13)) as storm water runoff, snowmelt runoff, and surface runoff and drainage. During precipitation events, storm water picks up and transports pollutants into and through MS4s and ultimately to waters of the United States.

Non-Storm Water Discharge

6. Non-storm water discharges consist of all discharges from an MS4 that do not originate from precipitation events.

Generally, non-storm water discharges to an MS4 are prohibited, conditionally exempt from prohibition, or regulated separately by an NPDES permit. The categories of conditionally exempt non-storm water discharge are specified at 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(1). Non-storm water discharges that are regulated by a separate NPDES permit are not subject to the discharge prohibition. Prohibited non-storm water discharges include conditionally exempt discharges that are found to be a source of pollutants to waters of the United States. Illicit discharges must also be prohibited. An illicit discharge is defined in 40 Code of Federal Regulations section 122.26(b)(2) as "any discharge to a municipal storm sewer that is not composed entirely of storm water except

discharges pursuant to an NPDES permit (other than the NPDES Permit for discharges from the Municipal Separate Storm Sewer System) and discharges resulting from fire fighting activities." Provision B of this Order addresses non-storm water discharge.

Non-storm water discharges to an MS4 with a discharge to an ASBS are subject to a different set of conditions as stated in Finding 22.a.

Performance Standards

Performance Standard for Discharges from MS4s

7. Clean Water Act section 402(p) establishes performance standards for discharges from MS4s. Clean Water Act section 402(p)(3)(B) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." This Order prohibits storm water discharges that do not comply with the maximum extent practicable (MEP) standard.

8. Compliance with the MEP standard involves applying Best Management Practices (BMPs) that are effective in reducing or eliminating the discharge of pollutants to the waters of the United States. MEP emphasizes pollutant reduction and source control BMPs to prevent pollutants from entering storm water runoff. MEP may require treatment of the storm water runoff if it contains pollutants. BMP development is a dynamic process, and the menu of BMPs contained in a SWMP may require changes over time as experience is gained and/or the state of the science and art progresses. MEP is the cumulative effect of implementing, evaluating, and making corresponding changes to a variety of technically appropriate and economically feasible BMPs, ensuring that the most appropriate controls are implemented in the most effective manner. The State Water Board has held that “MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the costs would be prohibitive.” (SWRCB, 2000b).

Permit Coverage and Scope

Discharges Regulated by this Permit

9. This Order regulates the following discharges:

    a. Storm water discharges from all Department-owned MS4s;
    b. Storm water discharges from the Department’s vehicle maintenance, equipment cleaning operations facilities and any other non-industrial facilities with activities that have the potential of generating significant quantities of pollutants; and
    c. Certain categories of non-storm water discharges as listed under provision B. of this Order.

    This Order does not regulate storm water discharges from leased office spaces, Department owned batch plants or any other industrial facilities, as industrial facilities defined in the Statewide Industrial General Permit. The Department will obtain coverage

for storm water discharges associated with industrial activities under the Statewide Industrial General Permit for each batch plant and industrial facility, and shall comply with applicable requirements. While this Order does not regulate storm water discharges associated with industrial activities, it does impose contractor requirements for certain industrial facilities.

This Order does not regulate discharges from the Department's construction activities, including dewatering effluent discharges from construction projects. Instead, the Department will obtain coverage for storm water discharges associated with construction activities under Order No. 2009-0009-DWQ Statewide Construction General Permit. While this Order does not regulate storm water discharges associated with construction activities, it does impose electronic filing, notification, reporting and contractor requirements for certain construction projects, and imposes limitations on types of materials that may be used during construction which may have an impact on post-construction discharges. Any discharges from a site occurring after completion of construction are fully subject to the requirements of this Order.

Some Regional Water Boards have issued specific requirements for dewatering effluent discharges in their regions. The Department will consult with the appropriate Regional Water Board and comply with the applicable dewatering requirements in each region.

Department Activities and Discharges

Department Activities

10. The Department is primarily responsible for the design, construction, management, and maintenance of the State highway system including; freeways, bridges, tunnels, and facilities such as corporation yards, maintenance facilities, rest areas, weigh stations, park and ride lots, toll plazas and related properties. The Department is also responsible for initial emergency spill response and cleanup for unauthorized discharges of waste within the Department's ROW.

Department Discharges

11. The Department's discharges include storm water and non-storm water discharges generated from:

    a. Maintenance and operation of State-owned ROW;
    b. Department storage and disposal areas;
    c. Department facilities;
    d. Department Airspaces; and
    e. Other properties and facilities owned and operated by the Department.

    The Department discharges either directly to surface waters or indirectly through municipal storm water conveyance systems. These surface waters include creeks, rivers, reservoirs, wetlands, saline sinks, lagoons, estuaries, bays, and the Pacific Ocean and tributaries thereto, some or all of which are waters of the United States as defined in 40 Code of

Federal Regulations section 122.2. As specified, this Order regulates the Department's municipal storm water and non-storm water discharges.

Potential Pollutants

12. Discharges of storm water and non-storm water from Department properties, facilities, and activities have been shown to contribute pollutants to waters of the United States. As such, these discharges may be causing or threatening to cause violations of water quality objectives and can have damaging effects on human health and aquatic ecosystems. The quality and quantity of these discharges vary considerably and are affected by many environmental factors including hydrology, geology, land use, climatology and chemistry, and by controllable management factors including maintenance practices, spill prevention and response activities, public education (i.e., concerning trash and other storm water pollutants) and pollution prevention.

    Pollutant sources from the Department properties, facilities, and activities include motor vehicles, highway surface materials such as fine particles of asphalt and concrete, highway maintenance products, construction activities, erodible shoulder materials, eroding cut and filled slopes, abrasive sand and deicing salts used in winter operations, abraded tire rubber, maintenance facilities, illegal connections, illegal dumping, fluids from accidents and spills, and landscape care products.

    Pollutant categories include, but are not limited to, metals (such as copper, lead, and zinc), synthetic organic compounds (pesticides), Polycyclic Aromatic Hydrocarbons (PAHs) from vehicle emissions, oil and grease, Total Petroleum Hydrocarbons (TPH), sediment, nutrients (nitrogen and phosphorus fertilizers), debris (trash and litter), pathogens, and oxygen demanding substances (decaying vegetation, animal waste, and other organic matter).

Characterization Monitoring

13. Under the previous permit (Order No. 99-06-DWQ), the Department conducted a comprehensive, multi-component storm water monitoring program. The Department monitored and collected pollutant characterization information at more than 180 sites statewide, yielding more than 60,000 data points. The Department used the data to evaluate the effectiveness of the Department's maintenance facility pollution prevention plans and highway operation control measures. This information is also used to identify pollutants of concern in the Department's discharges.

Department Discharge Characterization Studies

14. The Department compared the monitoring results from the 2002 and 2003 Runoff Characterization Studies (California Department of Transportation, 2003)[1] to California Toxics Rule (CTR) objectives and to several surface water quality objectives considered potentially relevant to storm water runoff quality. The Department prioritized constituents as high, medium, and low, according to a percentage estimate by which the most stringent water quality objective was exceeded. The Department identified lead, copper, zinc,

[1] References are found in Attachment X of this Order.

aluminum, diazinon, chlorpyrifos, and iron as high priority constituents in the Department's runoff. The sources of other water quality objectives considered were:

a. National Primary Drinking Water Maximum Contaminant Levels (40 C.F.R., § 141.1);
b. U.S. EPA Action Plan for Beaches and Recreational Waters;
c. U.S. EPA Aquatic Life Criteria;
d. California Department of Public Health Maximum Contaminant Levels; and California Department of Fish and Game Recommended Criteria for Diazinon and Chlorpyrifos.

Department Discharges that are Subject to MS4 Permit Regulations

15. An MS4 is a conveyance or system of conveyances, including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains. An MS4 is designed or used for collecting or conveying storm water. It is not a combined sanitary sewer and is not part of a Publicly Owned Treatment Works (POTW). Clean Water Act section 402(p) and 40 Code of Federal Regulations section 122.26 (a)(v) give the State authority to regulate discharges from an MS4 on a system-wide or jurisdiction-wide basis. All MS4s under the Department's jurisdiction are considered one system, and are regulated by this Order. Therefore, all storm water and exempted and conditionally exempted non-storm water discharges from the Department owned MS4 are subject to the requirements in this Order.

Maintenance and Construction Activities not Subject to the Construction General Permit

16. Some maintenance and construction activities such as roadway and parking lot repaving and resurfacing may not be subject to the Construction General Permit. Such activities may involve grinding and repaving the existing surface and have the potential to mobilize pollutants, even though it may not involve grading or land disturbance. The Department's Maintenance Staff Guide (Department, 2007b), Project Planning and Design Guide (Department, 2010) and the California Stormwater Quality Association (CASQA) California Construction Stormwater BMP Handbook (CASQA, 2009) specify BMPs for paving and grinding operations. The Department is required to implement BMPs for such operations to control the discharge of pollutants to the MEP.

Department Construction Projects Involving Lead Contaminated Soils

17. Department construction projects may involve soils that contain lead in quantities that meet the State definition of hazardous waste but not the federal definition. The Department of Toxic Substances Control (DTSC) has issued a variance (V09HQSCD006) effective July 1, 2009, allowing the Department to place soil containing specific concentrations of aerially deposited lead under pavement or clean soil. In addition to complying with the terms of the variance, the Department also needs to notify the appropriate Regional Water Boards to determine the appropriate regulation of these soils.

18. Past monitoring data show that storm water runoff from the Department's facilities contains pollutants that may adversely affect the beneficial uses of receiving waters. Facilities not

subject to the Industrial General Permit are required to implement BMPs to reduce the discharge of pollutants from these facilities to the MEP.

Provisions of This Order

19. Storm water discharges from MS4s are highly variable in frequency, intensity, and duration, and it is difficult to characterize the amount of pollutants in the discharges. In accordance with 40 Code of Federal Regulations section 122.44(k)(2), the inclusion of BMPs in lieu of numeric effluent limitations is appropriate in storm water permits. This Order requires implementation of BMPs to control and abate the discharge of pollutants in storm water to the MEP. To assist in determining if the BMPs are effectively achieving MEP standards, this Order requires effluent and receiving water monitoring. The monitoring data will be used to determine the effectiveness of the applied BMPs and to make appropriate adjustments or revisions to BMPs that are not effective.

Receiving Water Limitations

20. The effect of the Department's storm water discharges on receiving water quality is highly variable. For this reason, this Order requires the Department to implement a storm water program designed to achieve compliance with water quality standards, over time through an iterative approach. If discharges are found to be causing or contributing to an exceedance of an applicable Water Quality Standard, the Department is required to revise its BMPs (including use of additional and more effective BMPs).

Discharges to Areas of Special Biological Significance

21. The State Water Board has designated 34 coastal marine waters as Areas of Special Biological Significance (ASBS) in the California Ocean Plan. An ASBS is a coastal area requiring protection of species or biological communities. The Department discharges storm water into the following ASBS:

    a. Redwoods National Park ASBS
    b. Saunders Reef ASBS
    c. James V. Fitzgerald ASBS
    d. Año Nuevo ASBS
    e. Carmel Bay ASBS
    f. Point Lobos ASBS
    g. Julia Pfeiffer Burns ASBS
    h. Salmon Creek Coast ASBS
    i. Laguna Point to Latigo Point ASBS
    j. Irvine Coast ASBS

22. The Ocean Plan prohibits waste discharges into ASBS. The Ocean Plan allows the State Water Board to grant exceptions to this prohibition, provided that: (1) the exception will not compromise protection of ocean waters for beneficial uses, and (2) the public interest will be served. The Department has applied for and been granted an exception under the General Exception for Storm Water and Non-Point Source Discharges to ASBS. The exception

allows the continued discharge into ASBS provided the Department complies with the special protections specified in the General Exception.

22a. Non-storm water discharges to ASBS are prohibited except as specified in the General Exception. Certain enumerated non-storm water discharges are allowed under the General Exception if essential for emergency response purposes, structural stability, slope stability, or if occur naturally. In addition, an NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS. This Order allows utility vault discharges to segments of the Department MS4 with a direct discharge to an ASBS, provided the discharge is authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. The State Water Board is in the process of reissuing the General NPDES Permit for Utility Vaults. As part of the renewal, the State Water Board will require a study to characterize representative utility vault discharges to an MS4 with a direct discharge to an ASBS and will impose conditions on such discharges to ensure the discharges do not alter natural ocean water quality in the ASBS. Given the limited number of utility vault discharges to MS4s that discharge directly to an ASBS, the State Water Board finds that discharges from utility vaults and underground structures to a segment of the Department's MS4 with a direct discharge to an ASBS are not expected to result in the MS4 discharge causing a substantial alteration of natural ocean water quality in the ASBS in the interim period while the General NPDES Permit for Discharges from Utility Vaults is renewed and the study is completed. However, if a Regional Water Board determines a specific discharge from a utility vault or underground structure does alter the natural ocean water quality in an ASBS, the Regional Water Board may prohibit the discharge as specified in this Order.

<u>New Development and Re-development Design Standards</u>

23. 40 Code of Federal Regulations section 122.26(d)(2)(iv)(A)(2) requires municipal storm water permittees to implement a new development and redevelopment program to reduce the post-construction generation and transport of pollutants. Development can involve grading and soil compaction, an increase in impervious surfaces (roadways, roofs, sidewalks, parking lots, etc.), and a reduction of vegetative cover, all of which increase the amount of rainfall that ends up as runoff, and decrease the particle size and the load of watershed sediment. The increase in runoff generally leads to increased pollutant loading from watersheds, even if post-construction pollutant concentrations are similar to pre-construction concentrations. The accelerated erosion and deposition resulting from an increase in runoff and a decrease in the size and load of watershed sediment generally causes a stream channel to respond by deepening and widening and detaching from the historic floodplain. The magnitude of response depends on geology, land use, and channel stability at the time of the watershed disturbance. Increased pollutant loads and alteration of the runoff/sediment balance have the potential to negatively impact the beneficial uses of receiving waters including streams, lakes, wetlands, ground water, oceans, bays and estuaries, and the biological habitats supported by these aquatic systems.

24. Department projects have the potential to negatively impact stream channels and downstream receiving waters through modification of the existing runoff hydrograph. The hydromodification requirements in this Order are "effluent limitations," which are defined by the Clean Water Act to include any restriction on the quantities, rates, and concentrations of chemical, physical, biological, and other constituents which are discharged from point sources (C.W.A., § 502(11)).

25. Waters of the United States supporting the beneficial use of fish migration could be adversely impacted by improperly designed or maintained stream crossings, or through natural channel evolution processes affected by Department activities. This Order requires the Department to submit to the State Water Board the annual report required under Article 3.5 of the Streets and Highways Code reporting on the Department's progress in locating, assessing, and remediating barriers to fish passage.

26. Low Impact Development (LID) is a sustainable practice that benefits water supply and contributes to water quality protection. Unlike traditional storm water management, which collects and conveys storm water runoff through storm drains, pipes, or other conveyances to a centralized storm water facility, LID uses site design and storm water management to maintain the site's pre-project runoff rates and volumes by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source.

27. On October 5, 2000, the State Water Board adopted a precedential decision concerning the use of Standard Urban Storm Water Mitigation Plans (SUSMPs) (Order WQ 2000-11). The SUSMP in that case required sizing design standards for post-construction BMPs for specific categories of new development and redevelopment projects. Order WQ 2000-11 found that provisions in the SUSMPs, as revised in the order, reflected MEP. The LID requirements, post-construction requirements for impervious surface and the design standards in this Order are consistent with Order WQ 2000-11 and meet the requirement for development of a SUSMP.

Self-Monitoring Program

28. Effluent and receiving water monitoring are necessary to evaluate the effectiveness of BMP measures and to track compliance with water quality standards. This Order requires the Department to conduct effluent and receiving water monitoring.

Storm Water Management Plan (SWMP)

29. The SWMP describes the procedures and practices that the Department proposes to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. On May 17, 2001, the State Water Board approved a Storm Water Management Plan submitted by the Department. That SWMP was updated in 2003 (Department, 2003c) and the updates were approved by the Executive Director of the State Water Board on February 13, 2003. On January 15, 2004, the Department submitted a proposed Storm Water Management Plan as part of its NPDES permit application to renew its previous statewide storm water permit (Order No. 99-06-DWQ). The State Water Board and Regional Water Board staff and the Department discussed and revised Best Management

Practices (BMP) controls and many other components proposed in each section of the SWMP during numerous meetings from January 2004 to 2006. The Department submitted a revised SWMP in June 2007. The 2004 and 2007 SWMPs have not been approved by the State Water Board and the Department has continued to implement the 2003 SWMP. The Department is in the process of revising aspects of the 2003 SWMP to address the Findings of Violation and Order for Compliance issued by U.S. EPA in 2011 (U.S. EPA Docket No. CWA-09-2011-0001).

30. The SWMP and any future modifications or revisions are integral to and enforceable components of this Order. Any documents incorporated into the SWMP by reference that specify the manner in which the Department will implement the SWMP shall be consistent with the requirements of this Order.

31. This Order requires the Department to submit an Annual Report each year to the State Water Board. The Annual Report serves the purpose of evaluating, assessing, and reporting on each relevant element of the storm water program, and revising activities, control measures, BMPs, and measurable objectives, as necessary, to meet the applicable standards.

32. Revisions to the SWMP requiring approval by the State Water Board's Executive Director are subject to public notice and the opportunity for a public hearing.

Total Maximum Daily Load (TMDL) Requirements

33. TMDLs are calculations of the maximum amount of a pollutant that a water body can receive and still meet water quality standards. A TMDL is the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations or WLAs) and non-point sources (load allocations or LAs), plus the contribution from background sources and a margin of safety (40 C.F.R., § 130.2, subd.(i)). Discharges from the Department's MS4 are considered point source discharges.

34. This Order implements U.S. EPA-approved or U.S. EPA-established TMDLs applicable to the Department. This Order requires the Department to comply with all TMDLs listed in Attachment IV. Attachment IV identifies TMDLs adopted by the Regional Water Boards and approved by the State Water Board and U.S. EPA that assign the Department a Waste Load Allocation (WLA) or that specify the Department as a responsible party in the implementation plan. In addition, Attachment IV identifies TMDLs established by U.S. EPA that specify the Department as a responsible party or that identify NPDES permitted storm water sources or point sources generally, or identify roads generally, as subject to the TMDL. In accordance with 40 Code of Federal Regulations section 122.44, subdivision (d)(1)(vii)(B), NPDES water quality-based effluent limitations (WQBELs) must be consistent with the assumptions and requirements of available TMDL WLAs. In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. The TMDL requirements in this Order are consistent with the assumptions and requirements of the TMDLs applicable to the Department.

35. TMDL WLAs in this Order are not limited by the MEP standard. Due to the nature of storm water discharges, and the typical lack of information on which to base numeric WQBELs, federal regulations (40 C.F.R., § 122.44, subd. (k)(2)) allow for the implementation of BMPs to control or abate the discharge of pollutants from storm water.

36. The Department reported in its 2008-09 Annual Report to the State Water Board that it is subject to over 50 TMDLs and is in the implementation phase of over 30 TMDLs. The State Water Board has since determined that the Department is subject to 84 TMDLs. WLAs and LAs for some TMDLs are shared jointly among several dischargers, with no specific mass loads assigned to individual dischargers. In some of these cases, multiple dischargers are assigned a grouped or aggregate waste load allocation, and each discharger is jointly responsible for complying with the aggregate waste load allocation.

37. The high variance in the level of detail and specificity in the TMDLs developed by the Regional Water Boards and U.S. EPA necessitates the development of more specific permit requirements in many cases, including deliverables and required actions, derived from each TMDL's WLA and implementation requirements. These requirements will provide clarity to the Department regarding its responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to notice and a public comment period. Because most of the TMDLs were developed by the Regional Water Boards, and because some of the WLAs are shared by multiple dischargers, the development of TMDL-specific permit requirements has been coordinated initially at the Regional Water Board level.

38. Attachment IV specifies TMDL-specific permit implementation requirements for the Lake Tahoe sediment and nutrients TMDL, Napa River Sediment TMDL, Sonoma Creek Sediment TMDL, and the Lake Elsinore and Canyon Lake Nutrients TMDL. These requirements are consistent with the assumptions and requirements of applicable WLAs assigned to the Department, and with the adopted and approved TMDL, Basin Plan, and related Regional Water Board Orders and Resolutions.

39. For all remaining TMDLs identified in Attachment IV, the Regional Water Boards, in consultation with the State Water Board and the Department, developed categorical pollutant permit requirements. The Fact Sheet contains supporting analyses explaining how the proposed categorical pollutant permit requirements will implement the TMDL and are consistent with the assumptions and requirements of any applicable WLA and how the BMPs will be sufficient to implement applicable WLAs. Following a notice and comment period, Attachment IV of this Order and the Fact Sheet was reopened consistent with provision E.11.c. for incorporation of these requirements and supporting analysis into the Order and Fact Sheet.

40. This Order specifies the requirements to be followed for the Comprehensive TMDL Monitoring Plan. TMDL monitoring requirements are found in Attachment IV, Section III.A. The Regional Water Boards may require additional monitoring through Regional Water Board orders pursuant to Water Code section 13383.

41. Attachment IV may additionally be reopened consistent with provision E.11.b. of this Order for incorporation of newly adopted TMDLs or amendments to existing TMDLs into the Permit.

Non-Compliance

42. NPDES regulations require the Department to notify the Regional Water Board and/or State Water Board of anticipated non-compliance with this Order (40 C.F.R., § 122.41(l)(2)); or of instances of non-compliance that endanger human health or the environment (40 C.F.R., § 122.41(l)(6)).

Regional Water Board and State Water Board Enforcement

43. The Regional Water Boards and the State Water Board will enforce the provisions and requirements of this Order.

Region Specific Requirements

Basin Plans

44. Each Regional Water Board has adopted a Basin Plan for the watersheds within its jurisdiction. Basin Plans identify the beneficial uses for each water body and the water quality objectives necessary to protect them. The Department is subject to the prohibitions and requirements of each Basin Plan.

Region Specific Requirements

45. Regional Water Boards have identified Region-specific water quality issues and concerns pertaining to discharges from the Department's properties. Region-specific requirements to address these issues are included in this Order.

Local Municipalities and Preemption

46. Storm water and non-storm water from MS4s that are owned and managed by other NPDES permitted municipalities may discharge to storm water conveyance systems owned and managed by the Department. This Order does not supersede the authority of the Department to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within its jurisdiction as allowed by State and federal law.

    Storm water and non-storm water from the Department's ROW, properties, facilities, and activities may discharge to storm water conveyance systems managed by other NPDES permitted municipalities. This Order does not preempt or supersede the authority of the permitted municipalities to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdiction as allowed by State and federal law.

Anti-Degradation Policy

47. 40 Code of Federal Regulations section 131.12 requires that state water quality standards include an anti-degradation policy consistent with the federal policy. The State Water Board established California's anti-degradation policy in State Water Board Resolution No.

68-16. Resolution No. 68-16 incorporates the federal anti-degradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plans implement, and incorporate by reference, both the State and federal anti-degradation policies. This Order is consistent with the anti-degradation provision of 40 Code of Federal Regulations section 131.12 and State Water Board Resolution No. 68-16.

Endangered Species Act

48. This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2115.5) or the Federal Endangered Species Act (16 U.S.C.A., §§ 1531 to 1544). This Order requires compliance with effluent limitations, receiving water limitations, and other requirements to protect the beneficial uses of waters of the United States. The Department is responsible for meeting all requirements of the applicable Endangered Species Act.

California Environmental Quality Act (CEQA)

49. The action to adopt an NPDES Permit is exempt from the provisions of CEQA (Public Resources Code, § 21100, et. seq.), pursuant to section 13389 of the California Water Code (County of Los Angeles et al., v. California Water Boards et al., (2006), 143 Cal.App.4th 985).

Public Notification

50. The Department, interested agencies, and persons have been notified of the State Water Board's intent to reissue requirements for storm water discharges and have been provided an opportunity to submit their written comments and recommendations. State Water Board staff prepared a Fact Sheet and Response to Comments, which are incorporated by reference as part of this Order.

Public Hearing

51. The State Water Board, through public testimony in public meetings and in written form, has received and considered all comments pertaining to this Order.

Cost of Compliance

52. The State Water Board has considered the costs of complying with this Order and whether the required BMPs meet the minimum "maximum extent practicable" standard required by federal law. The MEP approach is an evolving, flexible, and advancing concept, which considers technical and economic feasibility. Because of the numerous advances in storm water regulation and management and the size of the Department's MS4, the Order does not require the Department to fully incorporate and implement all advances in a single permit term, but takes an incremental approach that allows for prioritization of efforts for the most effective use of the increased, but nevertheless limited, Department funds. This Order will have an effect on costs to the Department above and beyond the costs from the Department's prior permit. Such costs will be incurred in complying with the post-

construction, hydrograph modification, Low Impact Development, and monitoring and reporting requirements of this Order. Additional costs will also be incurred in correcting non-compliant discharges.[2] These incremental costs are necessary to advance the controls and management of storm water by the Department and to facilitate reduction of the discharge of pollutants to the MEP.

53. This Order supersedes Order No. 99-06-DWQ.

54. This Order serves as an NPDES permit pursuant to Clean Water Act section 402 or amendments thereto, and shall become effective on July 1, 2013, provided that the Regional Administrator, U.S. EPA, Region IX, expresses no objections.

IT IS HEREBY ORDERED, pursuant to the provisions of Division 7 of the California Water Code, regulations, and plans and policies adopted thereafter, and to the provisions of the Clean Water Act and regulations and guidelines adopted thereafter, that the Department shall comply with the following:

A. GENERAL DISCHARGE PROHIBITIONS

1. Storm water discharges from the Department's Municipal Separate Storm Sewer System (MS4) containing pollutants that have not been reduced to the Maximum Extent Practicable (MEP), are prohibited. The Department shall achieve the pollutant reductions described in this Prohibition through implementation of the provisions in this Order and the approved SWMP.

2. Discharges to Areas of Special Biological Significance (ASBS).

    a. Existing storm water discharges into an ASBS are allowed only if the discharges:

        1) Are essential for flood control or slope stability, including roof, landscape, road, and parking lot drainage;
        2) Are designed to prevent soil erosion;
        3) Occur only during wet weather; and
        4) Are composed of only storm water runoff, except as provided at B.6.

    b. Discharges composed of storm water runoff shall not alter natural water quality in an ASBS.

    c. The discharge of trash is prohibited.

    d. Only discharges from existing storm water outfalls are allowed. Any proposed or new storm water runoff discharge shall be routed to existing storm water discharge outfalls and shall not result in any new contribution of waste to an ASBS (i.e., no

[2] Although the cost of compliance with TMDL waste load allocations was considered, compliance with TMDLs is not subject to the MEP standard.

additional pollutant loading). "Existing storm water outfalls" are those that were constructed or under construction prior to January 1, 2005. "New contribution of waste" is defined as any addition of waste beyond what would have occurred as of January 1, 2005. A change to an existing storm water outfall, in terms of re-location or alteration, in order to comply with these special conditions, is allowed and does not constitute a new discharge.

e. The discharges comply with all terms, prohibitions, and special conditions contained in sections E.2.c.2)a)i) and E.5. of this Order.

3. Discharge of material other than storm water, or discharge that is not composed entirely of storm water, to waters of the United States or another permitted MS4 is prohibited, except as conditionally exempted under Section B.2 of this Order or authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit.

4. The discharge of storm water or conditionally exempt non-storm water that causes or contributes to the violation of water quality standards or water quality objectives (collectively WQSs), the California Toxics Rule (CTR), or impairs the beneficial uses established in a Water Quality Control Plan, or a promulgated policy of the State or Regional Water Boards, is prohibited. The Department shall comply with all discharge prohibitions contained in Regional Water Board Basin Plans.

5. The discharge of storm water to surface waters of the United States in a manner causing or threatening to cause a condition of pollution or nuisance as defined in Water Code section 13050 is prohibited.

6. Discharge of wastes or wastewater from road-sweeping vehicles or from other maintenance activities to any waters of the United States or to any storm drain leading to waters of the United States is prohibited unless in compliance with section E.2.h.3)c)ii) of this Order or authorized by another NPDES permit.

7. The dumping, deposition, or discharge of waste by the Department directly into waters of the United States or adjacent to such waters in any manner that may allow its being transported into the waters is prohibited unless authorized by the Regional Water Board.

8. The discharge of sand, silt, clay, or other earthen materials from any activity in quantities which cause deleterious bottom deposits, turbidity, or discoloration in waters of the United States or which unreasonably affect or threaten to affect beneficial uses of such waters, is prohibited.

B. NON-STORM WATER DISCHARGE PROHIBITIONS

Non-storm water discharges, other than those to ASBS, must comply with the following provisions:

1. The Department shall effectively prohibit non-storm water discharges into its storm water conveyance system unless such discharges are either:

   a. Authorized by a separate NPDES permit; or
   b. Conditionally exempt in accordance with provision B.2. of this NPDES permit

2. Conditionally Exempt Non-storm Water Discharges.

   The following non-storm water discharges are conditionally exempt from Prohibition B.1 unless the Department or the State Water Board Executive Director identifies them as sources of pollutants to receiving waters. For discharges identified as sources of pollutants, the Department shall either eliminate the discharge or otherwise effectively prohibit the discharge.

   a. Diverted stream flows;
   b. Rising ground waters;
   c. Uncontaminated ground water infiltration (as defined at 40 C.F.R., § 35.2005(20)) to MS4s;
   d. Uncontaminated pumped ground water;
   e. Foundation drains, including slope lateral drains;
   f. Springs;
   g. Water from crawl space pumps;
   h. Footing drains;
   i. Air conditioning condensation;
   j. Flows from riparian habitats and wetlands;
   k. Water line flushing[3];
   l. Minor, incidental discharges of landscape irrigation water[4];
   m. Discharges from potable water sources[3];
   n. Irrigation water[5];
   o. Minor incidental discharges from lawn watering;
   p. Individual residential car washing; and
   q. Dechlorinated swimming pool discharges.

3. Some Regional Water Boards have separate dewatering and/or "de minimus" NPDES discharge permits or Basin Plan requirements for some or all of these listed non-storm water discharges. The Department shall check with the appropriate Regional Water Board to determine if a specific non-storm water discharge requires coverage under a separate NPDES permit.

4. The Department is not required to prohibit emergency fire fighting flows (i.e., flows necessary for the protection of life or property). Discharges associated with emergency

[3] In order to remain conditionally exempt, discharges shall be dechlorinated prior to discharge.
[4] In order to remain conditionally exempt, landscape irrigation systems must be designed, operated and maintained to control non-incidental runoff. See definition of incidental runoff in Attachment VIII.
[5] Return flows from irrigated agriculture are not point-source discharges and are not prohibited from entering the Department's MS4.

firefighting do not require BMPs, but they are recommended if feasible. As part of the SWMP, the Department shall develop and implement a program to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) as specified in the SWMP.

5. If the State Water Board Executive Director determines that any category of conditionally exempt non-storm water discharge is a source of pollutants, the State Water Board Executive Director may require the Department to conduct additional monitoring and submit a report on the discharges. The State Water Board Executive Director may also order the Department to cease a non-storm water discharge if it is found to be a source of pollutants.

   Non-storm water discharges to ASBS must comply with the following provisions:

6. Non-storm water discharges to ASBS are prohibited except as stated in this Section.

   The following non-storm water discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability, or occur naturally:

   a. Discharges associated with emergency fire fighting operations.
   a. Foundation and footing drains.
   b. Water from crawl space or basement pumps.
   c. Hillside dewatering.
   d. Naturally occurring groundwater seepage via a storm drain.
   f. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

   Discharges from utility vaults and underground structures to a segment of the Department's MS4 with a direct discharge to an ASBS are permitted if such discharges are authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. A Regional Water Board may nonetheless prohibit a specific discharge from a utility vault or underground structure if it determines that the discharge is causing the MS4 discharge to the ASBS to alter natural ocean water quality in the ASBS.

   Additional non-storm water discharges to a segment of the Department's MS4 with a direct discharge to an ASBS are allowed only to the extent the relevant Regional Water Board finds that the discharge does not alter natural ocean water quality in the ASBS.

   Authorized non-storm water discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan or alter natural ocean water quality in an ASBS.

C. EFFLUENT LIMITATIONS

The Department shall reduce the discharge of pollutants from its MS4 to waters of the United States to the MEP, as necessary to achieve TMDL WLAs established for discharges by the Department, and to comply with the Special Protections for discharges to ASBS.

D. RECEIVING WATER LIMITATIONS

1. Receiving water quality objectives, as specified in the Water Quality Control Plans and promulgated policies and regulations of the State and Regional Water Boards, are applicable to discharges from the Department's facilities and properties.

2. The discharge of storm water from a facility or activity shall not cause or contribute to an exceedance of any applicable water quality standard.

3. Storm water discharges shall not cause the following conditions to create a condition of nuisance or to adversely affect beneficial uses of waters of the United States:

    a. Floating or suspended solids, deposited macroscopic particulate matter, or foam;
    b. Bottom deposits or aquatic growth;
    c. Alteration of temperature, turbidity, or apparent color beyond present natural background levels;
    d. Visible, floating, suspended, or deposited oil or other products of petroleum origin, and/or;
    e. Toxic or deleterious substances present in concentrations or quantities which will cause deleterious effects on aquatic biota, wildlife, or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentration.

4. The Department shall comply with Sections A.4, D.2 and D.3 of this Order through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SWMP and other requirements of this Order including any modifications. The SWMP shall be designed to achieve compliance with Sections A.4, D.2 and D.3 of this Order. If exceedance(s) of WQS persist notwithstanding implementation of the SWMP and other requirements of this Order, the Department shall assure compliance with Sections A.4, D.2 and D.3 of this Order by complying with the procedure specified at Section E.2.c.6)c) of this Order.

5. Provided the Department has complied with the procedure set forth in provision E.2.c.6)c) of this Order and is implementing the revised SWMP required by provision E.1., the Department is not required to repeat the procedure called for in provision E.2.c.6)c) for continuing or recurring exceedances of the same receiving water limitations unless directed by the State Water Board's Executive Director or Regional Water Board Executive Officer to develop additional BMPs.

6. Where the Department discharges waste to a water of the State that is not a water of the United States, compliance with the prohibitions, limitations, and provisions of this Order when followed for that water of the State will constitute compliance with the requirements of the Porter-Cologne Water Quality Control Act, unless the Department is notified otherwise in writing by the State Water Board Executive Director or a Regional Water Board Executive Officer.

E. PROVISIONS

1. Storm Water Management Plan (SWMP)

a. The Department shall update, maintain and implement an effective SWMP that describes how the Department will meet requirements of this Order as outlined in E.1.b below. The Department shall submit for Executive Director approval an updated SWMP consistent with the provisions and requirements of this Order within one year of the effective date of this Order. The SWMP shall identify and describe the BMPs that shall be used. The SWMP shall be reviewed annually and modified as necessary to maintain an effective program in accordance with the procedures of this Order. The SWMP shall reflect the principles that storm water management is to be a year-round proactive program to eliminate or control pollutants at their source or to reduce them from the discharge by either structural or nonstructural means when elimination at the source is not possible.

b. The SWMP shall contain the following elements:

1) Overview
2) Management And Organization
3) Monitoring And Discharge Characterization Program
4) Project Planning And Design
5) BMP Development and Implementation
6) Construction
7) Compliance with the Industrial General Permit
8) Maintenance Program Activities, including facilities operations
9) Non-Departmental Activities
10) Non-Storm Water Activities/ Discharges
11) Training
12) Public Education and Outreach
13) Region Specific Activities (See provision E.6 and Attachment V.)
14) Program Evaluation
15) Measurable Objectives
16) Reporting
17) References

The Department shall implement all requirements of this Order regardless of whether those requirements are addressed by an element of the SWMP.

c. The SWMP shall include all provisions and commitments in the 2003 SWMP (Department, 2003c), as revised in response to U.S. EPA's Findings of Violation and Order for Compliance (U.S. EPA Docket No. C.W.A.-09-2011-0001). The Department shall continue to implement the 2003 SWMP to the extent that it does not conflict with the requirements of this Order and until a new SWMP is approved pursuant to this Order.

d. All policies, guidelines, and manuals referenced by the SWMP and related to storm water are intended to facilitate implementation of the SWMP, and shall be consistent with the requirements of this Order.

e. The SWMP shall define terms in a manner that is consistent with the definitions in 40 Code of Federal Regulations section 122.2. This includes, but is not limited to, the definitions for pollutant, waters of the United States, and point source. Where there is a conflict between the SWMP and the language of this Order, the language of this Order shall govern.

f. Unless otherwise specified in this Order, proposed revisions to the SWMP shall be submitted to the State Water Board Executive Director as part of the Annual Report. The Department shall revise all other appropriate manuals to reflect modifications to the SWMP.

g. Revisions to the SWMP requiring Executive Director approval will be publicly noticed for thirty days on the State Water Board's website and via the storm water electronic notification list. During the public notice period, members of the public may submit written comments or request a public hearing. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised at the hearing. Upon review of the request or requests for a public hearing, the Executive Director may, in his or her discretion, schedule a public hearing prior to approval of the SWMP revision. The Executive Director shall schedule a hearing if there is a significant degree of public interest in the proposed revision. If no public hearing is conducted, the Executive Director shall consider all public comments received and may approve the SWMP revision if it meets the conditions set forth in this Order. Any SWMP revision approved by the Executive Director will be posted on the State Water Board's website.

h. The Department shall maintain for public access on its website the latest approved version of the SWMP. The Department shall update the SWMP on its website within 30 days of approval of revisions by the State Water Board.

2. Storm Water Program Implementation Requirements

a. Overview

The Department shall provide an overview of the storm water program in the SWMP. The overview will include:

1) A statement of the SWMP purpose;
2) A description of the regulatory background;
3) A description of the SWMP applicability;
4) A description of the relationship of the Permit, SWMP, and related Department documents; and
5) A description of the permits addressed by the SWMP.

b. Management and Organization

The Department shall provide in the SWMP an overview of its management and organizational structure, roles and responsibilities of storm water personnel, a description of the role and focal point of the Department's storm water program, and a description of the Storm Water Advisory Teams. The Department shall implement the program specified in the SWMP. The Department shall also implement any additional requirements contained in this Order.

1) *Coordination with Local Municipalities*

a) The Department is expected to comply with the lawful requirements of municipalities and other local, regional, and/or other State agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the agencies' jurisdictions.

b) The Department shall include a ***MUNICIPAL COORDINATION PLAN*** in the SWMP. The plan shall describe the specific steps that the Department will take in establishing communication, coordination, cooperation, and collaboration with other MS4 storm water management agencies and their programs including establishing agreements with municipalities, flood control departments, or districts as necessary or appropriate. The Department shall report on the status and progress of interagency coordination activities in each Annual Report.

2) *Legal Authority*

a) The Department shall establish, maintain, and certify that it has adequate legal authority through statute, permit, contract or other means to control discharges to and from the Department's properties, facilities and activities.

b) The Department has provided a statement certified by its chief legal counsel that the Department has adequate legal authority to implement and enforce

each of the key regulatory requirements contained in 40 Code of Federal Regulations sections 122.26(d)(2)(i)(A-F). The Department shall submit annually, as part of the Annual Report, a ***CERTIFICATION OF THE ADEQUACY OF LEGAL AUTHORITY***.

3) *Fiscal Resources*

a) The Department shall seek to maintain adequate fiscal resources to comply with this NPDES Permit. This includes but is not limited to:

i) Implementing and maintaining all BMPs;
ii) Implementing an effective storm water monitoring program; and
iii) Retaining qualified personnel to manage the storm water program.

b) The Department shall submit a ***FISCAL ANALYSIS*** of the storm water program annually. At a minimum, the fiscal analysis shall show:

i) The allocation of funds to the Districts for compliance with this Order;
ii) The funding for each program element;
iii) A comparison of actual past year expenditures with the current year's expenditures and next year's proposed expenditures;
iv) How the funding has met the goals specified in the SWMP and District workplans; and
v) Description of any cost sharing agreements with other responsible parties in implementing the storm water management program.

c) The fourth year report shall contain a ***BUDGET ANALYSIS*** for the next permit cycle.

4) *Practices and Policies*
The Department shall identify in the SWMP any of the Department's practices and policies that conflict with implementation of the storm water program. The Department shall annually propose changes, including changes to implementation schedules, needed to resolve these conflicts and otherwise effectively implement the SWMP and the requirements of this Order.

5) *Inspection Program*
The Department shall have an inspection program to ensure that this Order and the SWMP are implemented, and that facilities are constructed, operated, and maintained in accordance with this Order and the SWMP. The program shall include training for inspection personnel, documentation of field activities, a reporting system that can be used to track effectiveness of control measures, enforcement procedures (or referral for enforcement) for non-compliance, procedures for taking corrective action, and responsibilities and responsible personnel of all affected functional offices and branches.

The inspection program shall also include standard operating procedures for documenting inspection findings, a system of escalating enforcement response to non-compliance (including procedures for addressing third party (i.e., contractor) non-compliance), and a system to ensure the timely resolution of all violations of this Order or the SWMP. The Department shall delegate adequate authority to appropriate personnel within all affected functional offices and branches to require corrective actions (including stop work orders).

6) *Incident Reporting - Non-Compliance and Potential/Threatened Non-Compliance*
The Department shall report all known incidents of non-compliance with this Order. Non-compliance may be emergency, field, or administrative. The Department shall electronically file a complete ***INCIDENT REPORT FORM*** (Attachment I) in the Storm Water Multiple Application Report and Tracking System (SMARTS)[6] and provide verbal notifications as soon as practicable, but no later than the time frames specified in Attachment I. Submission of an Incident Report Form is not an admission by the Department of a violation of this Order. The types of incidents requiring non-compliance reporting are discussed in Attachment I. The State Water Board or Regional Water Board may require additional information. The Department shall include in the Annual Report a summary of all incidents by type and District, and report on the status of each.

The Department shall report all potential or threatened non-compliance to the State Water Board and appropriate Regional Water Board in accordance with the "Anticipated non-compliance" provisions described in Attachment VI (Standard Provisions). The report shall describe the timing, nature and extent of the anticipated non-compliance. An Incident Report Form is not required for anticipated non-compliance. Anticipated non-compliance may be for field or administrative incidents only.

c. Monitoring and Discharge Characterization Requirements
The Department shall revise and implement the SWMP consistent with the requirements specified below.

1) *Monitoring Site Selection*
Monitoring shall be conducted in two tiers. Tier 1 consists of all sites for which monitoring is required pursuant to the requirements of the General Exception, including Special Protections, to the California Ocean Plan waste discharge prohibitions for storm water and non-point source discharges to ASBS, and sites in impaired watersheds for which the Department has been assigned a WLA and monitoring requirements pursuant to an approved TMDL. Tier 2 consists of all sites where the Department has existing monitoring data, including both storm water and non-storm water. Tier 2 sites may include locations where the Department has conducted characterization monitoring or where monitoring has been conducted for other purposes.

[6] https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp

The Department shall conduct without limitation all Tier 1 monitoring as required under the ASBS Special Protections and under the adopted and approved TMDLs. The Department may satisfy Tier 1 monitoring requirements by participating in stakeholder groups. Retrofitting and verification monitoring under Tier 2 need not be initiated until there are less than 100 sites actively monitored under Tier 1. There shall be a minimum of 100 active monitoring sites at any one time, consisting of Tier 1, Tiers 1 and 2, or Tier 2.

Sites from Tier 2 shall be prioritized by the Department in consideration of the threat to water quality, including the pollutant and its concentration or load, the distance to receiving water, water quality objectives, and any existing impairments in the receiving waters. The prioritized list shall be submitted to the State Water Board within eight (8) months of the effective date of this Order. The State Water Board will review the prioritized list and may revise it to reflect Regional or State Water Board priorities. The revised list will be approved by the Executive Director and will become effective upon notice to the Department.

2) *Water Quality Monitoring*

a) Tier 1 Monitoring Requirements

i) Areas of Special Biological Significance

The Department's ASBS monitoring program shall include both core discharge monitoring and ocean receiving water and reference site monitoring. The State and Regional Water Boards must approve receiving water and reference site sampling locations and any adjustments to the monitoring program. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notification to the State and Regional Water Boards if hazardous conditions exist.

(1) Core Discharge Monitoring Program

Core discharge monitoring is the monitoring of storm water effluents from the storm water outfalls at the priority discharge locations listed in Attachment III.

(a) General Sampling Requirements for Timing and Storm Size

Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for

the same constituents as receiving water and reference site samples (see section E.2.c.2)a)i)(2)) as described below.

(b) Runoff Flow Measurements
For storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width, including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be measured or calculated, using a method acceptable to and approved by the State Water Board. Report measurements annually for each precipitation season to the State and Regional Water Boards.

(c) Runoff samples – storm events

(i) Outfalls equal to or greater than 18 inches (0.46m) in diameter or width.

Samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination. Samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS. If the Department has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B (shown in Attachment II) metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).

(ii) Outfalls equal to or greater than 36 inches (0.91m) in diameter or width.
Samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, within the range of the southern sea otter indicator bacteria or some other measure of fecal contamination. Samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and

phosphates). Samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

(d) If the Department does not participate in a regional monitoring program as described in provision E.2.c.2)a)i)(2)(b)in addition to (i) and (ii) above, a minimum of the two largest outfalls or 20 percent of the larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A (shown in Attachment II) constituents, Table B constituents for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For discharges to ASBS in more than one Regional Water Board, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

(e) The Executive Director of the State Water Board may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

(2) Ocean Receiving Water and Reference Area Monitoring Program
In addition to performing the Core Discharge Monitoring Program in provision E.2.c.2)a)i)(1) above, the Department must perform ocean receiving water monitoring. The Department may either implement an individual monitoring program or participate in a regional integrated monitoring program.

(a) Individual Monitoring Program
If the Department elects to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS, in addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:

(i) Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in provision E.2.c.2)a)i)(1)(c) above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents for marine aquatic life, DDT, PCBs, Ocean Plan

PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm) and during (or immediately after) the same storm (post storm). Post storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

(ii) Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed.

(iii) A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.

(iv) Once during each permit term and in each subsequent five year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (*Mytilus californianus*) and/or sand crabs (*Emerita analoga* or *Blepharipoda occidentalis*). Based on the study results, the Regional Water Board and the

State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.

(v) Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.

(vi) The monitoring requirements of the Individual Monitoring Program in this section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

(b) Regional Integrated Monitoring Program

The Department may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within an ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the prescribed individual monitoring approach described in provision E.2.c.2)a)i)(2)(a) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

(i) Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are

303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled by the Department. Because the Department discharges to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

(ii) ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than18 inches). Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate storm. A minimum of one receiving water location shall be sampled in each ASBS by the Department. At a minimum, one reference station and one receiving water station shall be sampled in each applicable Regional Water Board.

(iii) Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons.

(iv) Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.

(v) Determinations of compliance with Special Protections requirements for ASBS discharges (State Water Board resolution DWQ 2012-0012) shall be made by the Executive Director of the State Water Board or his designee. When a determination is made that a site or discharge is in compliance with the Special Protections, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1). This provision applies regardless of any continued monitoring that may be required at the site pursuant to the Special Protections.

ii) Total Maximum Daily Load Watersheds
The Department shall comply with the TMDL monitoring requirements in Attachment IV, or in orders of the Regional Water Boards pursuant to Water Code section 13383 that require TMDL-related monitoring. TMDL monitoring shall also include the constituents listed in Attachment II, except as exempted in Attachment IV.

Determinations of compliance with the TMDL shall be made by the Executive Officer of the Regional Water Board or his designee. When a determination is made that a site or discharge is in compliance with the TMDL, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1) and monitoring of Attachment II constituents will be discontinued. This provision applies regardless of any continued monitoring that may be required at the site pursuant to the TMDL.

b) Tier 2 Retrofit and Verification Monitoring Requirements
Corrective actions shall be implemented at the top 15 percent of sites (rounded up) on the Tier 2 priority list, subject to the number of sites per year specified in provision E.2.c.1). Follow up monitoring shall be conducted to confirm the effectiveness of the measures implemented, as determined by the Executive Officer of the Regional Water Board or his designee. Follow up monitoring is not required where the discharge has been eliminated, or where

the implemented BMP provides full retention of the 85th percentile, 24-hour rain event.

Determinations of compliance at the Tier 2 sites shall be made by the Executive Officer of the Regional Water Board or his designee. When a determination is made that a site or discharge is in compliance, the site will no longer be considered an active monitoring site pursuant to provision E.2.c.1).

3) *Corrective Actions*
Corrective actions may include structural or non-structural BMPs. All structural BMPs must be designed according to the requirements in provisions E.2.d. and E.2.e.

4) *Field and Laboratory Data Requirements*
The Department shall prepare, maintain, and implement a Quality Assurance Project Plan (QAPP) in accordance with the Surface Water Ambient Monitoring Program. All monitoring samples shall be collected and analyzed according to the Department's QAPP developed for the purpose of compliance with this Order. SWAMP Quality Assurance Program Plan (2008) is available at:

http://www.waterboards.ca.gov/water_issues/programs/swamp/tools.shtml

All samples shall be analyzed by a certified or accredited laboratory as required by Water Code section 13176. Global Positioning System (GPS) coordinates shall be recorded for all monitoring sites, including sites selected for the final Tier 2 priority list (top 15%) according to existing data.

Water quality data (receiving water and effluent) shall be uploaded to the Storm Water Multi-Application Reporting and Tracking System (SMARTS) and must conform to "CEDEN Minimum Data Templates" format. CEDEN Minimum Data Templates are available at **http://ceden.org/**.

Analytical results shall be filed electronically in SMARTS within 30 days of receipt by the Department.

5) *Monitoring Results Report*
The Department shall submit, separate from the Annual Report, a ***MONITORING RESULTS REPORT*** (**MRR)** by October 1 of each year.

a) The MRR shall include a list of all sites in Tier 1 and Tier 2 being actively monitored, and the results of the past fiscal year's monitoring activities including effluent and receiving water quality monitoring.
b) The Department shall specifically highlight sample values that exceed applicable WQSs, including toxicity objectives. Complete sample results or

lab data need not be included, but must be retained and filed electronically, and must be provided to the Regional Water Board or State Water Board as provided in provision E.2.c.4).

c) The MRR shall include a summary of sites requiring corrective actions needed to achieve compliance with this Order, and a review of any iterative procedures (where applicable) at sites needing corrective actions.
d) The reporting period for the MRR shall be July 1 of the prior year through June 30 of the current year.

6) *Compliance Monitoring and Reporting*

a) The Department shall review and propose any updates, as needed, to the Non-compliance Reporting Plan for Municipal and Construction Activities in section 9.4.1 of the SWMP. The plan shall identify the staff in each District Office and Regional Water Board to send and receive ***INCIDENT REPORT FORMS*** (Attachment I). The Department shall continue to implement the July 2008 Construction Compliance Evaluation Plan or any updated plan as approved by the Executive Director.
b) The Department shall summarize, by District, all non-compliance incidents, including construction, in the Annual Report. The summary shall include incident dates, types, locations, and the status of the non-compliance incidents.
c) Receiving Water Limitations Compliance.

i) Upon a determination by the Department or the Regional Water Board Executive Officer that a discharge is causing or contributing to an exceedance of an applicable WQS, the Department shall provide verbal notification within five (5) days, and within 30 days thereafter submit a report to the appropriate Regional Water Board with a copy to the State Water Board. Verbal notification is not required where the determination is made by the Regional Water Board. An Incident Report is not required. Where the pollutant causing the exceedance is subject to a waste load allocation listed in Attachment IV of this Order, the Department shall comply with the requirements of the relevant TMDL in lieu of this provision.
ii) The report shall describe BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance. The report shall include an implementation schedule. The Regional Water Board Executive Officer may require modifications to the report.
iii) The Department shall submit any modifications to the report required by the Regional Water Board within 30 days of notification.
iv) The Department shall implement the revised BMPs and conduct any additional monitoring required according to the implementation schedule.

d) Toxicity
   i) Tests for chronic toxicity, where required, shall be estimated as specified in Short-term Method for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA/821-R-02-013, October 2002; Table IA, 40 Code of Federal Regulations section 136 and its subsequent amendments or revisions.
   ii) For the Department's discharges, the In-stream Waste Concentration (IWC) is 100 percent (i.e., either is 100 percent storm water or 100% non-storm water). To calculate either a Pass or Fail of the effluent concentration chronic toxicity test at the IWC, the instructions in Appendix A in the National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA/833-R-10-003) shall be used. A Pass result indicates no toxicity at the IWC, and a Fail result indicates toxicity at the IWC. Results shall be reported as provided in provision E.2.c.5).

e) Toxicity Reduction Evaluations (TREs)
   i) The Department shall include in the SWMP a TRE workplan (1-2 pages) specifying the steps that will be taken in preparing a TRE, when a TRE is required pursuant to provision E.2.c.6)e)ii). The workplan shall include, at a minimum:

      (a) A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and BMP efficiencies.
      (b) A description of the steps that will be taken to identify effective pollutant/toxicity reduction opportunities.
      (c) If a Toxicity Identification Evaluation (TIE) is necessary, an indication of who would conduct the TIEs (i.e., a Department laboratory or outside contractor).

   ii) Upon a determination that a discharge is causing or contributing to an exceedance of an applicable toxicity standard, a TRE may be required by the appropriate Regional Water Board Executive Officer on a site specific basis. The TRE shall be conducted according to the workplan in the SWMP.

d. <u>Project Planning and Design</u>
The Department shall describe in the SWMP how storm water management is incorporated into the project planning and design process, and how the procedures and methodologies used in the selection of Design and Construction BMPs will be used in Department projects. The Department shall implement the program specified in the SWMP, any documents incorporated into the SWMP by reference, and any additional requirements contained in this Order.

Department and Non-Department projects within the Department's ROW that are new development or redevelopment shall comply with the standard project planning and design requirements for new development and redevelopment specified below. These requirements shall apply to all new and redevelopment projects that have not completed the project initiation phase on the effective date of this Order.

1) *Design Pollution Prevention Best Management Practices*
   The following design pollution prevention best management practices shall be incorporated into all projects that create disturbed soil area (DSA), including projects designed to meet the post-construction treatment requirements (Section E.2.d.2)). The SWMP shall be updated to reflect these principles.

   a) Conserve natural areas, to the extent feasible, including existing trees, stream buffer areas, vegetation and soils;
   b) Minimize the impervious footprint of the project;
   c) Minimize disturbances to natural drainages;
   d) Design and construct pervious areas to effectively receive runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope and other pertinent factors;
   e) Implement landscape and soil-based BMPs such as compost-amended soils and vegetated strips and swales;
   f) Use climate-appropriate landscaping that minimizes irrigation and runoff, promotes surface infiltration, and minimizes the use of pesticides and fertilizers; and
   g) Design all landscapes to comply with the California Department of Water Resources Water Efficient Landscape Ordinance.

      http://www.water.ca.gov/wateruseefficiency/landscapeordinance/technical.cfm

      Where the California Department of Water Resources Water Efficient Landscape Ordinance conflicts with a local water conservation ordinance, the Department shall comply with the local ordinance.

2) *Post-Construction Storm Water Treatment Controls*

   a) <u>Projects Subject to Post-Construction Treatment Requirements</u>
      i) Department Projects
         The Department shall implement post construction treatment control BMPs for the following new development or redevelopment projects:

         (1) Highway Facility projects that create 1 acre or more of new impervious surface.
         (2) Non-Highway Facility projects that create 5,000 square feet or more of new impervious surface.

ii) Non-Department Projects within Department ROW

(1) The Department shall exercise control or oversight over Non-Department projects through encroachment permits or other means.
(2) Non-Department development or redevelopment projects shall be subject to the same post-construction treatment control requirements as Department projects.
(3) For all Non-Department Projects that trigger post-construction treatment control requirements, the Department shall review and approve the design of post-construction treatment controls and BMPs prior to implementation.

iii) Waiver
Where a Regional Water Board Executive Officer finds that a project will have a minimal impact on water quality, the Executive Officer may waive the treatment control requirements, or lessen the stringency of the requirements, for a project. Waivers may not be granted for projects subject to treatment control requirements based on a waste load allocation assigned to the Department.

b) Numeric Sizing Criteria for Storm Water Treatment Control BMPs:
Treatment control BMPs constructed for Department and Non-Department projects shall be designed according to the following priorities (in order of preference):

i) Infiltrate, harvest and re-use, and/or evapotranspire the storm water runoff;
ii) Capture and treat the storm water runoff.

The storm water runoff volumes and rates used to size BMPs shall be based on the 85th percentile 24-hour storm event. This sizing criterion shall apply to the entire treatment train within Project Limits. Design Pollution Prevention BMPs can be used to comply with this requirement.

In the event the entire runoff volume from an 85th percentile 24-hour storm event cannot be infiltrated, harvested and re-used, or evapotranspired, the excess volume may be treated by Low Impact Development (LID)-based flow-through treatment devices. Where LID-based flow-through treatment devices are not feasible, the excess volume may be treated through conventional volume-based or flow-based storm water treatment devices.

The Department shall always prioritize the use of landscape and soil-based BMPs to treat storm water runoff. Other BMPs may be used only after landscape and soil-based BMPs are determined to be infeasible. The

Department shall also consider other effective storm water treatment control methods or devices for Department approval.

c) Scope of Design Criteria Applicability for Redevelopment Projects

i) For Highway Facilities:

(1) Where redevelopment results in an increase in impervious area that is less than or equal to 50 percent of the total post-project impervious area within Project Limits, the numeric sizing criteria shall only apply to the new impervious area and not to the entire project.

If the redeveloped impervious area cannot be hydraulically separated from the existing impervious area, the Department shall either: provide treatment for redeveloped areas and as much of the hydraulically inseparable flow as feasible, based on site conditions and constraints; or identify treatment opportunities equivalent to the redeveloped area (see Alternative Compliance, below).

If it is not possible to separate the flows from redeveloped areas from the existing impervious area, the treatment system shall be designed to treat as much of the hydraulically inseparable flow as feasible, and shall bypass or divert any excess around the treatment device. The purpose of this requirement is to prevent overloading the treatment device and impairing its performance.

(2) Where redevelopment results in an increase in impervious area that is greater than 50 percent of the total post-project impervious area within Project Limits, the numeric sizing criteria apply to the entire project.

ii) For Non-Highway Facilities, where redevelopment results in an increase in impervious area that is less than or equal to 50 percent of the total post-project impervious area of an existing development, the numeric sizing criteria shall only apply to the new impervious area and not to the entire project.

(1) If the redeveloped impervious area cannot be hydraulically separated from the existing impervious area, the Department shall either provide treatment for existing and redeveloped areas, or identify treatment opportunities equivalent to the redeveloped area (See Alternative Compliance, below).

(2) Where redevelopment results in an increase in impervious area that is greater than 50 percent of the total post-project impervious area of an existing development, the numeric sizing criteria apply to the entire project.

d) Alternative Compliance

If the Department determines that all or any portion of on-site treatment for a project is infeasible on-site, the Department shall prepare a proposal for alternative compliance for approval by the Regional Water Board Executive Officer or his designee until such time as a statewide process is approved by the Executive Director of the State Water Board. The proposal shall include documentation supporting the determination of infeasibility. Alternative compliance may be achieved outside Project Limits within the Department's ROW, including within another Department project. Alternative compliance to be achieved outside Project Limits shall include provisions for the long-term maintenance of such treatment facilities.

3) *Hydromodification Requirements*

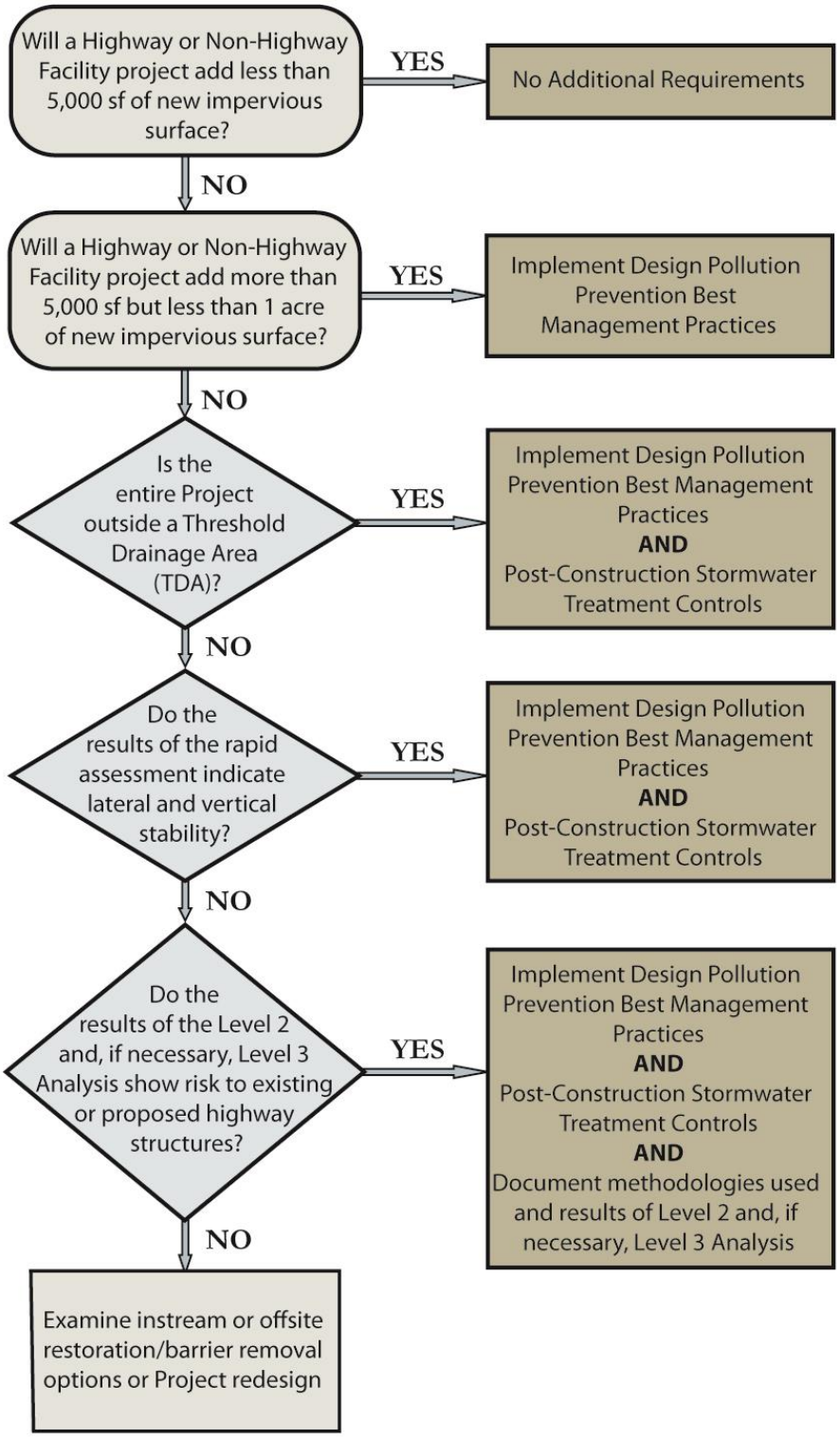
The Department shall ensure that all new development and redevelopment projects do not cause a decrease in lateral (bank) and vertical (channel bed) stability in receiving stream channels. Unstable stream channels negatively impact water quality by yielding much greater quantities of sediment than stable channels. The Department shall employ the risk-based approach detailed in this permit to assess lateral and vertical stability. The approach assists the Department in assessing pre-project channel stability and implementing mitigation measures that are appropriate to protect structures and minimize stream channel bank and bed erosion. The approach is depicted in Figure 1 and described below.

a) Highway or Non-Highway Facility projects that add between 5,000 square feet and 1 acre of new impervious surface must implement the Design Pollution Prevention Best Management Practices in Section E.2.d.1).

b) Highway or Non-Highway Facility projects that add 1 acre or more of new impervious surface completely outside of a Threshold Drainage Area[7] must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d.

[7] Threshold Drainage Area is defined as the area draining to a location at least 20 channel widths downstream of a stream crossing (pipe, swale, culvert, or bridge) within Project Limits. Delineating the Threshold Drainage Area is not necessary if there is/ are no stream crossing(s) within the Project Limits.

FIGURE 1: Hydromodification Flowchart



c) Highway or Non-Highway Facility projects that add 1 acre or more of new impervious surface with any impervious portion of the project located within a Threshold Drainage Area must conduct a rapid assessment of stream stability[8] at each stream crossing (e.g., pipe, culvert, swale or bridge) within that Threshold Drainage Area. If the stream crossing is a bridge, a follow up rapid assessment of stream stability is also required and can be coordinated with the federally-mandated bridge inspection process. The assessment will be conducted within a representative channel reach to assess lateral and vertical stability. A representative reach is a length of stream channel that extends at least 20 channel widths upstream and downstream of a stream crossing. For example, a 20 foot-wide channel would require analyzing a 400 foot distance upstream and downstream of the discharge point or bridge. If sections of the channel within the 20 channel width distance are immediately upstream or downstream of steps, culverts, grade controls, tributary junctions, or other features and structures that significantly affect the shape and behavior of the channel, more than 20 channel widths should be analyzed.

d) If the results of the rapid assessment indicate that the representative reach is laterally and vertically stable (i.e., a rating of excellent or good) the Department does not have to conduct further analyses and must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d.

e) If the results of the rapid assessment indicate that the representative reach will not be laterally and vertically stable (i.e., a rating of excellent or good), the Department must determine whether the instability, in conjunction with the proposed project, poses a risk to existing or proposed highway structures by conducting appropriate Level 2 (and, if necessary, Level 3) analyses. The Department shall follow the Level 2 and 3 analysis guidelines contained in HEC-20 (FHWA, 2001) or a suitable equivalent within an accessible portion of the reach. If the results of the appropriate Level 2 (and, if necessary Level 3) analyses indicate that there is no risk to existing or proposed highway structures, the Department must implement the Design Pollution Prevention Best Management Practices and the Post-Construction Storm Water Treatment Controls in Section E.2.d. and document the methodologies used, the results, and the mitigation measures suggested as part of the appropriate Level 2 and, if necessary, Level 3 analyses.

f) If the results of the Level 2 and 3 analysis indicate that the instability, in conjunction with the proposed project, poses a risk to existing or proposed highway structures, other options must be implemented, including, but not limited to, in-stream and floodplain enhancement/restoration, fish barrier

[8] Guidance and worksheets used for the rapid assessment of stream stability are in the Federal Highway Administration publication "*Assessing Stream Channel Stability at Bridges in Physiographic Regions"* (FHWA, 2006).

removal as identified in the report required under Article 3.5 of the Streets and Highways Code (see below), regional flow control, off-site BMPs, and, if necessary, project re-design.

4) *Stream Crossing Design Guidelines to Maintain Natural Stream Processes*
The Department shall review and revise as necessary the guidance document "Fish Passage Design for Road Crossings" (Department, 2009). In reviewing and revising the guidance document, the Department shall be consistent with the latest stream crossing design, construction, and rehabilitation criteria contained in the California Salmonid Stream Habitat Restoration Manual (California Department of Fish & Game, 2010) and National Marine Fisheries Service guidance (NMFS, 2001). The review shall be completed no later than one year after the effective date of this Order. The Department shall submit in the Year 2 Annual Report a report detailing the review of the guidance document. The Year 2 Annual Report shall also report on the implementation of the road crossing guidelines.

If it is infeasible to meet any of the guidelines specified above, the Department shall prepare written documentation justifying the determination of infeasibility. Documentation shall be provided to the Regional Water Board for approval.

The Department shall submit to the State Water Board by October 1 of each year the same report required under Article 3.5 of the Streets and Highways Code requiring the Department to report on the status of its efforts in locating, assessing, and remediating barriers to fish passage.

e. BMP Development & Implementation
In the SWMP, the Department shall include a description of how BMPs will be developed, constructed and maintained. The Department shall continue to evaluate and investigate new BMPs through pilot studies. The Department shall submit updates to the ***STORM WATER TREATMENT BMP TECHNOLOGY REPORT*** and the ***STORM WATER MONITORING AND BMP DEVELOPMENT STATUS REPORT*** in the Annual Report.

1) *Vector Control*

a) All storm water BMPs that retain storm water shall be designed, operated and maintained to minimize mosquito production, and to drain within 96 hours of the end of a rain event, unless designed to control vectors. BMPs shall be maintained at the frequency specified by the manufacturer. This limitation does not apply in the Lake Tahoe Basin and in other high-elevation regions of the Sierra Nevada above 5000 feet elevation with similar alpine climates. The Department shall operate and maintain all BMPs to prevent the propagation of vectors, including complying with applicable provisions of the California Health and Safety Code relating to vector control.

b) The Department shall cooperate and coordinate with the California Department of Public Health (CDPH) and with local mosquito and vector control agencies on issues related to vector production in the Department's structural BMPs. The Department shall prepare and maintain an inventory of structural BMPs that retain water for more than 96 hours. The inventory need not include BMPs in the Lake Tahoe Basin or other regions of the Sierra Nevada above 5000 feet. The inventory shall be provided to CDPH in electronic format for distribution to local mosquito and vector control agencies. The inventory shall be provided in Year 2 of the permit and updated every two years.

2) *Storm Water Treatment BMPs*

a) The Department shall inspect all newly installed storm water treatment BMPs within 45 days of installation to ensure they have been installed and constructed in accordance with approved plans. If approved plans have not been followed, the Department shall take appropriate remedial actions to bring the BMP or control into conformance with its approved design.
b) The Department shall inspect all installed storm water treatment BMPs at least once every year, beginning one year after the effective date of this Order.
c) The Department may drain storm water treatment BMPs to the MS4 if the discharge does not cause or contribute to exceedances of water quality standards. Retained sediments shall be disposed of properly, in compliance with all applicable local, State, and federal acts, laws, regulations, ordinances, and statutes.
d) The Department shall develop and utilize a watershed-based database to track and inventory treatment BMPs and treatment BMP maintenance within its jurisdiction. At a minimum, the database shall include:

i) Name and location of BMP;
ii) Watershed, Regional Water Board and District where project is located;
iii) Size and capacity;
iv) Treatment BMP type and description;
v) Date of installation;
vi) Maintenance certifications or verifications;
vii) Inspection dates and findings;
viii) Compliance status;
ix) Corrective actions, if any; and
x) Follow-up inspections to ensure compliance.

Electronic reports for each BMP inspected during the reporting period shall be submitted to each associated Regional Water Board in tabular form. A summary of the tracking system data shall be included in the Annual Report along with a report on maintenance activities for post construction BMPs.

The tracking system database shall be made available to the State Water Board or any Regional Water Board upon request.

3) BMPs shall not constitute a hazard to wildlife.

4) *Biodegradable Materials.*
The Department shall utilize wildlife-friendly 100% biodegradable[9] erosion control products wherever feasible. At any site where erosion control products containing non-biodegradable materials have been used for temporary site stabilization, the Department shall remove such materials when they are no longer needed. If the Department finds that erosion control netting or products have entrapped or harmed wildlife at any site or facility, the Department shall remove the netting or product and replace it with wildlife-friendly biodegradable products.

f. Construction

1) *Compliance with the Statewide Construction Storm Water General Permit (CGP) and Lake Tahoe Construction General Permit (TCGP)*
Construction activities that may receive coverage under the CGP or the TCGP are not covered under this MS4 Permit. The Department shall electronically file Permit Registration Documents (PRD) for coverage under the CGP or TCGP for all projects subject to the CGP or TCGP.

2) *Construction Activities not Requiring Coverage Under the CGP*
For construction activities that are not subject to the CGP or the TCGP, the Department shall implement BMPs to reduce the discharge of pollutants to the MEP in storm water discharges associated with land disturbance activities including clearing, grading and excavation activities that result in the disturbance of less than one acre of total land area. The Department shall also implement BMPs to reduce the discharge of pollutants to the MEP for construction and maintenance activities that do not involve land disturbance such as roadway and parking lot repaving and resurfacing. The Department must comply with any region-specific waste discharge requirements, including any requirements applicable to activities involving less than one acre land disturbance.

3) *Construction Projects Involving Lead Contaminated Soils*
The Department has applied for and received variances from the California Department of Toxic Substances Control (DTSC) for the reuse of some soils that contain lead. For construction projects that have received a DTSC variance, the Department shall notify the appropriate Regional Water Board in writing 30 days prior to advertisement for bids to allow a determination by the Regional Water Board of the need for development of Waste Discharge Requirements (WDRs).

[9] For purposes of this Order, photodegradable synthetic products are not considered biodegradable.

4) *Pavement Grindings*
The Department shall comply with the requirements of the Regional Water Boards for the management of pavement grindings as well as with all local and State regulations, including Titles 22 and 27 of the California Code of Regulations.

5) *Contractor Compliance*
The Department shall require its contractors to comply with this Order and with all applicable requirements of the CGP.

6) *Construction Non-Compliance Reporting*
Incidents of non-compliance with the CGP shall be reported pursuant to the provisions of the CGP. The Department shall provide in the Annual Report a summary of all construction project non-compliance (Section E.2.c.6)b)).

g. Compliance with Statewide Industrial Storm Water General Permit (IGP)
Industrial activities are not covered under this MS4 permit. The Department shall electronically file PRDs for coverage under the IGP for all facilities subject to coverage under the IGP. The categories of industrial facilities are provided in Attachment 1 of the Industrial General Permit (NPDES Permit No. CAS000001; the current Order No. 97-03-DWQ). The Department shall require its industrial facility contractors to comply with all requirements of the IGP. The discharge of pollutants from facilities not covered by the Industrial General Permit will be reduced to the MEP through the appropriate implementation of BMPs.

h. Maintenance Program Activities and Facilities Operations

1) *Implement SWMP Requirements*
The Department shall implement the program specified in the SWMP to reduce or eliminate pollutants in storm water discharges from Department maintenance facilities and maintenance activities. The Department shall also implement any additional requirements contained in this Order.

2) A ***FACILITY POLLUTION PREVENTION PLAN (FPPP)*** describes the activities conducted at a facility and the BMPs to be implemented to reduce or eliminate the discharge of pollutants in storm water runoff from the facility.

The Department shall prepare, revise and/or update the FPPPs for all maintenance facilities by October 1 of the first year. Each facility shall be evaluated separately and assigned appropriate site specific BMPs. The FPPP shall describe the activities conducted at the facility and the BMPs to be implemented to reduce or eliminate the discharge of pollutants in storm water runoff from the facility. The FPPP shall describe the inspection program used to ensure that maintenance BMPs are implemented and maintained. The Department shall identify in each Annual Report the status of the FPPP for each

Maintenance Facility by District and Region, including the date of the last update or revision and the nature of any revisions.

The Department shall evaluate all non-maintenance Facilities, excluding leased properties, for water quality problems. If the Department identifies a water quality problem at a non-maintenance facility, it shall prepare an FPPP for that facility. If Regional Water Board staff determines that a non-maintenance facility may discharge pollutants to the storm water drainage system or directly to surface waters, the Department shall prepare an FPPP for that facility.

Regional Water Board staff has the authority to require the submittal of an FPPP at any time, to require changes to a FPPP, and to require changes in the implementation of the provisions of a FPPP.

3) *Highway Maintenance Activities*
   a) The Department shall develop and implement runoff management programs and systems for existing roads, highways, and bridges to reduce runoff pollutant concentrations and volumes entering surface waters. The Department shall:

      i) Identify priority and watershed pollutant reduction opportunities (e.g., improvements to existing urban runoff control structures). Priority shall be given to sites in sensitive watersheds or where there is an existing or potential threat to water quality;
      ii) Establish schedules for implementing appropriate controls; and
      iii) Identify road segments with slopes that are prone to erosion and sediment discharge and stabilize these slopes to control the discharge of pollutants to the MEP. An inventory of vulnerable road segments shall be maintained in the District Work Plans. Stabilization activities shall be reported in the Annual Report. This section does not apply to landslides and other forms of mass wasting which are covered under section E.2.h.3)d).

   b) Vegetation Control
      The Department shall control its handling and application of chemicals including pesticides, herbicides, and fertilizers to reduce or eliminate the discharge of pollutants to the MEP. The Department shall incorporate integrated pest management and integrated vegetation management practices into its vegetation control program[10]. At a minimum, the Department shall:

      i) Apply herbicides and pesticides in compliance with federal, state and local use regulations and product label directions.

[10] http://www.epa.gov/opp00001/factsheets/ipm.htm and http://www.ipm.ucdavis.edu/

(1) Violations of regulations shall be reported to the County Agricultural Commissioners within 10 business days.
(2) The Annual Report shall include a summary of violations and follow-up actions to correct them.

ii) Minimize the application of chemicals by using integrated pest management and integrated vegetation management. For example, the Department may reduce the need for application of fertilizers and herbicides by using native species and using mechanical and biological methods for control of exotic species.

iii) Prior to chemical applications, assess site-specific and application-specific conditions to prevent discharge. The assessment shall include the following variables:

(1) Expected precipitation events, especially those with the potential for high intensity;
(2) Proximity to water bodies;
(3) Intrinsic mobility of the chemical;
(4) Application method, including any tendency for aerial dispersion;
(5) Fate and transport of the chemical after application;
(6) Effects of using combinations of chemicals; and
(7) Other conditions as identified by the applicator.

iv) Apply nutrients at rates and by means necessary to establish and maintain vegetation without causing significant nutrient runoff to surface water.

v) Ensure that all employees or contractors who, within the scope of their duties, prescribe or apply herbicides, pesticides, or fertilizers (including over-the-counter products) are appropriately trained and licensed to comply with these provisions.

vi) Propose SWMP provisions as appropriate.

vii) Include the following items in the Annual Report:

(1) A summary of the Department's chemical use. Report the quantity of chemicals used during the previous reporting period by name and type of chemical, by District, and by month.
(2) An assessment of long-term trends in herbicide usage. Include a table presenting yearly District herbicide totals by chemical type;
(3) A comparison of the statewide herbicide use with the Department's herbicide reduction goals;

(4) An analysis of the effectiveness of implementation of vegetation control BMPs. Improvements to BMP implementation either being used or proposed for usage shall be discussed. If no improvements are proposed, explain why;
(5) Justification for any increases in use of herbicides, pesticides, and fertilizers;
(6) A report on the number and percentage of employees who apply pesticides and have been trained and licensed in the Department's Pesticide and Fertilizer Pollution Control Program policies; and
(7) Training materials, if requested by the State Water Board.

c) Storm Water Drainage System Facilities Maintenance

i) The Department shall inspect all urban[11] drainage inlets and catch basins a minimum of once per year and shall remove all waste and debris from drainage inlets and catch basins when waste and debris have accumulated to a depth of 50 percent of the inlet or catch basin capacity.
ii) Waste and debris, including sweeper and vacuum truck waste, shall be managed and reported in accordance with all applicable laws and regulations, including the Cal. Code Regs. Title 27, Division 2, Subdivision 1.
iii) The Department shall develop a ***WASTE MANAGEMENT PLAN*** that includes a comprehensive inventory of waste storage, transfer, and disposal sites; the source(s) of waste and the physical and chemical characterization of the waste retained at each site; estimated annual volumes of material and existing or planned waste management practices for each waste and facility type. Waste characterization need not be conducted on a site-by-site basis but may be evaluated programmatically based upon the highway environment and associated land uses contributing to the sites, climate, and ecoregion. The Waste Management Plan shall be submitted for State Water Board review and approval within one year of the effective date of this Order.

d) Landslide Management Activities
The Department shall develop a ***LANDSLIDE MANAGEMENT PLAN*** that includes BMPs for Department construction and maintenance work landslide-related activities (e.g., prevention, containment, clean-up). The *Landslide Management Plan* shall address all forms of mass wasting such as slumps, mud flows, and rockfalls, and shall include BMPs specifically for burn site management activities. The Department shall submit the *Landslide Management Plan* with the Year 1 Annual Report and implement the *Landslide Management Plan* for the remainder of the Permit term.

[11] For purposes of this requirement, the term "urban" shall mean located within an "urbanized area" as determined by the latest Decennial Census by the Bureau of the Census (Urbanized Area).

4) *Surveillance Activities*

a) Spill Response

The Department will follow the applicable Emergency Management Agency (EMA) procedures and timelines specified in Water Code sections 13271 and 13272 for reporting spills.

b) Illegal Connection/Illicit Discharge (IC/ID) and Illegal Dumping Response

i) The Department shall implement the BMPs and other requirements of the SWMP and this Order to reduce and eliminate IC/IDs and illegal dumping.

ii) The Department shall develop an ***IC/ID AND ILLEGAL DUMPING RESPONSE PLAN*** that includes, at a minimum, the following:

(a) Procedures for investigating reports or discoveries of IC/IDs or incidents of illegal dumping, for remediating or eliminating the IC/IDs, and for clean-up of illegal dump sites.

(b) Procedures for prevention of illegal dumping at sites subject to repeat or chronic incidents of illegal dumping.

(c) Procedures for educating the public, raising awareness and changing behaviors regarding illegal dumping, and encouraging the public to contact the appropriate local authorities if they witness illegal dumping.

Within 6 months of the effective date of this Order, the Department shall submit the ***IC/ID AND ILLEGAL DUMPING RESPONSE PLAN*** to the State Water Board Executive Director for approval.

iii) The Department shall report all suspected IC/IDs to the Regional Water Board.

c) Reporting Requirements for Trash and Litter

The Department shall report on the trash and litter removal activities that are currently underway or are initiated after adoption of this Order. Activities include, but are not limited to, storm drain maintenance, road sweeping, public education and the Adopt-A-Highway program. Reporting and assessment of these or future activities shall follow protocols established by the Department and shall include estimated annual volumes of the trash and litter removed. Results shall be submitted as part of the Annual Report in a summary format by District. Prior year's data shall be included to facilitate an analysis of trends.

d) Department Activities Outside the Department's Right-of-Way

The Department shall include provisions in its contracts that require the contractor to obtain and comply with applicable permits for project-related facilities and operations outside the Department's ROW. Facilities may include concrete or asphalt batch plants, staging areas, concrete slurry

processing or other material recycling operations, equipment and material storage yards, material borrow areas, and access roads.

5) *Maintenance Facility Compliance Inspections*

a) District staff shall inspect all maintenance facilities at least twice annually. Follow up inspections shall be conducted when deficiencies are noted. The inspections are to identify areas contributing to a discharge of pollutants associated with maintenance facility activities, to determine if control practices to reduce pollutant loadings identified in the Facility Pollution Prevention Plans (FPPP) are adequate and properly implemented, and to determine whether additional control practices are needed. The District shall keep a record of inspections. The record of the inspections shall include the date of the inspection, the individual(s) who performed the inspection, a report of the observations, recommendations for any corrective actions identified or needed, and a description of any corrective actions undertaken.

b) The Regional Water Board may require the Department to conduct additional site inspections, to submit reports and certifications, or to perform additional sampling and analysis to the extent authorized by the Water Code.

c) Records of all inspections, compliance certifications, and non-compliance reporting shall be retained for a period of at least three years. With the exception of non-compliance reporting, the Department is not required to submit these records unless requested.

6) *Operation and Maintenance of Post-Construction BMPs*
The Department shall prepare and implement long-term operation and maintenance plans for every site subject to the post-construction storm water treatment design standards. The plans must ensure the following: a) Long-term structural LID BMPs are maintained as necessary to ensure they continue to work effectively; b) Proprietary devices are maintained according to the manufacturer's directions; and c) Post-construction BMPs are replaced if they lose their effectiveness.

i. Non-Departmental Activities
The Department shall summarize its control over all non-departmental (third party) activities performed on Department ROW in the SWMP. The summary shall describe how the Department shall ensure compliance with this Order in all non-departmental activities.

The Department shall not grant or renew encroachment permits or easements benefitting any third party required to obtain coverage under the Statewide Construction and/or Industrial Storm Water General Permits unless the party has obtained coverage. In all leases, rental agreements, and all other contracts with

third parties conducting activities within the ROW, the Department shall require the third party to comply with applicable requirements of the Construction General Permit, the Industrial General Permit, and this Order.

j. Non-Storm Water Activities/ Discharges

1) The Department shall describe the management activities for all non-storm water discharges in the SWMP. Management activities shall include the procedures for prohibiting illicit discharges and illegal connections, and procedures for spill response, cleanup, reporting, and follow-up.

2) *Agricultural Return Flows*
The Department shall provide reasonable support to the monitoring activities of agricultural dischargers whose runoff enters the MS4. Reasonable support includes facilitating monitoring activities, providing necessary access to monitoring sites, and cooperating with monitoring efforts as needed. It does not include actively conducting monitoring or providing funding. The Department may require agricultural dischargers to follow established Department access and encroachment procedures in establishing sites and conducting monitoring activities, and may deny access at sites that may restrict traffic flow or pose a danger to any party.

3) See Section B of this Order for the complete list of conditionally exempt non-storm water discharges and compliance requirements.

k. Training

1) The Department shall implement a training program for Department employees and construction contractors. The training program shall be described in the SWMP.

2) The training program shall cover:

a) Causes and effects of storm water pollution;
b) Regulatory requirements;
c) Best Management Practices;
d) Penalties for non-compliance with this Order; and
e) Lessons learned.

3) The Department shall provide a review and assessment of all training activities in the Annual Report.

l. Public Education and Outreach

The Department shall implement a Statewide Public Education Program and describe it in the SWMP. The Department shall continue to seek opportunities to participate in public outreach and education activities with other MS4 permittees.

1) The Statewide Public Education Program shall include the following elements:

   a) Research: A plan for conducting research on public behavior that affects the quality of the Department's runoff. The information gathered will form the foundation for all the public education conducted.
   b) Education: Education of the general public to modify behavior and communicate with commercial and industrial entities whose actions may add pollutants to the Department's storm water.
   c) Mass Media Advertising: Continue the advertising campaign as a focal point of the public education strategy. The campaign should focus on the behaviors of concern and should be designed to motivate the public to change those behaviors. The public education campaign should be revised and updated according to the results of the research. The Department may cooperate with other organizations to implement the public education campaign.

2) A ***PUBLIC EDUCATION PROGRAM PROGRESS REPORT*** shall be submitted as part of the Annual Report.

m. Program Evaluation

1) The Department shall implement the program specified in the SWMP and any additional requirements contained in this Order.
2) *Field Activities* ***SELF-AUDIT***
   The Department will perform compliance evaluations for field activities including construction, highway maintenance, facility maintenance, and selected targeted program components. The results of the field compliance evaluations for each fiscal year will be provided in the Annual Report.
3) ***OVERALL PROGRAM EFFECTIVENESS EVALUATION****:*
   Each year, the Department shall submit an ***OVERALL PROGRAM EFFECTIVENESS EVALUATION*** together with the Annual Report. The Department shall increase the scope of the evaluation each year in response to the environmental monitoring data it collects. The effectiveness evaluation shall be comparable to that outlined in CASQA's *Municipal Stormwater Program Effectiveness Assessment Guidance*[12] and shall emphasize assessment of BMPs specifically targeting primary pollutants of concern. The effectiveness evaluation shall include, but is not limited to, the following components:

[12] https://www.casqa.org/store/products/tabid/154/p-7-effectiveness-assessment-guide.aspx

a) Assessment of program effectiveness in achieving permit requirements and measurable objectives.
b) Assessment of program effectiveness in protecting and restoring water quality and beneficial uses.
c) Identification of quantifiable effectiveness measurements for each BMP, including measurements that link BMP implementation with improvement of water quality and beneficial use conditions.
d) Identification of how the Department will propose revisions to the SWMP to optimize BMP effectiveness when effectiveness assessments identify BMPs or programs that are ineffective or need improvement.

n. Measurable Objectives
The Department shall implement the program specified in the SWMP and any additional requirements contained in this Order. In the SWMP, the Department shall identify measurable objectives to meet the SWMP's goals, proposed activities and tasks to meet the objectives, and a time schedule for the proposed activities and tasks. In the Annual Report, the Department shall report on its progress in meeting the measurable objectives.

o. References
The Department shall provide references for all information, documents, and studies used in the development of the SWMP.

3. Annual Report

a. The Department shall submit 13 copies of an ***ANNUAL REPORT*** to the State Water Board Executive Director by October 1 of each year. An electronic copy shall also be uploaded into SMARTS in the portable document format (PDF). The reporting period for the Annual Report shall be July 1 through June 30. The Annual Report shall contain all information and submittals required by this Order including, but not limited to:

1) A District-by-District description of storm water pollution control activities conducted during the reporting period;
2) A progress report on meeting the SWMP's measurable objectives;
3) An Overall Program Effectiveness Evaluation as described in section E.2.m.3);
4) Proposed revisions to the SWMP, including revisions to existing BMPs, along with corresponding justifications;
5) A report on post-construction BMP maintenance activities;
6) A list of non-approved BMPs that were implemented in each District during the reporting period including the type of BMP, reason for use, physical location, and description of any monitoring;
7) An evaluation of project planning and design activities conducted during the year;

8) A summary of non-compliance with this Order and the SWMP as specified in Section E.2.c.6)b). The summary shall include an assessment of the effectiveness of any Department enforcement and penalties, and as appropriate, proposed solutions to improve compliance;
9) An evaluation of the Monitoring Results Report, including a summary of the monitoring results;
10) Proposed revisions to the Department's Vegetation Control Program;
11) Proposals for monitoring and control of non-storm water discharges that are found to be sources of pollutants as described in Section B. of this Order;
12) District Workplans (See below); and
13) Measures implemented to meet region-specific requirements.

A partial summary of reporting requirements is contained in Attachment IX of this Order.

b. ***DISTRICT WORKPLANS***

The Department shall submit ***DISTRICT WORKPLANS*** (workplans) for each District by October 1 of each year, as part of the Annual Report. The workplans will be forwarded to the appropriate Regional Water Board Executive Officer for acceptance. Workplans are deemed accepted after 60 days after receipt by the Regional Water Board unless rejected in writing. District staff shall meet with Regional Water Board staff on an annual basis prior to submittal of the workplans to discuss alternatives and ensure that appropriate post construction controls are included in the project development process through review of the workplan and early consultation and coordination between District and Regional Water Board staff. Workplans shall conform with the requirements of applicable Regional Water Board Basin Plans and shall include, at a minimum:

1) A description of all activities and projects, including maintenance projects, to be undertaken by the Districts. For all projects with soil disturbing activities, this shall include a description of the construction and post construction controls to be implemented;
2) The area of new impervious surface and the percentage of new impervious surface to existing impervious surface for each project;
3) The area of disturbed soil associated with each project or activity;
4) A description of other permits needed from the Regional Water Boards for each project or activity;
5) Potential and actual impacts of the discharge(s) from each project or activity;
6) The proposed BMPs to be implemented in coordination with other MS4 permittees to comply with WLAs and LAs assigned to the Department for specific pollutants in specific watersheds or sub watersheds;
7) The elements of the statewide monitoring program to be implemented in the District;

8) Identification of high-risk areas (such as locations where spills or other releases may discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities);
9) Spill containment, spill prevention and spill response and control measures for high-risk areas; and
10) Proposed measures to be taken to meet Region-specific requirements included in Attachment V.
11) An inventory of vulnerable road segments having slopes that are prone to erosion and sediment discharge.

4. TMDL Compliance Requirements

a. Implementation

The Department shall comply with all TMDL-related requirements identified in Attachment IV.

In addition, consistent with provision E.11.b of this Order, the State Water Board may reopen this Order to incorporate any modifications or revisions to the TMDLs in Attachment IV, or to incorporate any new TMDLs adopted during the term of this Order that assign a WLA to the Department or that identify the Department as a responsible party in the TMDL implementation plan.

b. Status Review Report

The Department shall prepare a ***TMDL STATUS REVIEW REPORT*** to be submitted with each Annual Report. The ***TMDL STATUS REVIEW REPORT*** shall include all information required in Attachment IV.

5. ASBS Compliance Requirements

a. Priority Discharges
Attachment III, ASBS Priority Discharge Locations, identifies representative monitoring locations where the Department has priority discharges to ASBS. Priority discharges are those that pose the greatest threat to water quality in the ASBS and which the State Water Board identifies to require monitoring and potential installation of structural or non-structural controls.

b. Alternate Locations
The Executive Director of the State Water Board may authorize revisions to Attachment III, ASBS Priority Discharge Locations, where access limitations or safety considerations make it infeasible to conduct monitoring. Alternate locations proposed by the Department shall be in as close proximity to the original priority discharge locations as is feasible.

c. Compliance Schedule

1) On the effective date of the Exception, all non-authorized non-storm water discharges (e.g., dry weather flow) to ASBS shall be effectively prohibited.

2) No later than September 20, 2013, the Department shall submit a draft written ASBS Compliance Plan to the State Water Board Executive Director that describes its strategy to comply with these provisions, including the requirement to maintain natural water quality in the affected ASBS (see provision E.5.d.). The final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring, shall be submitted no later than September 20, 2015 and shall be included in the SWMP.

3) Within 18 months of the effective date of the Exception, any non-structural controls that are necessary to comply with these provisions shall be implemented.

4) Within six (6) years of the effective date of the Exception, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these provisions shall be operational.

5) Within six (6) years of the effective date of the Exception, the Department must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the Department must re-sample the receiving water, pre- and post-storm. If after re-sampling, the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See Figure 2.

6) The Executive Director of the State Water Board may only authorize additional time to comply with provisions E.5.b.4) and E.5.b.5) above if good cause exists to do so. Good cause means a physical impossibility or lack of funding.

   If the Department claims physical impossibility, it shall notify the Executive Director of the State Water Board in writing within thirty (30) days of the date that the discharger Department first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in provisions E.5.c.4) or E.5.c.5). The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Permit provision. The Department shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of

the delay on water quality, the measures taken or to be taken by the Department to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Department shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

The Department may request an extension of time for compliance based on lack of funding. The request for an extension shall require a demonstration and documentation of a good faith effort to acquire funding through the Department's budgetary process, and a demonstration that funding was unavailable or inadequate.

d. ASBS Compliance Plan
The Department shall develop and submit to the Executive Director of the State Water Board a draft ASBS Compliance Plan not later than September 20, 2013. The ASBS Compliance Plan shall address all locations listed in Attachment III as follows:

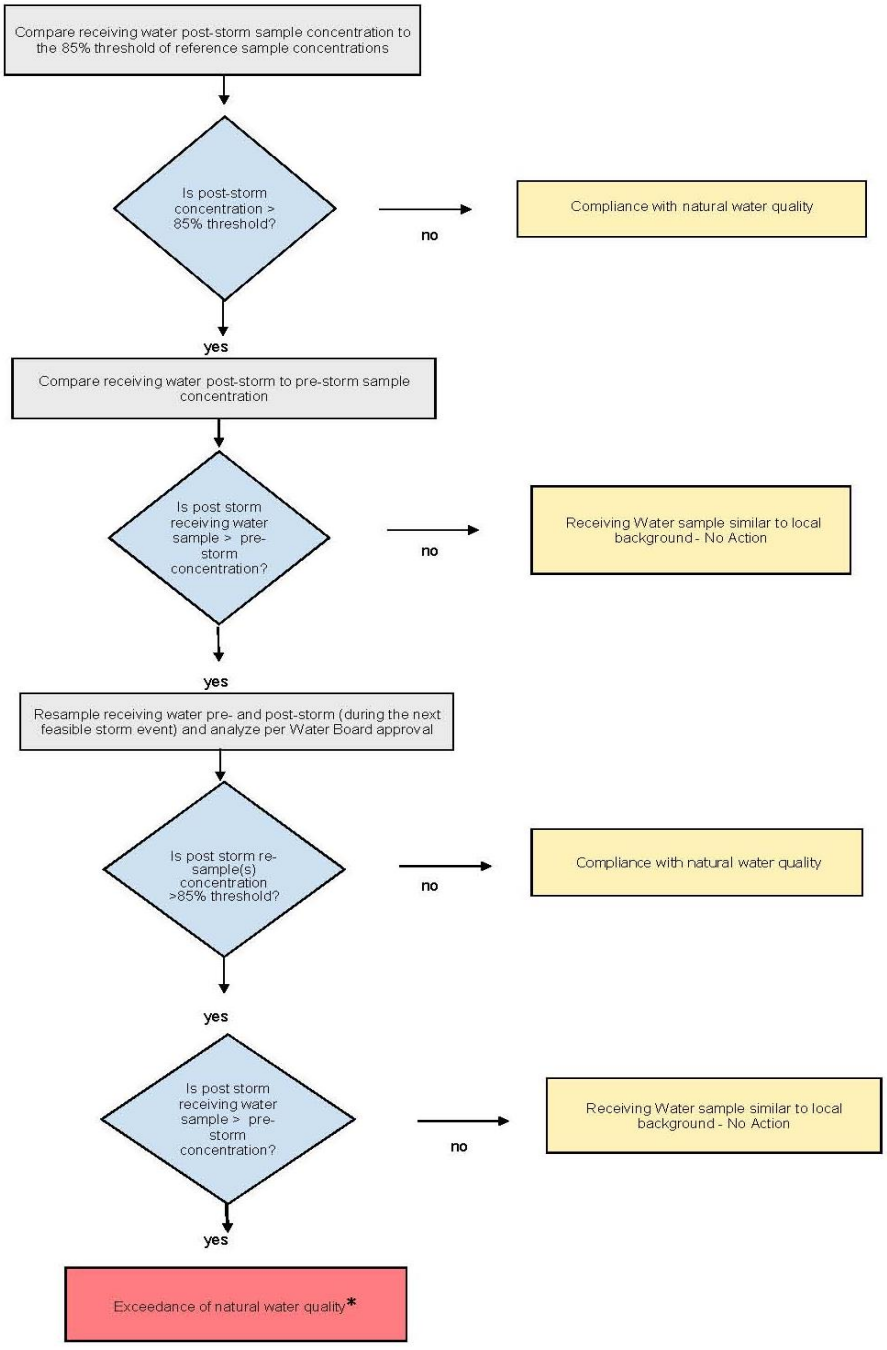
1) Include a map of surface drainage of storm water runoff, showing areas of sheet runoff, priority discharge locations, and any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable.

2) Describe the measures by which all non-authorized non-storm water runoff (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.

3) Require minimum inspection frequencies as follows:

a) The minimum inspection frequency for construction sites shall be weekly during the rainy season;
b) The minimum inspection frequency for industrial facilities shall be monthly during the rainy season; and
c) Storm water outfall drains equal to or greater than 18 inches (457 mm) in diameter or width shall be inspected once prior to the beginning of the rainy season and once during the rainy season, and maintained to remove trash and other anthropogenic debris.

Figure 2
ASBS Special Protections
Flowchart to Determine Compliance with Natural Water Quality



*** When an exceedance of natural water quality occurs, the Department must comply with section I.A.2.h of the Special Protections as well as the requirements of this Order. Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.**

4) Address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the discharger can document to the satisfaction of the State Water Board Executive Director that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:

   a) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or
   b) A 90% reduction in pollutant loading during storm events, for the Department's total discharges.

   The baseline for these determinations is the effective date of the Exception, except for those structural BMPs installed between January 1, 2005 and adoption of the Special Protections.

5) Address erosion control and the prevention of anthropogenic sedimentation in ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.

6) Describe the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall include non-structural BMPs that address public education and outreach. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures currently employed and planned for higher threat discharges, and shall include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, the Department must first consider, and use where feasible, LID practices to infiltrate, use, or evapotranspire storm water runoff on-site, if LID practices would be the most effective at reducing pollutants from entering the ASBS.

7) The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.

e. Reporting
   If the results of the receiving water monitoring described in provision E.2.c.2)a)i) indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the discharger shall submit a report to the State Water Board and Regional Water Board within 30 days

of receiving the results.

1) The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.

2) The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWMP for future implementation, and any additional BMPs that may be added to the SWMP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.

3) Within 30 days of the approval of the report by the State Water Board Executive Director, the discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.

4) As long as the discharger has complied with the procedures described above and is implementing the revised SWMP, the discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.

6. Region Specific Requirements

a. The Department shall implement the region-specific requirements specified in this Order.
b. In the SWMP, the Department shall describe how individual Districts will address region-specific requirements in each Regional Water Board.
c. Region specific requirements are specified in Attachment V of this Order.

7. Regional Water Board Authorities

a. Upon the effective date of this Order, the Regional Water Boards shall enforce the requirements of this Order. Enforcement may include, but is not limited to, reviewing FPPPs, reviewing workplans and monitoring reports, conducting compliance inspections, conducting monitoring, reviewing Annual Reports and other information, and issuing enforcement orders.
b. Regional Water Boards may require submittal of FPPPs.
c. Regional Water Boards may require retention of records for more than three years.
d. To the extent authorized by the Water Code, Regional Water Boards may impose additional monitoring and reporting requirements and may provide guidance on monitoring plan implementation (Water Code, § 13383).
e. Regional Water Board staff may inspect the Department's facilities, roads, highways, bridges, and construction sites.

f. Regional Water Boards may issue other individual storm water NPDES permits or WDRs to the Department, particularly for discharges beyond the scope of this Order.

8. Requirements of Other Agencies

This Order does not preempt or supersede the authority of other State or local agencies (such as the Department of Toxic Substances Control or the California Coastal Commission) and local municipalities to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdictions as allowed by State and federal law.

9. Standard Provisions

The Department shall comply with the Standard Provisions (Attachment VI) and any amendments thereto.

10. Permit Compliance and Rescission of Previous Waste Discharge Requirements

This Order shall serve and become effective as an NPDES permit and the Department shall comply with all its requirements on July 1, 2013. Requirements prescribed by this Order supersede the requirements prescribed by Order No. 99-06-DWQ, except for compliance purposes for violations occurring before the effective date of this Order.

11. Permit Re-Opener

This Order may be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations 122.62, 122.63, 122.64, and 124.5. The State Water Board may reopen and modify this Order at any time prior to its expiration under any of the following circumstances:

a. Present or future investigations demonstrate that the discharge(s) regulated by this Order may have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses.
b. New or revised Water Quality Objectives come into effect, or any new TMDL is adopted or revised that assigns a WLA to the Department or that identifies the Department as a responsible party in the TMDL implementation plan. In such cases, effluent limitations and other requirements in this Order may be modified as necessary to reflect the new TMDLs or the new or revised Water Quality Objectives; or
c. TMDL-specific permit requirements for adopted TMDLs are developed by a Regional Water Board for incorporation into this Order.

d. The State Water Board determines, after opportunity for public comment and a public workshop, that revisions are warranted to those provisions of the Order addressing compliance with water quality standards in the receiving water and/or those provisions of the Order establishing an iterative process for implementation of management practices to assure compliance with water quality standards in the receiving water.

12. Dispute Resolution

In the event of a disagreement between the Department and a Regional Water Board over the interpretation of any provision of this Order, the Department shall first attempt to resolve the issue with the Executive Officer of the Regional Water Board. If a satisfactory resolution is not obtained at the Regional Water Board level, the Department may submit the issue in writing to the Executive Director of the State Water Board or his designee for resolution, with a copy to the Executive Officer of the Regional Water Board. The issue must be submitted to the Executive Director within ten days of any final determination by the Executive Officer of the Regional Water Board. The Executive Officer of the Regional Water Board will be provided an opportunity to respond.

13. Order Expiration and Reapplication

a. This Order expires on June 30, 2018.

b. If a new order is not adopted by June 30, 2018, then the Department shall continue to implement the requirements of this Order until a new one is adopted.

c. In accordance with Title 23, Division 3, Chapter 9 of the California Code of Regulations, the Department shall file a report of waste discharge no later than 180 days before the expiration date of this Order as application for reissuance of this permit and waste discharge requirements. The application shall be accompanied by a SWMP, and a summary of all available water quality data for the discharge and receiving waters, including conventional pollutant data from at least the most recent three years, and toxic pollutant data from at least the most recent five years, in the discharge and receiving water. Additionally, the Discharger shall include the final results of any studies that may have a bearing on the limits and requirements of the next permit.

CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

FACT SHEET
FOR

ORDER 2012-0011-DWQ

AS AMENDED BY
ORDER WQ 2014-0006-EXEC,
ORDER WQ 2014-0077-DWQ, AND
ORDER WQ 2015-0036-EXEC

NPDES NO. CAS000003
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
STATEWIDE STORM WATER PERMIT
WASTE DISCHARGE REQUIREMENTS (WDRS)
FOR
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

This Fact Sheet contains information regarding the waste discharge requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit for the California State Department of Transportation (Department) for discharges of storm water and certain types of non-storm water. This Fact Sheet describes the factual, legal, and methodological basis for the permit conditions, provides supporting documentation, and explains the rationale and assumptions used in deriving the limits and requirements.

BACKGROUND

In 1972, the Federal Water Pollution Control Act (also referred to as the Clean Water Act (CWA)) was amended to provide that the discharge of pollutants to waters of the United States from any point source is unlawful, unless the discharge is in compliance with an NPDES permit. The 1987 amendments to the Clean Water Act added section 402(p). Section 402(p) establishes that storm water discharges are point source discharges and lays out a framework for regulating municipal and industrial storm water discharges under the NPDES program. On November 16, 1990, the United States Environmental Protection Agency (U.S. EPA) promulgated final regulations that establish the storm water permit requirements.

Pursuant to the 1990 regulations, storm water permits are required for discharges from a municipal separate storm sewer system (MS4) serving a population of 100,000 or more. U.S. EPA defines an MS4 as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) owned or operated by a State (40 Code of Federal Regulations

(C.F.R.), § 122.26(b)(8)). The regulations also require storm water permits for 11 categories of industry, including construction activities where the construction activity: (1) disturbs more than one (1) acre of land; (2) is part of a larger common plan of development; and/or (3) is found to be a significant threat to water quality.

Before July 1999, storm water discharges from Department storm water systems were regulated by individual NPDES permits issued by the Regional Water Quality Control Boards (Regional Water Boards). On July 15, 1999, the State Water Resources Control Board (State Water Board) issued a statewide permit (Order No. 99-06-DWQ), which regulated all storm water discharges from Department owned MS4s, maintenance facilities and construction activities. The existing permit (Order No. 99-06-DWQ) will be superseded by adoption of a new permit.

Industrial activities are covered by two General Permits that have been adopted by the State Water Board. The Department's construction activities are subject to the requirements under the NPDES General Permit for Construction Activities (CGP, NPDES Permit No. CAS000002) for construction activities that are equal to or greater than one (1) acre. The exception to this is in the Lake Tahoe area, where the Lahontan Regional Water Board adopted its own construction general permit (NPDES Permit No. CAG616002). The Department's industrial facility activities are subject to the requirements of the NPDES General Permit for Industrial Activities (IGP, NPDES Permit No. CAS000001).

The Department is responsible for the design, construction, management, and maintenance of the State highway system, including freeways, bridges, tunnels, the Department's facilities, and related properties. The Department's discharges consist of storm water and non-storm water discharges from State owned right-of-way (ROW).

Clean Water Act section 402(p) and 40 Code of Federal Regulations section 122.26 (a)(v) give the State authority to regulate discharges from an MS4 on a system-wide or jurisdiction-wide basis. The State Water Board considers all storm water discharges from all MS4s and activities under the Department's jurisdiction as one system. Therefore, this Order is intended to cover all of the Department's municipal storm water activities.

This Order will be implemented by the Department and enforced by the State Water Board and nine Regional Water Boards.

The Department operates highways and highway-related properties and facilities that cross through local jurisdictions. Some storm water discharges from the Department's MS4 enter the MS4s owned and managed by these local jurisdictions. This Order does not supersede the authority of local agencies to prohibit, restrict, or control storm water discharges and conditionally exempt non-storm water discharges to storm drain systems or other watercourses within their jurisdiction as allowed by State and federal law. The Department is expected to comply with the lawful requirements of municipalities and other local, regional, and/or state agencies regarding discharges of storm water to separate storm sewer systems or other watercourses under the agencies' jurisdictions.

GENERAL DISCHARGE PROHIBITIONS

This Order authorizes storm water and conditionally exempt non-storm water discharges from the Department's properties, facilities and activities. This Order prohibits the discharge of material other than storm water, unless specifically authorized in this Order.

The Department owns and operates highway systems that are located adjacent to and discharge into many ASBS. This Order specifies that Department discharges to an ASBS are prohibited except in compliance with the conditions and special protections contained in the General Exception for Storm Water and Non-Point Source Discharges to ASBS, State Water Board Resolution 2012-0012. This State Water Board resolution is hereby incorporated by reference and the Department is required to comply with applicable requirements. Attachment III identifies 77 priority Department ASBS discharge locations. These locations represent sites having significant potential to impact the ASBS that are feasible to retrofit. The following locations are not included in the list:

1. Inland sites discharging indirectly to the ASBS;
2. Sites where the discharge is attenuated through vegetation;
3. Sites where it is infeasible to install a BMP, e.g. an overhanging outfall or where there is insufficient space to install a treatment control; and
4. Sites that would pose a safety hazard to motorists, or that would be unsafe to install or maintain.

Provision E.5 of the Order requires the Department to ensure that structural controls at these locations are operational within six (6) years of the effective date of the General Exception.

NON-STORM WATER

Non-storm water discharges are subject to different requirements under the Order depending on whether they are discharged to ASBS.

Non-storm water discharges outside ASBS:

Non-storm water discharges must be effectively prohibited unless they are authorized by a separate NPDES permit or are conditionally exempt under provisions of the Order consistent with 40 CFR, §122.26 (d)(2) (iv)(B). Non-storm water discharges that are not specifically or conditionally exempted by this Order are subject to the existing regulations for point source discharges. Conditionally exempt non-storm water discharges that are found to be significant sources of pollution are to be effectively prohibited.

Discussion of Agricultural Return Flows:
The Department (2007a) indicated in its Non-Storm Water Report that agricultural irrigation water return flows carrying pollutants pass under the Department's ROW in many locations and enter its MS4. Agricultural return flows are not prohibited or conditionally exempted non-

storm water discharges and are not subject to the non-storm water requirements of the Order.

The regulations conditionally exempt MS4s from the requirement to effectively prohibit "irrigation water" discharges to the MS4. The regulations also completely exempt MS4s from addressing non-storm water discharges (also called "illicit discharges") if they are regulated by an NPDES permit (40 C.F.R., §§ 122.26(b)(2); 122.26(d)(2)(iv)(B)). The term "irrigation water" is not defined and the regulations do not clarify whether that term is intended to encompass agricultural return flows that may run on to the Department's rights of way.

Because agricultural return flows cannot be regulated by an NPDES permit, it is unlikely that they were intended to be treated as "illicit discharges" under the federal MS4 regulations. In discussing illicit non-storm water discharges and the requirement to effectively prohibit such discharges, the preamble of the Phase I final regulations states: "The CWA prohibits the *point source* discharge of non-storm water not subject to an NPDES permit through municipal separate storm sewers to waters of the United States. Thus, classifying such discharges as illicit properly identifies such discharges as being illegal" (55 FR 47996) (emphasis added). Implicit in this statement is that illicit discharges do not include non-point source discharges, including agricultural return flows, which are statutorily excluded from the definition of a point-source discharge (C.W.A., § 502(14)).[13]

Clean Water Act Section 402(l)(1) states that an NPDES permitting agency "shall not require a permit under this section for discharges composed entirely of return flows from irrigated agriculture." Accordingly, agricultural return flows co-mingling with an illicit discharge would be treated as a point source discharge. This fact, however, does not lead the State Water Board to find that agricultural return flows should be subject to the conditional prohibition on non-storm water discharges.

First, the illicit discharge prohibition acts to prevent non-storm water discharges "*into* the storm sewers" (C.W.A., § 402(p)(3)(B)(ii)) (emphasis added). Based on a plain reading of the statutory language,[14] a determination of what constitutes an illicit discharge should be made with reference to the nature of the discharge as it enters the MS4. Unless the agricultural return flow has co-mingled with a point source discharge prior to entering the MS4, it is not subject to the discharge prohibition. Further, since certain point source discharges are conditionally exempted from the requirement for effective prohibition under 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(*1*), the fact that the agricultural return flow may have co-mingled with such an exempted dry weather point source discharge prior to entering the MS4 does not render it an illicit discharge subject to the effective

[13] Elsewhere in the preamble, EPA refers to the conditionally exempted non-storm water discharges as "seemingly innocent flows that are characteristic of human existence *in urban environments* and which discharge to municipal separate storm sewers" (55 F.R.48037) (emphasis added). This language further suggests that the term "irrigation water" was not intended to encompass irrigation return flows characteristic of a rural area.

[14] 40 C.F.R. §122.26(d)(2)(iv)(B)(*1*) similarly states that the MS4 is to "prevent illicit discharges *to* the municipal separate storm sewer system." (Emphasis added.)

prohibition.[15] *See Fishermen Against the Destruction of the Environment, Inc. v. Closter Farms, Inc. (11th Cir. 2002)* 300 F.3d 1294.

Second, even assuming that the agricultural return flow mingling with a point source discharge *after* entering the MS4 would trigger the requirements related to non-storm water discharges, agricultural return flows are not expected to require an effective prohibition. Irrigation of agricultural fields typically occurs in dry weather, not wet weather, and therefore the State Water Board anticipates that irrigation return flows into the Department's MS4 would generally not co-mingle with discharges other than exempt non-storm water discharges.

Further, agricultural return flows entering an MS4, while not regulated by an NPDES permit, are through much of the State regulated under WDRs, waivers, and Basin Plan prohibitions. The regulations exempt MS4s from addressing non-storm water discharges that are regulated by an NPDES permit. Flows to the Department's MS4 regulated through state-law based permits are subject to regulatory oversight analogous to being subject to an NPDES permit. The appropriate regulatory mechanism for these discharges is the non-point source regulatory programs and not a municipal storm water permit.[16]

Non-Storm Water Discharges to ASBS:

Non-storm water discharges to ASBS are prohibited except as specified in the General Exception. Certain enumerated non-storm water discharges are allowed under the General Exception if essential for emergency response purposes, structural stability, slope stability, or if occur naturally.

Discussion of Utility Vault Discharges:
In addition, an NPDES permitting authority may authorize non-storm water discharges to an MS4 with a direct discharge to an ASBS to the extent the NPDES permitting authority finds that the discharge does not alter natural ocean water quality in the ASBS. This Order allows utility vault discharges to segments of the Department MS4 with a direct discharge to an ASBS, provided the discharge is authorized by the General NPDES Permit for Discharges from Utility Vaults and Underground Structures to Surface Water, NPDES No. CAG 990002. The State Water Board is in the process of reissuing the General NPDES Permit for Utility Vaults. As part of the renewal, the State Water Board will require a study to characterize representative utility vault discharges to an MS4 with a direct discharge to an ASBS and will impose conditions on such discharges to ensure the discharges do not alter natural ocean water quality in the ASBS. Given the limited number of utility vault discharges to MS4s that

[15] The Federal Register discussion clarifies that "irrigation return flows are excluded from regulation under the NPDES program," but that "joint discharges," i.e. discharges with a component "from activities unrelated to crop production" may be regulated (55 FR 47996).
[16] It should also be noted that the Department has limited control options since up gradient flows such as agricultural runoff must in many cases be allowed to flow under or alongside the roadway so as to not threaten roadway integrity.

discharge directly to an ASBS, the State Water Board finds that discharges from utility vaults and underground structures to MS4s with a direct discharge to an ASBS are not expected to result in the MS4 discharge causing a substantial alteration of natural ocean water quality in the ASBS in the interim period while the General NPDES Permit for Discharges from Utility Vaults is renewed and the study is completed. However, if a Regional Water Board determines a specific discharge from a utility vault or underground structure does alter the natural ocean water quality in an ASBS, the Regional Water Board may prohibit the discharge as specified in this Order. It should also be noted that, under the California Ocean Plan Section III.E.2 (Implementation Provisions for ASBS), limited-term activities that result in temporary and short-term changes in existing water quality in the ASBS may be permitted.

EFFLUENT LIMITS

The State of California Nonpoint Source Program Five-Year Implementation Plan (SWRCB, 2003) (the Plan) describes a variety of pollutants in urban storm water and non-storm water that are carried in MS4 discharges to receiving waters. These include oil, sand, de-icing chemicals, litter, bacteria, nutrients, toxic materials and general debris from urban and suburban areas. The Plan identifies construction as a major source of sediment erosion and automobiles as primary sources of petroleum hydrocarbons.

The Natural Resources Defense Council (NRDC) also identified two main causes of storm water pollution in urban areas (NRDC, 1999). Both identified causes are directly related to development in urban and urbanizing areas:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious cover that increase the volume and velocity of runoff: (i) rooftops, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.

2. The concentration of pollutants in the runoff. Certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in urban runoff. As human population density increases, it brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc.

   As a result of these two causes, runoff leaving developed urban areas is significantly greater in volume, velocity, and pollutant load than pre-development runoff from the same area.

NPDES storm water permits must meet applicable provisions of sections 301 and 402 of the Clean Water Act. For discharges from an MS4, Clean Water Act section 402(p)(3)(B)(iii) requires control of pollutants to the maximum extent practicable (MEP). A permitting agency also has the discretion to require dischargers to implement more stringent controls, if

necessary, to meet water quality standards (*Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F.3d 1159, 1166.), (discussed below under Receiving Water Limitations).

MEP is the technology-based standard established by Congress in Clean Water Act section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve. MEP is generally achieved by emphasizing pollution prevention and source control BMPs as the first lines of defense in combination with structural and treatment methods where appropriate. The MEP approach is an ever evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so does that which constitutes MEP.

In a precedential order (State Water Board Order WQ 2000-11 (In the Matter of the petitions of the Cities of Bellflower et al.)), the State Water Board has stated as follows:

> While the standard of MEP is not defined in the storm water regulations or the Clean Water Act, the term has been defined in other federal rules. Probably the most comparable law that uses the term is the Superfund legislation, or CERCLA, at section 121(b). The legislative history of CERCLA indicates that the relevant factors, to determine whether MEP is met in choosing solutions and treatment technologies, include technical feasibility, cost, and state and public acceptance. Another example of a definition of MEP is found in a regulation adopted by the Department of Transportation for onshore oil pipelines. MEP is defined as to "the limits of available technology and the practical and technical limits on a pipeline operator . . . ."
>
> These definitions focus mostly on technical feasibility, but cost is also a relevant factor. There must be a serious attempt to comply, and practical solutions may not be lightly rejected. If, from the list of BMPs, a permittee chooses only a few of the least expensive methods, it is likely that MEP has not been met. On the other hand, if a permittee employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit to be derived, it would have met the standard. MEP requires permittees to choose effective BMPs, and to reject applicable BMPs only where other effective BMPs will serve the same purpose, the BMPs would not be technically feasible, or the cost would be prohibitive. Thus while cost is a factor, the Regional Water Board is not required to perform a cost-benefit analysis.

The final determination of whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the permitting agency, and not by the discharger.

Because of the numerous advances in storm water regulation and management and the size of the Department's MS4, this Order does not require the Department to fully incorporate and

implement all advances in a single permit term. The Order allows for prioritization of efforts to ensure the most effective use of available funds.

This Order will have an impact on costs to the Department above and beyond the costs from the Department's prior permit. Such costs will be incurred in complying with the post-construction, hydrograph modification, Low Impact Development, and monitoring and reporting requirements of this Order. Additional costs will also be incurred in correcting non-compliant discharges. Recognizing that there are cost increases associated with the Order, the State Water Board has prepared a cost analysis to approximate the anticipated cost associated with implementing this permit. The resulting cost analysis is discussed later in this Fact Sheet under the section on "Cost of Compliance and Other MEP Considerations." The cost analysis has been prepared based on available data and is not a cost-benefit analysis.

The individual and collective activities required by this Order and contained in the Department's Storm Water Management Plan (SWMP) meet the MEP standard.

RECEIVING WATER LIMITATIONS

Under federal law, an MS4 permit must include "controls to reduce the discharge of pollutants to the maximum extent practicable . . . and such other provisions as . . . the State determines appropriate for the control of such pollutants." (Clean Water Act §402(p)(3)(B)(iii).) The State Water Board has previously determined that limitations necessary to meet water quality standards are appropriate for the control of pollutants discharged by MS4s and must be included in MS4 permits. (State Water Board Orders WQ 91-03, 98-01, 99-05, 2001-15; see also *Defenders of Wildlife v. Browner* (9th Cir. 1999) 191 F3d 1159.). The Proposed Order accordingly prohibits discharges that cause or contribute to violations of water quality standards.

The Proposed Order further sets out that, upon determination that a Permittee is causing or contributing to an exceedance of applicable water quality standards, the Permittee must engage in an iterative process of proposing and implementing additional control measures to prevent or reduce the pollutants causing or contributing to the exceedance. This iterative process is modeled on receiving water limitations set out in State Water Board precedential Order WQ 99-05 and required by that Order to be included in all municipal storm water permits.

The Ninth Circuit held in *Natural Resources Defense Council, Inc. v. County of Los Angeles* (2011) 673 F.3d 880 that engagement in the iterative process does not provide a safe harbor from liability for violations of permit terms prohibiting exceedances of water quality standards. The Ninth Circuit holding is consistent with the position of the State Water Board and Regional Water Boards that exceedances of water quality standards in an MS4 permit constitute violations of permit terms subject to enforcement by the Boards or through a citizen suit. While the Boards have generally directed dischargers to achieve compliance by improving control measures through the iterative process, the Board retains the discretion to

take other appropriate enforcement and the iterative process does not shield dischargers from citizen suits.

The State Water Board has received multiple comments, from the Department and from other interested parties, expressing confusion and concern about the Order provisions regarding receiving water limitations and the iterative process. The Department has commented that the provisions as currently written do not provide the Department with a viable path to compliance with the proposed Order. Other commenters, including environmental parties, support the current language.

As stated above, the provisions in this Order regarding receiving water limitations and the iterative process are based on precedential Board orders. Accordingly, substantially identical provisions are found in the proposed statewide Phase II MS4 NPES permit, as well as the Phase I NPDES permits issued by the Regional Water Boards. In the context of the proposed Phase II MS4 permit, similar comments have been received. Because of the broad applicability of any policy decisions regarding the receiving water limitations and iterative process provisions, the State Water Board has proposed a public workshop to consider this issue and seek public input.

Rather than delay consideration of adoption of the tentative Order in anticipation of any future changes to the receiving water limitations and iterative process provisions that may result from the public workshop and deliberation, the Board has added a specific reopener clause at Section 11.d. to facilitate any future revisions as necessary.

NUMERIC EFFLUENT LIMITATIONS AND BLUE RIBBON PANEL OF EXPERTS

Under 40 Code of Federal Regulations section 122.44(k)(2)&(3); the State Water Board may impose BMPs for control of storm water discharges in lieu of numeric effluent limitations.[17]

In 2005, the State Water Board assembled a blue ribbon panel to address the feasibility of including numeric effluent limits as part of NPDES municipal, industrial, and construction storm water permits. The panel issued a report dated June 19, 2006, which included recommendations as to the feasibility of including numeric limitations in storm water permits, how such limitations should be established, and what data should be required (SWRCB, 2006).

[17] On November 12, 2010, U.S. EPA issued a revision to a November 22, 2002 memorandum in which it had "affirm[ed] the appropriateness of an iterative, adaptive management best management practices (BMP) approach" for improving storm water management over time. In the revisions, U.S. EPA recommended that, in the case the permitting authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality excursion, the permitting authority, where feasible, include numeric effluent limitations as necessary to meet water quality standards. However, the revisions recognized that the permitting authority's decision as to how to express water quality based effluent limitations (WQBELs), i.e. as numeric effluent limitations or BMPs, would be based on an analysis of the specific facts and circumstances surrounding the permit. U.S. EPA has since invited comment on the revisions to the memorandum and will be making a determination as to whether to "either retain the memorandum without change, to reissue it with revisions, or to withdraw it." http://www.epa.gov/npdes/pubs/sw_tmdlwla_comments_pdf

The report concluded that “It is not feasible at this time to set enforceable numeric effluent criteria for municipal BMPs and in particular urban discharges. However, it is possible to select and design them much more rigorously with respect to the physical, chemical and/or biological processes that take place within them, providing more confidence that the estimated mean concentrations of constituents in the effluents will be close to the design target.”

Consistent with the findings of the Blue Ribbon Panel and precedential State Water Board orders (State Water Board Orders Nos. WQ 91-03 and WQ 91-04), this Order allows the Department to implement BMPs to comply with the requirements of the Order.

In 1980, the State Water Resources Control Board adopted concentration-based numeric effluent limitations for total nitrogen, total phosphate, total iron, turbidity, and grease and oil for storm water discharges in the Lake Tahoe Basin. The Lahontan Regional Water Board included revised versions of those limitations in Table 5.6-1 of the Water Quality Control Plan for the Lahontan Region (Basin Plan). The numeric effluent limitations in Table 5.6-1 were included in previous iterations of the Department's MS4 permit. This Order does not include these referenced numeric effluent limitations. The TMDL for sediment and nutrients in Lake Tahoe, approved by U.S. EPA on August 16, 2011, removed statements from the Basin Plan requiring the effluent limitations in Table 5.6-1 to apply to municipal jurisdictions and the Department. The Lake Tahoe TMDL would constitute cause for permit revocation and reissuance in accordance with 40 Code of Federal Regulations section 122.62(a)(3), so the removal of the referenced numeric effluent limitations is consistent with 40 Code of Federal Regulations section 122.44(l)(1). Further, any water quality based effluent limitations in MS4 permits are imposed under section 402(p)(3)(B) of the Clean Water Act rather than under section 301(b)(1)(C), and are accordingly not subject to the antibacksliding requirements of section 402(o). The Order requires compliance with pollutant load reduction requirements established by the Lake Tahoe TMDL for total nitrogen, total phosphorus, and fine sediment particles.

OTHER PROVISIONS OF THIS ORDER

Storm Water Management Plan (SWMP)

The SWMP describes the procedures and practices that the Department proposes to reduce or eliminate the discharge of pollutants to storm drainage systems and receiving waters. On May 17, 2001, the State Water Board approved a Storm Water Management Plan submitted by the Department. That SWMP was updated in 2003 (Department, 2003c) and the updates were approved by the Executive Director of the State Water Board on February 13, 2003. On January 15, 2004, the Department submitted a proposed Storm Water Management Plan as part of its NPDES permit application to renew its previous statewide storm water permit (Order No. 99-06-DWQ). The State Water Board and Regional Water Board staff and the Department discussed and revised Best Management Practices (BMP) controls and many

other components proposed in each section of the SWMP during numerous meetings from January 2004 to 2006. The Department submitted a revised SWMP in June 2007 (Department, 2007c). The 2004 and 2007 SWMPs have not been approved by the State Water Board and the Department has continued to implement the 2003 SWMP. The Department is in the process of revising aspects of the 2003 SWMP to address the Findings of Violation and Order for Compliance issued by U.S. EPA in 2011 (U.S. EPA Docket No. CWA-09-2011-0001).

This Order requires the Department to update, maintain and implement an effective SWMP that describes how the Department will meet requirements of this Order. Within one year of the effective date of the Order, the Department shall submit for Executive Director approval a SWMP consistent with the provisions and requirement of the Order. The SWMP is an integral and enforceable component of this Order and is required to be updated on an annual basis.

In ruling upon the adequacy of federal regulations for discharges from small municipal storm sewer systems, the court in *Environmental Defense Center v. United States EPA* (9th Cir. 2003) 344 F.3d 832 held that NPDES "notices of intent" that required the inclusion of a proposed storm water management program (SWMP) are subject to the public participation requirements of the federal Clean Water Act because they are functionally equivalent to NPDES permit applications and because they contain "substantive information" about how the operator will reduce its discharges to the maximum extent practicable. By implication, the public participation requirements of the Clean Water Act may also apply to proposals to revise the Department's SWMP. Although the Proposed Order contains significantly more detailed and prescriptive requirements for achievement of MEP than previously adopted orders for the Department, some of the substantive information about how MEP will be achieved is arguably still set out in the SWMP. This Order accordingly provides for public participation in the SWMP revision process. However, because there may be a need for numerous revisions to the SWMP during the term of this Order, a more streamlined approach to SWMP revisions is needed to provide opportunities for public hearings while preserving the State Water Board's ability to effectively administer its NPDES storm water permitting program. (See *Costle v. Pacific Legal Foundation* (1980) 445 U.S. 198, 216-221, *Natural Resources Defense Council v. Costle* (9th Cir. 1977) 568 F.2d 1369, 1382.)

This Order establishes that revisions to the SWMP requiring Executive Director approval will be publicly noticed for thirty days on the State Water Board's website (except as otherwise specified). During the public notice period, a member of the public may submit a written comment or request that a public hearing be conducted. A request for a public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. Upon review of the request or requests for a public hearing, the Executive Director may, in his or her discretion, schedule a public hearing to take place before approval of the SWMP revision. The Executive Director shall schedule a hearing if there is a significant degree of public interest in the proposed revision. If no public hearing is conducted, the Executive Director may approve the SWMP revision if it meets the conditions set forth in this Order.

Any SWMP revision approved by the Executive Director will be posted on the State Water Board's website.

The Department references various policies, manuals, and other guidance related to storm water in the SWMP. These documents are intended to facilitate implementation of the SWMP and must be consistent with all requirements of the Order.

In addition to the annual submittal of the proposed SWMP revisions, this Order also requires the Department to submit workplans that explain how the program will be implemented in each District. The purpose of the workplans is to bring the proposed statewide program of the SWMP to the practical and implementable level at the District, watershed, and water body level.

Legal Authority
The Department has submitted a certification of adequate legal authority to implement the program. Through implementation of the storm water program, the Department may find that the legal authority is, in fact, not adequate. This Order requires the Department to reevaluate the legal authority each year and recertify that it is adequate. The Department is required to submit the Certification of the Adequacy of Legal Authority as part of the Annual Report each year. If it becomes clear that the legal authority is not adequate to fully implement the SWMP and the requirements of this Order, the Department must seek the authority necessary for implementation of the program.

SWMP Implementation Requirements

Management and Organization
The Department must maintain adequate funding to implement an effective storm water program and must submit an analysis of the funding each year. This includes a report on the funding that is dedicated to storm water as well as an estimate of the funding that has been allocated to various program elements that are not included in the storm water program funding. An example of this would be to estimate the funding that has been made available to the Maintenance Program to implement the development of Maintenance Facility Pollution Prevention Plans (FPPP) and to implement the Best Management Practices (BMPs) that are necessary for water quality.

The Department's facilities and rights-of-way may cross or overlap other MS4s. The Department is required to coordinate their activities with other municipalities and local governments that have responsibility for storm water runoff. This Order requires the Department to prepare a Municipal Coordination Plan describing the approach that the Department will take in establishing communication, coordination, cooperation and collaboration with other storm water management programs.

Discharge Monitoring and Reporting Program
Since 1998, the Department has conducted monitoring of runoff from representative transportation facilities throughout California. The key objectives of the characterization

monitoring were to produce scientifically credible data on runoff from the Department's facilities, and to provide useful information in designing effective storm water management strategies. Between 2000 and 2003, the Department conducted a three-year characterization monitoring study (Department, 2003b). The study generated over 60,000 data points from over 180 monitoring sites. Results were compared with California Toxics Rule (CTR) objectives and other relevant receiving water quality objectives (U.S. EPA, 2000b). Copper, lead, and zinc were estimated to exceed the CTR objectives for dissolved and total fractions in greater than 50 percent of samples. Diazinon and chlorpyrifos were also found to exceed the California Department of Fish and Game recommended chronic criteria in a majority of samples.

The discharge monitoring program has been structured to focus on the highest priority water quality problems in order to ensure the most effective use of limited funds. A tiered approach is established that gives first priority to monitoring in ASBS and TMDL watersheds. Monitoring in these locations must be conducted pursuant to the applicable requirements of the ASBS Special Protections or TMDL, without limitation as to the number of sites. The second monitoring tier requires the Department to examine and prioritize existing monitoring locations where existing data show elevated levels of pollutants. Fifteen percent of the highest priority sites must be scheduled for retrofit, with a maximum of 100 sites per year.

Monitoring constituents were chosen by the State Water Board from the results of the Department's comprehensive, multi-component storm water characterization monitoring program conducted in 2002 and 2003 and various other characterization studies.

Toxicity in storm water discharges from the Department's rights-of-way has been reported in a number of studies. A 2005 report prepared for the Department by the University of California at Davis "Toxicity of Storm Water from Caltrans Facilities" reported significant occurrences of acute and chronic toxicity (Department, 2005). Toxicity Identification Evaluations showed toxicity from a number of compounds, including heavy metals, organic compounds, pesticides and surfactants. Toxicity testing is required under the Order, and a workplan for conducting Toxicity Reduction Evaluations is required to be included in the SWMP.

Monitoring data must be filed electronically in the Storm Water Multiple Application Report and Tracking System (SMARTS). Receiving water monitoring data must be comparable[18] with the Surface Water Ambient Monitoring Program (SWAMP), (SWAMP, 2010), and must be uploaded to the California Data Exchange Network (CEDEN).

[18] U.S. EPA defines comparability as the measure of confidence with which one data set, element, or method can be considered as similar to another. Functionally, SWAMP comparability is defined as adherence to the SWAMP Quality Assurance Program Plan and the Surface Water Ambient Monitoring Program Information Management Plan.

Incident Reporting - Non-Compliance and Potential/Threatened Non-Compliance
The Department may at times be out of compliance with the requirements of this Order. Incidents of non-compliance and potential or threatened non-compliance must be reported to the State and Regional Water Boards. This Order identifies the conditions under which non-compliance reporting will be required. This Order distinguishes between emergency, field, and administrative (procedural) incidents that require notification to the State and Regional Water Boards, and requires that a summary of non-compliance incidents and the subsequent actions taken by the Department to reduce, eliminate and prevent the reoccurrence of the non-compliance be included in the Annual Report.

Emergency, field and administrative incidents are defined in Attachment I and have separate reporting requirements. Generally, failure to meet any permit requirement that is local or regional in nature will be reported to the Regional Water Boards. Attachment I outlines the reporting timelines for the three categories. This reporting will be conducted through the Storm Water Multiple Application Report and Tracking System (SMARTS)[19]. Distribution of this report internally between the State Water Board and any Regional Water Boards will be conducted through this system.

Project Planning and Design
In Order WQ 2000-11, the State Water Board considered Standard Urban Storm Water Mitigation Plans (SUSMPs) related to new development and redevelopment. The SUSMPs include a list of BMPs for specific development categories, and a numeric design standard for structural or treatment control BMPs. The numeric design standard created objective and measurable criteria for the amount of runoff that must be treated or infiltrated by BMPs. While this Order does not regulate construction activities, it does regulate the post-construction storm water runoff pursuant to municipal storm water regulations. SUSMPs are addressed in this Order through the numeric sizing criteria that apply to treatment BMPs at specified new and redevelopment projects and through requirements to implement Low Impact Development through principles of source control, site design, and storm water treatment and infiltration.

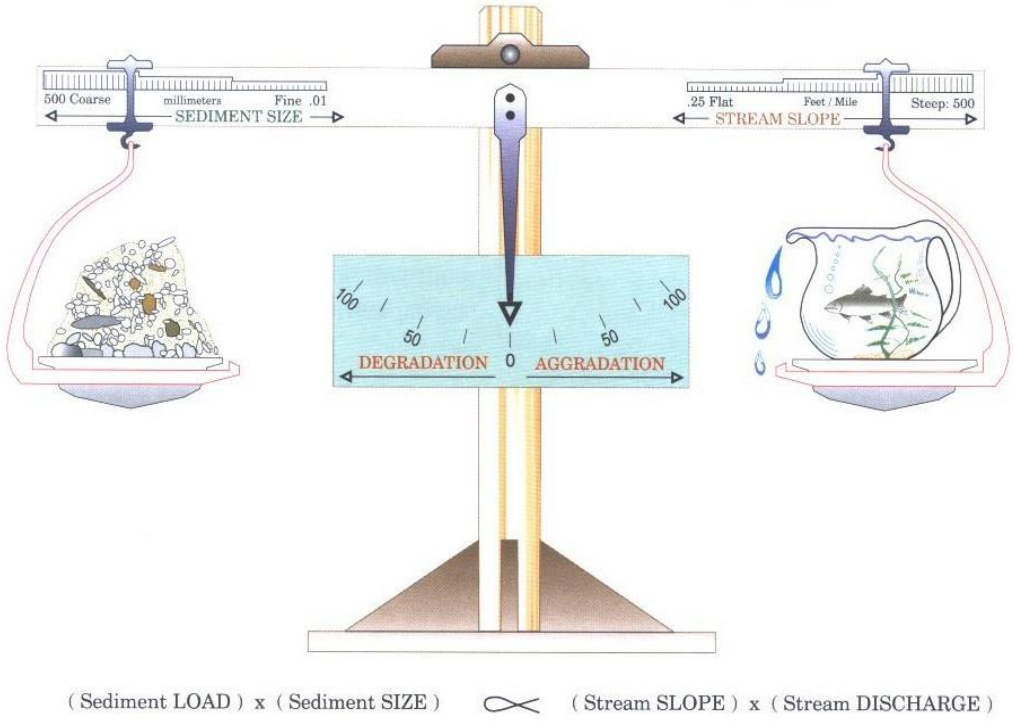
The Order provides the Department with an alternative compliance method for complying with the Treatment Control BMP numeric sizing criteria for projects where on-site treatment is infeasible. Under that method, the Department may propose complying with the requirements by installing and maintaining equivalent treatment BMPs at an offsite location (meaning outside of Project Limits) within the watershed, or by contributing funds to achieve the same amount of treatment at a regional project within the watershed. This compliance method will provide some flexibility to the Department in meeting the treatment control requirements.

[19] https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp

Hydromodification and Channel Protection
Department development and redevelopment projects have the potential to negatively impact stream channels and downstream receiving waters. The potential impacts of hydromodification by Department projects must be assessed in the project planning and design stage, and measures taken to mitigate them. This section describes the rationale and approach for the hydromodification and channel protection requirements.

A dominant paradigm in fluvial geomorphology holds that streams adjust their channel dimensions (width and depth) in response to long-term changes in sediment supply and bankfull discharge. The bankfull stage corresponds to the discharge at which channel maintenance is the most effective, that is, the discharge at which the moving sediment, forming or removing bars, and forming or changing bends and meanders, are doing work that results in the average morphologic characteristics of channels (Finkenbine, 2000). A.W. Lane showed the generalized relationship between sediment load, sediment size, stream discharge and stream slope, as shown in Figure 1, (Rosgen, 1996). A change in any one of these variables sets up a series of mutual adjustments in the companion variables resulting in a direct change in the physical characteristics of the stream channel.

Figure 1 - Schematic of the Lane Relationship



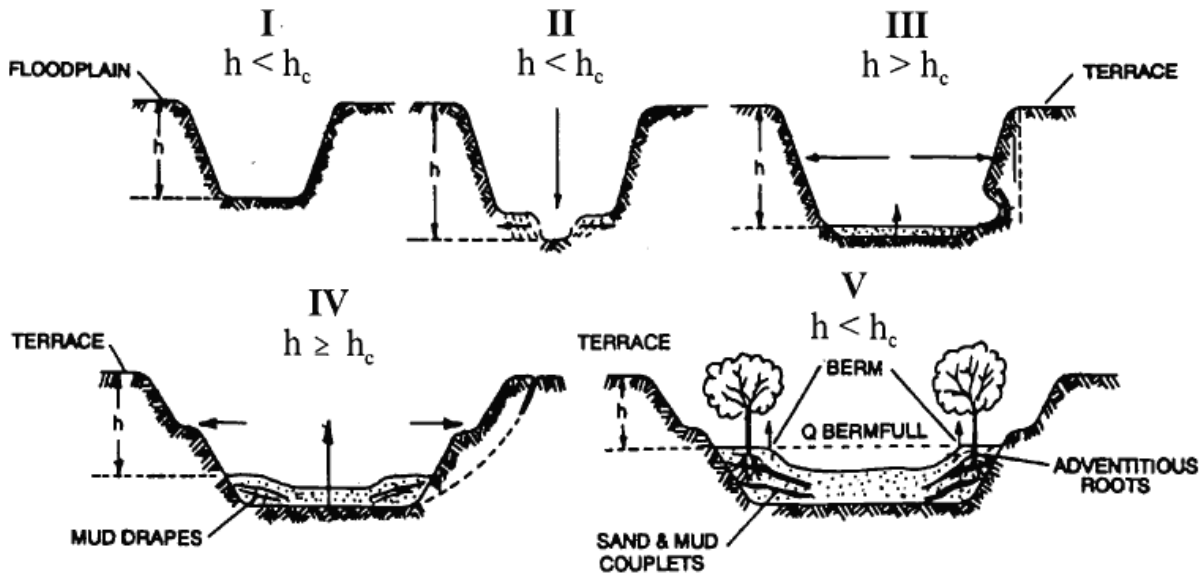
After Lane (1955) as cited in Rosgen (1996)

Stream slope times stream discharge (the right side of the scale) is an approximation of stream power, a unifying concept in fluvial geomorphology (Bledsoe, 1999). Urbanization generally increases stream power and affects the resisting forces in a channel (represented as sediment load and sediment size on the left side of the scale).

During construction, sediment loads can increase from 2 to 40,000 times over pre-construction levels (Goldman, 1986). Most of this sediment is delivered to stream channels during large, episodic rain events (Wolman, 2001). This increased sediment load leads to an initial aggradation phase where stream depths may decrease as sediment fills the channel, leading to a decrease in channel capacity and an increase in flooding and overbank deposition. A degradation phase initiates after construction is completed.

Schumm et al (Schumm, 1984) developed a channel evolution model that describes the series of adjustments from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 2).

Figure 2 - Channel Changes Associated with Urbanization



h = bank height
hc = critical bank height (the bank is susceptible to failure when bank heights are greater than critical bank height. Stable banks have low angles and heights)

After Incised Channel Evolution Sequence in Schumm et al. 1984

Channel incision (Stage II) and widening (Stages III and to a lesser degree, Stage IV) are due to a number of fundamental changes on the landscape. Connected impervious area and compaction of pervious surfaces increase the frequency and volume of bankfull discharges (Stein, 2005; Booth, 1997), resulting in an increase in stream power. Increased drainage density (miles of stream length per square mile of watershed) also affects receiving channels (May, 1998; SCVURPPP, 2002). Increased drainage density and hydraulic efficiency leads to an increase in the frequency and volume of bankfull discharges because the time of concentration is shortened. Flows from engineered pipes and channels are also often “sediment starved” and seek to replenish their sediment supply from the channel.

Encroachment of stream channels can also lead to an increase in stream slope, which leads to an increase in stream power. In addition, watershed sediment loads and sediment size (with size generally represented as the median bed and bank particle size, or d_{50}) decrease during urbanization (Finkenbine, 2000; Pizzuto, 2000). This means that even if pre- and post- development stream power are the same, more erosion will occur in the post-development stage because the smaller particles are less resistant.

As shown in Stages II and III, the channel deepens and widens to accommodate the increased stream power (Hammer, 1973; Booth, 1990) and decrease in sediment load and sediment size. Channels may actually narrow as entrained sediment from incision is deposited laterally in the channel (Trimble, 1997). After incised channels begin to migrate laterally (Stage III), bank erosion begins, which leads to general channel widening (Trimble, 1997). At this point, a majority of the sediment that leaves a drainage area comes from within the channel, as opposed to the background and construction related hillslope contribution (Trimble, 1997). Stage IV is characterized by more aggradation and localized bank instability. Stage V represents a new quasi-equilibrium channel morphology in balance with the new flow and sediment supply regime. In other words, stream power is in balance with sediment load and sediment size.

The magnitude of the channel morphology changes discussed above varies along a stream network as well as with the age of development, slope, geology (sand-bedded channels may cycle through the evolution sequence in a matter of decades whereas clay-dominated channels may take much longer), watershed sediment load and size, type of urbanization, and land use history. It is also dependent on a channel's stage in the channel evolution sequence when urbanization occurs. Management strategies must take into account a channel's stage of adjustment and account for future changes in the evolution of channel form (Stein, 2005).

The hydromodification requirements in this Order are based on established Federal Highway Administration procedures for assessing stream stability at highway crossings. These procedures are geomorphically based and have historically been used to inform bridge and culvert design and to ensure that these structures are not impacted by decreased lateral and vertical stability (FHWA, 2001; FHWA, 2006). Maintaining lateral and vertical stability will not only protect highway structures but will serve the broader interest of maintaining stable stream form and function.

These hydromodification requirements are risk based and reflect the concept that stable channels (as determined from a Level 1 rapid analysis) do not have to undergo any further analysis and that hydrology-based design standards are protective.

If stream channels are determined to be laterally and or vertically unstable, the analysis procedures are much more rigorous and the mitigation measures are potentially more extensive. There is support in the literature for the type of tiered, risk-based approach taken in this Order (Booth, 1990; Watson, 2002; Bledsoe, 2002; Bledsoe et al., 2008).

California Senate Bill 857 (2006) amended Article 3.5 of the Streets and Highways Code to require the Department to assess and remediate barriers to passage of anadromous fish at stream crossings along the State Highway System. The bill also requires the Department to, among other things, prepare an annual report to the legislature on the status of the Department's efforts in locating, assessing, and remediating barriers to fish passage. Waters of the State supporting the beneficial use of fish migration could be adversely impacted by improperly designed or maintained stream crossings, or through natural channel evolution processes. Accordingly, this Order requires the Department to also submit the annual report required under SB 857 to the State Water Board.

Low Impact Development (LID)
On January 20, 2005, the State Water Board adopted sustainability as a core value for all California Water Boards' activities and programs, and directed State Water Board staff to consider sustainability in all future policies, guidelines, and regulatory actions. Sustainability can be achieved through appropriate implementation of the LID techniques required by this Order.

The proper implementation of LID techniques not only results in water quality protection benefits and a reduction of land development and construction costs, but also enhances property values, and improves habitat, aesthetic amenities, and quality of life (U.S. EPA, 2007). Further, properly implemented LID techniques reduce the volume of runoff leaving a newly developed or re-developed area thereby lowering the peak rate of runoff, and thus minimizing the adverse effects of hydromodification on stream habitat (SWRCB, 2007). The requirements of this Order facilitate the implementation of LID strategies to protect water quality, reduce runoff volume, and to promote sustainability.

Unlike traditional storm water management, which collects and conveys storm water runoff through storm drains, pipes, or other conveyances to a centralized storm water facility, LID takes a different approach by using site design and storm water management to maintain the site's pre-development runoff rates and volumes. The goal of LID is to mimic a site's pre-development hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to the source of rainfall. LID has been a proven approach in other parts of the country and is seen in California as an alternative to conventional storm water management.

LID is a tool that can be used to better manage natural resources and limit the pollution delivered to waterways. To achieve optimal benefits, LID needs to be integrated with watershed planning and appropriate land use programs. LID by itself will not deliver all the water quality outcomes desired; however, it does provide enhanced storm water treatment and mitigates increased volume and flow rates (SWRCB, 2007).

This Order approaches LID through source control design principles, site design principles and storm water treatment and infiltration principles. Source control and site design principles are required as applicable to provide enough flexibility such that projects are not forced to include inappropriate or impractical measures. Not all of the storm water treatment

and infiltration principles identified in the Order are required to be implemented but are listed in order of preference with the most environmentally protective and effective alternatives listed first.

BMP Development and Implementation
The Department has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities. This BMP program includes development, construction, maintenance and evaluation of BMPs, and investigation of new BMPs. The goal of BMP implementation is to control the discharge of pollutants to the applicable standards.

While erosion control BMPs are typically used on construction sites, some are used as permanent, post-construction BMPs. Typical erosion control BMPs involve use of straw or fiber rolls and mats. These rolls and mats are often held together by synthetic mesh or netting. Synthetic materials are persistent in the environment and have been found to be a source of pollutants, trash (Brzozowski, 2009), and hazard to wildlife through entrapment (Brzozowski, 2009; Barton and Kinkead, 2005; Walley et al, 2005; Stuart et al, 2001). For erosion control products used as permanent, post-construction BMPs, this Order requires the use of biodegradable materials, and the removal of any temporary erosion control products containing synthetic materials when they are no longer needed. Biodegradable materials are required in erosion control products used by the Departments of Transportation in the states of Delaware and Iowa (Brzozowski, 2009). Use of synthetic (plastic) materials is also prohibited through a Standard Condition in Streambed Alteration Agreements by the California Department of Fish and Game, Region 1 (Van Hattem, personal communication, 2009).

Potential Unintended Public Health Concerns Associated with Structural BMPs
The Department worked collaboratively with the California Department of Public Health (CDPH) on a comprehensive, multi-component monitoring program of more than 120 structural BMPs for mosquito production (Department, 2004). The data revealed that certain BMPs may unintentionally create habitat suitable for mosquitoes and other vectors. The California Health and Safety Code prohibits landowners from knowingly providing habitat for or allowing the production of mosquitoes and other vectors, and gives local vector control agencies broad inspection and abatement powers. This Order requires the Department to comply with applicable provisions of the Health and Safety Code and to cooperate and coordinate with CDPH and local mosquito and vector control agencies on vector control issues in the Department's MS4.

Construction
The Department's construction activities were previously regulated under the MS4 permit (Order 99-06-DWQ), which required the Department to comply with the substantive provisions of the CGP but not the requirement to file separate notices of intent for each construction project. Some Regional Water Boards have had difficulty enforcing the provisions of the CGP when enrollment under that permit is not required. This Order requires the Department to file for separate coverage for each construction project under the

CGP. This change is expected to increase the Department's accountability for discharges from construction sites and improve the ability of the Regional Water Boards to take enforcement actions as necessary.

Though discharges from construction activities are not regulated under this Order, any discharges from a site occurring after completion of construction (i.e. post-construction discharges) are fully subject to the requirements of this Order.

Some Department construction-related activities such as roadway and parking lot repaving and resurfacing may mobilize pollutants, even though they may not trigger coverage under the CGP. Such activity may discharge pollutants to the environment, however. BMPs for the control of such discharges are specified in the Department's Project Planning and Design Guide and Construction Site BMP Field Manual and Trouble Shooting Guide, and in the California Stormwater Quality Association (CASQA) California Stormwater BMP Handbook (Department, 2010; Department, 2003a); (CASQA, 2009). The Department is required to implement BMPs to control such discharges.

Because some Department construction projects may not involve grading or land disturbance of one acre or more, these smaller projects do not trigger requirements to enroll under the Construction General Permit. This Order requires the Department to implement BMPs to control discharges from such projects to the MEP. Failure to implement appropriate BMPs is a violation of this Order.

Maintenance Program Activities
Preservation of vegetation is an effective method for the control of pollutants in runoff; however the Department must control vegetation in its rights-of-way for purposes of traffic safety and nuisance. The Department currently implements a vegetation control program with a stated purpose of minimizing the use of agricultural chemicals and maximizing the use of appropriate native and adapted vegetation for erosion control, filtering of runoff, and velocity control.

Notwithstanding the Department's commitment to reduce the use of agricultural chemicals, the Department reported a total amount of 208,549 pounds of herbicide used in the 2008-2009 Storm Water Management Program Annual Report (Department (2010a); CTSW-RT-10-182-32.1). Reported reasons for increased herbicide usage included:

1. Local weather conditions, such as increased rainfall, leading to increased weed production.
2. The need to address new mandates for fire suppression (fuel abatement) adjacent to roadways.
3. Requests from local cities and counties.
4. Increase in or outbreaks of noxious weeds in areas adjacent to farmland.

This Order contains detailed requirements for the control of vegetation and reporting requirements for the use of agricultural chemicals.

The Department's maintenance facilities discharge pollutants to the MS4. This Order requires the Department to prepare Facility Pollution Prevention Plans (FPPPs) for all maintenance facilities. The Department is also required to implement BMP programs at each facility as necessary and periodically inspect each facility.

Spill cleanup is part of the Department's maintenance program. This Order requires the Department to ensure that spills on its rights-of-way are fully and appropriately cleaned up, and to provide appropriate notifications to local municipalities which may be affected by the spill. The Department is also required to notify the appropriate Regional Water Board of any spill with the potential to impact receiving waters.

This Order requires the Department to monitor and clean storm drain inlets when they have reached 50 percent capacity. The Department must initiate procedures contained in an Illegal Connection/Illicit Discharge (IC/ID) and Illegal Dumping Response Plan where storm water structures are found to contain excessive material resulting from illegal dumping, and it must determine if enhanced BMPs are needed at the site.

This Order requires the Department to implement the BMPs and other requirements of the SWMP and this Order to reduce and eliminate IC/IDs. It also requires the Department to prepare a Storm Drain System Survey Plan and an Illegal Dumping Response Plan.

Facilities Operations
There is potential for the discharge of pollutants from Department facilities during rain events. The discharge of pollutants from facilities not covered by the IGP will be reduced to the MEP through the appropriate implementation of BMPs.

This Order requires the Department to file an NOI for coverage under the IGP for industrial facilities as specified in Attachment 1 of the IGP. This requirement is expected to increase the Department's accountability for discharges from industrial facilities and improve the ability of the Regional Water Boards to take enforcement actions as necessary.

Department Activities Outside the Department's Right-of-Way
Facilities and operations outside the Department's ROW may support various Department activities. Facilities may include concrete or asphalt batch plants, staging areas, concrete slurry processing or other material recycling operations, equipment and material storage yards, material borrow areas, and access roads. Facilities may be operated by the Department or by a third party. The Department is required to include provisions in its contracts that require the contractor to obtain and comply with applicable permits for facilities and operations outside the Department's ROW when these facilities are active for the primary purpose of accommodating Department activities.

Non-Department Projects and Activities
Non-Department projects and activities include construction projects or other activities conducted by a third party within the Department's ROW. The Department is responsible for runoff from all non-Department projects and activities in its rights-of-way unless a separate

permit is issued to the other entity. At times, local municipalities or private developers may undertake construction projects or other activities within the Department's ROW. The Department may exercise control or oversight over these third party projects or activities through encroachment permits or other means. This Order sets project planning and design requirements for non-Department projects.

Management Activities for Non-Storm Water Discharges
Non-storm water discharges are dry weather flows that do not originate from precipitation events. Non-storm water discharges are illicit discharges and are prohibited by the federal regulations (40 C.F.R., § 122.26 (d)(2)(iv)(B)(*1*)) unless exempted or separately permitted. Procedures for prohibiting illicit discharges and illegal connections, and for responding to illegal dumping and spills are needed to prevent environmental damage and must be described in the SWMP.

Training and Public Education
Education is an important element of municipal storm water runoff management programs. U.S. EPA (2005) finds that "An informed and knowledgeable community is crucial to the success of a storm water management program since it helps ensure the following: Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important, [and] greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters."

U.S. EPA also states "The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children."

This Order requires the Department to implement a Training and Public Education program. The Training and Public Education program focuses on three audiences: Department employees, Department contractors, and the general public. The Department must implement programs for all three audiences. The Training and Public Education program is considered a BMP and an analysis of its effectiveness is needed.

Program Evaluation
This Order requires the Department to evaluate the effectiveness and adequacy of the storm water program on an annual basis. This includes both water quality monitoring and a self-audit of the program. The audit is intended to determine the effectiveness of the storm water and non-storm water programs through the evaluation of factors and program components such as:

1. Storm water and non-storm water discharges, including pollutant concentrations from locations representative of the Department's properties, facilities, and activities;
2. Maintenance activity control measures;
3. Facility pollution prevention plans;

4. Permanent control measures; and
5. Highway operation control measures.

In addition to water quality monitoring and the self-audit, the Department must perform an Overall Program Effectiveness Evaluation each year to determine the effectiveness of the program in achieving environmental and water quality objectives. The scope of the evaluation is expected to increase each year in response to the continuing collection of environmental monitoring data.

Reporting
Comprehensive reporting is needed to determine compliance with this Order and to track the effectiveness of the Department's storm water program over time. A summary of the reports required from the Department is presented in Attachment IX of the Order. The State Water Board and Regional Water Boards have the authority under various sections of the California Water Code to request additional information as needed.

The Department must track, assess and report on program implementation to ensure its effectiveness. In addition to the individual reports referenced above, the Department is required to submit an annual report to the State Water Board by October 1 of each year. The Annual Report must evaluate compliance with permit conditions, evaluate and assess the effectiveness of BMPs, summarize the results of the monitoring program, summarize the activities planned for the next reporting cycle, and, if necessary, propose changes to the SWMP.

Total Maximum Daily Loads (TMDL)

Section 303(d) of the Clean Water Act requires States to identify waters ("impaired" water bodies) that do not meet water quality standards after applying certain required technology-based effluent limits. States are required to compile this information in a list and submit the list to the U.S. EPA for review and approval. This list is known as the Section 303(d) list of impaired waters.

As part of the listing process, States are required to prioritize waters/watersheds for future development of TMDLs. A TMDL is defined as the sum of the individual waste load allocations (WLAs) for point sources of pollution, plus the load allocations (LAs) for nonpoint sources of pollution, plus the contribution from background sources of pollution and a margin of safety. The State Water Board and Regional Water Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to subsequently develop TMDLs.

TMDLs are developed by either the Regional Water Boards or U.S. EPA in response to Section 303(d) listings. TMDLs developed by Regional Water Boards include implementation provisions and can be incorporated as Basin Plan amendments. TMDLs developed by U.S. EPA typically contain the total load and load allocations required by Section 303(d), but do not contain comprehensive implementation provisions. Subsequent

steps after Regional Water Board TMDL development are: approval by the State Water Board, approval by the Office of Administrative Law, and ultimately, approval by U.S. EPA.

The Department has been assigned mass based and concentration based WLAs for constituents contributing to a TMDL in specific regions. The Department is subject to TMDLs in the North Coast, San Francisco Bay, Central Coast, Los Angeles, Central Valley, Lahontan, Colorado River, Santa Ana, and San Diego Regions. These TMDLs are summarized in Table 1 of this Fact Sheet below, and Table IV.2 of Attachment IV of this Order.

Table 1. Department Statewide TMDLs

Water Body	Pollutant	U.S. EPA Approved/Established
North Coast Region		
Albion River *	Sediment	December 2001
Big River *	Sediment	December 2001
Lower Eel River *	Temperature & Sediment	December 18, 2007
Middle Fork Eel River *	Temperature & Sediment	December 2003
South Fork Eel River *	Sediment & Temperature	December 16, 1999
Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury) *	Sediment & Temperature	December 29, 2004
Garcia River	Sediment	March 16, 1998
Gualala River *	Sediment	November 29, 2004
Klamath River	Temperature, Dissolved Oxygen, Nutrient, & Microcystin	December 28, 2010
Lost River	Nitrogen and Biochemical Oxygen Demand	December 30, 2008
Mad River *	Sediment & Turbidity	December 21, 2007
Navarro River *	Temperature & Sediment	December 27, 2000
Noyo River *	Sediment	December 16, 1999
Redwood Creek *	Sediment	December 30, 1998
Scott River	Sediment and Temperature	August 11, 2006
Shasta River	Dissolved Oxygen & Temperature	January 26, 2007
Ten Mile River *	Sediment	December 2000

Water Body	Pollutant	U.S. EPA Approved/Established
Trinity River *	Sediment	December 20, 2001
South Fork Trinity River and Hayfork Creek *	Sediment	December 1998
Van Duzen River & Yager Creek *	Sediment	December 16, 1999
San Francisco Bay Region		
Napa River	Sediment	January 20, 2011
Richardson Bay	Pathogens	December 18, 2009
San Francisco Bay	PCBs	March 29, 2010
San Francisco Bay	Mercury	February 12, 2008
San Pedro and Pacifica State Beach	Bacteria	August 1, 2013
San Francisco Bay Urban Creeks	Diazinon & Pesticide-Related Toxicity	May 16, 2007
Sonoma Creek	Sediment	September 8, 2010
Central Coast Region		
San Lorenzo River (*includes Carbonera Lompico, Shingle Mill Creeks)*	Sediment	February 19, 2004
Morro Bay *(includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary)*	Sediment	January 20, 2004
Los Angeles Region		
Ballona Creek	Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium	December 22, 2005 and reaffirmed on October 29, 2008
Ballona Creek	Trash	August 1, 2002 and February 8, 2005
Ballona Creek Estuary	Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, and Total PAHs)	December 22, 2005
Ballona Creek, Ballona Estuary and Sepulveda Channel	Bacteria	March 26, 2007
Ballona Creek Wetlands *	Sediment and Invasive Exotic Vegetation	March 26, 2012
Calleguas Creek and its Tributaries and Mugu	Metals and Selenium	March 26, 2007

Water Body	Pollutant	U.S. EPA Approved/Established
Lagoon		
Calleguas Creek its Tributaries and Mugu Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation	March 14, 2006
Colorado Lagoon	Organochlorine Pesticides, Polychlorinated Biphenyls, Sediment Toxicity, Polycyclic Aromatic Hydrocarbons, and Metals	June 14, 2011
Dominguez Channel, Greater Los Angeles and Long Beach Harbor Waters	Toxic Pollutants: Metals (Cu, Pb, Zn), DDT, PAHs, and PCBs	March 23, 2012
Legg Lake	Trash	February 27, 2008
Long Beach City Beaches and Los Angeles & Long Beach Harbor Waters *	Indicator Bacteria	March 26, 2012
Los Angeles Area (Echo Park Lake) *	Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, and Trash	March 26, 2012
Los Angeles Area (Lake Sherwood) *	Mercury	March 26, 2012
Los Angeles Area (North, Center, and Legg Lakes) *	Nitrogen and Phosphorus	March 26, 2012
Los Angeles Area (Peck Road Park Lake) *	Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash	March 26, 2012
Los Angeles Area (Puddingstone Reservoir) *	Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Hg, and Dieldrin	March 26, 2012
Los Angeles River and Tributaries	Metals	December 22, 2005 and October 29, 2008 & Reopened and Modified on November 3, 2011
Los Angeles River	Trash	July 24, 2008
Los Angeles River Watershed	Bacteria	March 23, 2012
Los Cerritos *	Metals	March 17, 2010
Machado Lake	Pesticides and Polychlorinated Biphenyls	March 20, 2012
Machado Lake	Trash	February 27, 2008

Water Body	Pollutant	U.S. EPA Approved/Established
Machado Lake	Eutrophic, Algae, Ammonia, and Odors (Nutrient)	March 11, 2009
Malibu Creek Watershed	Bacteria	January 10, 2006, Revised November 8, 2013**
Malibu Creek and Lagoon *	Sedimentation and Nutrients to Address Benthic Community Impairments	July 2, 2013
Malibu Creek Watershed	Trash	June 26, 2009
Marina del Rey Harbor	Toxic Pollutants	March 16, 2006
Marina del Rey, Harbor Back Basins, Mothers' Beach	Bacteria	March 18, 2004, Revised November 7, 2013**
Revolon Slough and Beardsley Wash	Trash	August 1, 2002 and February 8, 2005
San Gabriel River *	Metals (Cu, Pb, & Zn) and Selenium	March 26, 2007
Santa Clara River Estuary and Reaches 3, 5, 6, and 7	Coliform	January 13, 2012
Santa Clara River Reach 3 *	Chloride	June 18, 2003
Santa Monica Bay *	DDTs and PCBs	March 26, 2012
Santa Monica Bay Nearshore & Offshore	Debris (trash & plastic pellets)	March 20, 2012
Santa Monica Bay Beaches	Bacteria	June 19, 2003, Revised November 7, 2013**
Upper Santa Clara River	Chloride	April 6, 2010
Ventura River Estuary	Trash	February 27, 2008
Ventura River and its Tributaries	Algae, Eutrophic Conditions, and Nutrients	June 28, 2013
Central Valley Region		
Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch	Mercury	February 7, 2007
Clear Lake	Nutrients	September 21, 2007
Sacramento – San Joaquin Delta	Methylmercury	October 20, 2011
Lahontan Region		

Water Body	Pollutant	U.S. EPA Approved/Established
Lake Tahoe	Sediment and Nutrients	August 16, 2011
Truckee River	Sediment	September 16, 2009
Colorado River Region		
Coachella Valley Storm Water Channel	Bacterial Indicators	April 27, 2012
Santa Ana Region		
Big Bear Lake	Nutrients for Hydrological Conditions	September 25, 2007
Lake Elsinore and Canyon Lake	Nutrients	September 30, 2005
Rhine Channel Area of the Lower Newport Bay *	Chromium and Mercury	June 14, 2002
San Diego Creek and New Port Bay, including the Rhine Channel *	Metals (Cadmium, Copper, Lead, & Zinc)	June 14, 2002
San Diego Creek and Upper Newport *	Cadmium	June 14, 2002
San Diego Creek Watershed	Organochlorine Compounds (DDT, Chlordane, PCBs, and Toxaphene)	November 12, 2013
Upper & Lower Newport Bay	Organochlorine Compounds (DDT, Chlordane, & PCBs)	November 12, 2013
San Diego Region		
Chollas Creek	Diazinon	November 3, 2003
Chollas Creek	Dissolved Copper, Lead, and Zinc	December 18, 2008
Rainbow Creek	Total Nitrogen and Total Phosphorus	March 22, 2006
Project 1 – Revised Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek)	Indicator Bacteria	June 22, 2011
* U.S. EPA Established TMDL ** OAL Approved, U.S. EPA Approval Pending		

The TMDL-based requirements of this Order are not limited to the maximum extent practical (MEP) standard. The TMDL-based requirements have been imposed in accordance with 40 Code of Federal Regulations section 122.44(d)(1)(vii)(B). Pursuant to 40 Code of Federal Regulations section 122.44(d)(1)(vii)(B), the effluent limitations for NPDES permits must be consistent with the assumptions and requirements of any available WLA for the discharge prepared by the state and approved by EPA, or established by EPA. In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement

any relevant water quality control plans (basin plans), including TMDL requirements that have been incorporated into the basin plans.

Effluent limitations for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs). (See 33 U.S.C. §1342(p)(3)(B)(iii); 40 C.F.R. §122.44(k)(2)&(3).) Where effluent limitations are expressed as BMPs, there should be adequate demonstration in the administrative record of the permit, including in the Fact Sheet, that the BMPs will be sufficient to comply with the WLAs.[20] (See 40 C.F.R. §§ 124.8, 124.9 & 124.18.) The NPDES permit must also specify the monitoring necessary to determine compliance with permit limitations. (See 40 C.F.R. § 122.44(i).) Where effluent limitations are specified as BMPs, the permit should also specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved (e.g., BMP performance data). The permit should additionally provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance.[21]

As detailed below, this Order establishes BMP-based requirements for TMDL implementation that are consistent with the requirements and assumptions of the relevant WLAs. This Order further requires implemented BMPs to be monitored for effectiveness and to be adaptively managed for modifications as necessary to achieve WLAs.

Overview

The State Water Board and Regional Water Boards have reviewed the WLAs, implementation requirements, and monitoring requirements specified in the adopted and approved Regional Water Board Basin Plans or in U.S. EPA-established TMDLs applicable to the Department. In most of the relevant TMDLs, the Department's contribution to impairment is a small portion of the overall contribution from multiple sources (less than five percent). While the Department is generally a small contributor to impairment, the statewide reach of its highway system means that it is a contributor in numerous impaired watersheds. The Department must comply with applicable TMDLs across the state.

The fact that one discharger – the Department – must implement requirements for over 84 TMDLs administered by nine Regional Water Boards poses a unique challenge in permitting. Many of the TMDLs are designed to address the same pollutants causing impairment, and progress in achievement of the WLA for these pollutant categories requires implementation of similar control measures coupled with monitoring and adaptive management. In past

[20] Establishing Total Maximum Daily Load Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs," Memorandum, U.S. EPA, November 22, 2002. On November 12, 2010, U.S. EPA issued a revision to the November 22, 2002, memorandum, recommending that "where the TMDL includes WLAs for storm water sources that provide numeric pollutant load or numeric surrogate pollutant parameter objectives, the WLA should, where feasible, be translated into numeric WQBELs in the applicable storm water permits." The revision further stated, however, that the permitting authority's decision as to how to express water quality based effluent limitations (WQBELs), i.e. as numeric effluent limitations or BMPs, would be based on an analysis of the specific facts and circumstances surrounding the permit.

[21] *Ibid.*

regulatory actions, however, the Department has been directed to comply with the TMDL requirements by reference to the sections of the relevant basin plan and through coordination with the relevant Regional Water Board. As a result, the Department has devoted significant effort to coordination and exercises to determine the next steps, with limited progress in installing on-the-ground control measures to achieve actual water quality improvements. This Order provides a focused and streamlined process for TMDL compliance so that the Department may proceed as quickly as possible to installation of control measures and monitoring, and adaptive management of those control measures to result in water quality improvements. The Order's TMDL requirements provide consistency in determining compliance requirements, where appropriate. To allow for consistency, with resulting time and cost-efficiency, in achieving compliance with the TMDL requirements applicable to the Department, the State Water Board has developed a set of pollutant category requirements to be implemented by the Department.

The pollutant categories are as follows:
1. Sediment/Nutrients/Mercury/Siltation/Turbidity TMDLs
2. Metals/Toxics/Pesticides TMDLs
3. Trash TMDLs
4. Bacteria TMDLs
5. Diazinon TMDLs
6. Selenium TMDLs
7. Temperature TMDLs
8. Chloride TMDLs

Table IV.2 of Attachment IV of this Order lists all TMDLs applicable to the Department. For each TMDL, Table IV.2 cross-references one or more pollutant category. The Department must implement the cross-referenced pollutant category requirements to achieve compliance with the TMDL provisions of the Order. Where TMDL-specific, rather than, or in addition to, pollutant category-specific permit requirements are appropriate (because of the unique local conditions or specific requirements in the TMDL), those requirements are also noted in Table IV.2. In addition, Table IV.2 cross-references the monitoring, reporting and adaptive management requirements applicable to all pollutant categories.

Attachment IV of this Order recognizes that, because the Department must comply with numerous TMDLs, the Department must phase in implementation requirements for TMDLs over several years. To achieve the highest water quality benefit as quickly as feasible in the permit term, this phase-in must be accomplished in a manner that addresses discharges with the highest impact on water quality first. Accordingly, Attachment IV requires the Department, by October 1, 2014, to prepare and submit an inventory of all impaired reaches subject to TMDLs to which the Department discharges with prioritized implementation of controls for these reaches based on a set of qualitative criteria. In preparing the initial prioritization, the Department must consider the degree of impairment of the water body, measured by the percent pollution reduction needed to achieve the WLA, the contributing drainage area from the Department's right of way (ROW) relative to the watershed draining to the reach, and the relative proximity of the ROW to the receiving water.

The State Water Board will allow a 30-day public comment period on the Department's initial prioritization and will work with the Department and the Regional Water Boards to compile a final prioritization to be approved by the State Water Board Executive Director. Criteria for final prioritization to be considered by the Department, the State Water Board and Regional Water Boards include:

a. Opportunities for synergistic benefits with existing or anticipated projects or activities within the reach, e.g., cooperative efforts with other dischargers or projects within an ASBS.
b. Multiple TMDLs that can be addressed by a single BMP within a reach.
c. TMDL deadlines specified in a Basin Plan.
d. Regional Water Board and State Water Board priorities.
e. Accessibility for construction and/or maintenance (i.e. safety considerations).
f. Multi-benefit projects that provide benefits in addition to water quality improvement, such as groundwater recharge or habitat enhancement.

In finalizing the prioritization, the State Water Board and Regional Water Boards will consider the compliance date for attainment of the WLAs established in the Basin Plans and may adjust the prioritization accordingly. It is the intent of the State Water Board to have the Department meet listed TMDL deadlines where feasible.

Upon State Water Board Executive Director approval of final prioritization, the Department must implement control measures to achieve 1650 Compliance Units (CUs) per year. One CU is equivalent to one acre of the Department's ROW, from which the runoff is retained, treated, or otherwise controlled prior to discharge to the relevant reach. BMPs installed during construction activities in TMDL watersheds may receive CU credit for that portion of the treatment volume that exceeds the baseline treatment control requirements specified in the Order. A CU may be claimed when the BMP retrofit project enters the Project Initiation Document (PID) phase of implementation per the requirements of the Order. If a BMP retrofit project is not completed within the approved time schedule, the CU(s) will be revoked unless the Executive Director approves a delay.

The determination of the number of CUs the Department must complete each year is based on the objective of addressing every TMDL in Attachment IV within 20 years. A primary factor considered in the determination of the number of CUs to be completed each year is the compliance due date for the final WLA for many of the relevant TMDLs. The State Water Board considered two approaches in determining the annual number of CUs.

The first approach is based on a simple calculation of the number of acres of ROW that must be treated to ensure that all TMDL watersheds are addressed over a 20 year time frame. Data submitted by the Department indicate that there are 68,000 acres of ROW within TMDL watersheds.

It is not possible or necessary to treat 100 percent of the runoff from TMDL watersheds. In evaluating monitoring sites for discharges into ASBS, staff found that approximately 64

percent of the sites considered could not be addressed, either due to access limitations or safety considerations. Similar conditions are expected to exist in TMDL watersheds, although the percentage will not be as high because the terrain found along most of California's coastline is more difficult and rugged than the terrain that typically exists in the rest of the state. Accordingly, for purposes of this calculation based on the Department's preliminary estimates, the percentage of inaccessible/unsafe sites is reduced by one-half for TMDL watersheds, or 32 percent, translating into approximately 22,000 fewer acres (68,000 x 32 percent = 22,000) that must be treated. Therefore, the Department will have to address approximately 46,000 acres of ROW to comply with the TMDL requirements of Attachment IV. With the objective of addressing all TMDLs in Attachment IV within 20 years, the Department must treat or otherwise address 2300 acres per year (46,000/20 = 2300) throughout the state within the TMDL watersheds listed in Attachment IV.

The second approach for determination of CUs considered by the State Water Board is based on the Department's updated estimates of ROWs that must be treated. This proposal provided by the Department segregates the TMDLs into eight pollutant categories, similar to those presented in Attachment IV, including sediments, metals, trash and bacteria. The Department proposed annual CU commitments based upon the individual categories, with 600 CUs for sediments, a combined 710 CUs for metals and trash, and 340 CUs for bacteria, for an annual total of 1650 CUs. The proposal does not include other pollutant categories in which the acreage and controls for sediments, metals, trash, and bacteria would overlap with the acreage and controls for these other pollutants. This overlap of coverage was identified for the above categorical annual commitments so that the total ROW acreage requiring treatment equates to 33,000 acres.

Though the two approaches produce similar results, the State Water Board confirms that the second approach is sufficient for TMDL-implementation planning at the current stage of TMDL implementation; therefore the second compliance unit determination approach described above is implemented in this Order. The State Water Board believes that 1650 CUs represent a reasonable balance of resources and environmental protection, and will be sufficient to address the TMDLs in Attachment IV in the foreseeable future. The Department is ultimately responsible for demonstrating that it has complied with the TMDLs in Attachment IV by meeting the WLAs and other TMDL performance criteria, independent of its annual obligation to receive credit for compliance units. 1650 CUs per year may be more or less than is needed to comply with the TMDLs in Attachment IV within 20 years. This permit expires in 2018; therefore Attachment IV of this Order requires the Department to present to the State Water Board, at a public meeting to be scheduled approximately 180 days prior to the expiration of the Order, a TMDL Progress Report containing an evaluation of the progress achieved during this permit term. The State Water Board will then evaluate the compliance unit approach and the Department's progress in meeting the 20 year objective before consideration of subsequent requirements in a subsequently renewed permit.

Using an average cost $176,000 per BMP/acre[22], the proposed annual cost to meet this requirement relying solely on retrofits is approximately $290,000,000. The Department's contribution to impairment in any given TMDL is generally a small portion of the overall contribution from multiple sources. In many cases, synergistic effects can be achieved and water quality improvements are better served through coordinated efforts with other parties to the TMDL. To encourage collaborative implementation, Attachment IV of this Order allows CUs for collaborative efforts based on the amount of financial participation made by the Department. To determine an appropriate financial equivalence staff used the cost data submitted by the Department of $176,000 per BMP/acre or per CU. However, to encourage collaborative efforts, staff proposes a 50 percent discount for participation in these types of agreements. Attachment IV accordingly sets the CU equivalent at $88,000. Based on the same approach described above, and relying solely on contributions to collaborative efforts, the annual cost to the Department is approximately $145,000,000.

Attachment IV allows for two types of collaborative implementation: Cooperative Implementation Agreements between the Department and other responsible parties to conduct work to comply with a TMDL, and a Cooperative Implementation Grant Program funded by the Department and administered by the State Water Board. The grant program will be used to fund capital projects in impaired watersheds in which the Department has been assigned a WLA or otherwise has responsibility for implementation of the TMDL. Cooperative implementation will satisfy some or all of the Department's obligations under a TMDL, whether or not discharges from the Department's ROW are controlled or treated.

Cooperative implementation has the following advantages:

- Allows for retrofit projects off the ROW, at locations that may otherwise have space, access, or safety limitations within the ROW;
- Provides for the involvement of local watershed partners who have an interest and expertise in the best way to protect, manage, and enhance water quality in the watershed;
- Allows for implementation of BMPs and other creative solutions not typically available to the Department;
- Allows for larger watershed scale projects; and
- Leverages resources from other entities.

In addition, the Cooperative Implementation Grant Program eliminates the Department's complex budgeting and project approval process to expedite the implementation of BMPs in impaired watersheds.

If the Department elects to fund a Cooperative Implementation Grant Program, the Department and the State Water Board will enter into a formal agreement to specify the terms of the grant program and the commitments and responsibilities of the parties. The agreement will specify the following:

[22] Construction capital cost based on information provided by Department staff.

- The Department will pay all State Water Board costs in administering the grant program. No credit for compliance units will be given for administrative costs paid to the State Water Board.
- The Department will track and report on the projects funded under the grant program.
- Grantees will be responsible for the long term management, operation, and maintenance of BMPs.
- Grants are limited to other responsible parties named in the TMDL.
- Projects shall address storm water runoff and treat or control the same Pollutants of Concern that the Department is responsible for.
- Priority is given to projects that address impairments in the highest priority reaches identified in the prioritization process specified in Attachment IV, Section I.A.
- If the grant program is discontinued, any unexpended funds will be returned to the Department and the corresponding compliance units will be revoked and added to subsequent annual compliance unit totals.

Attachment IV reflects the State Water Board's commitment to streamlining TMDL compliance for the Department to proceed as quickly as feasible to implement on-the-ground control measures and obtain measurable improvement in water quality. In the prioritization process, the Department and the Water Boards will consider the final compliance deadlines under the TMDLs; however, the State Water Board recognizes that the requirements in Attachment IV do not mirror all specific interim deadlines for studies, reports, and pollutant reductions in the TMDLs included to demonstrate progress toward meeting the WLAs. The requirements in Attachment IV are general yet consistent with specific planning, study, and reporting requirements in the TMDLs.

The Department is required annually to include in the TMDL Status Review Report its proposal for reaches to be addressed in the upcoming year, with selected control measures and projected schedule for implementation. The Department is also required to report a set of information that encompasses updates on cooperative and individual implementation activities completed, as well as an analysis of the effectiveness of existing BMPs and activities in meeting the WLAs. This information will be reviewed by the State Water Board and will be publicly available. Control measures and implementation schedules proposed for the upcoming year are subject to the approval of the Executive Director, or designee.

Attachment IV does not list the final required WLAs for each TMDL. With few exceptions, the WLAs are to be achieved jointly by a number of storm water dischargers and accordingly are of limited use in determining and enforcing the Department's specific responsibilities under the TMDL. The State Water Board finds that effective implementation and enforcement of Attachment IV is better achieved through clear requirements for implementation of controls, and monitoring and adaptive management of such controls, than by implementation of joint WLAs into the permit requirements.

Nevertheless, the WLAs, both Department-specific and joint with other dischargers, are discussed in the sections below. While the WLAs are not incorporated into Attachment IV as permit requirements, the discussion establishes that Attachment IV is consistent with the

requirements and assumptions of the WLAs. In general, the Department is a relatively small contributor to the impairment to be addressed by the relevant TMDLs.[23] Attachment IV requires a focused effort to address the priority discharges through measurable and streamlined progress in implementation of controls, effectively addressing the relatively small contribution from the Department. The Department must verify progress through reporting of subsequent monitoring and adaptive management activities.

As an additional step in determining compliance toward achievement of WLAs, the Department must submit a TMDL Progress Report with its application for permit reissuance in January of 2018, analyzing the effectiveness of the control measures installed for each reach and whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final TMDL compliance deadlines. The TMDL Progress Report will be subject to public review and comment and will inform the State Water Board as it considers subsequent requirements in a subsequently reissued permit.

A. General Requirements for all TMDLs: Comprehensive TMDL Monitoring, Reporting, and Adaptive Management

As previously discussed, an NPDES permit must specify the monitoring necessary to determine compliance with effluent limitations. Where effluent limitations are specified as BMPs, the permit should specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved. The permit should additionally provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance. Attachment IV requires continuation of existing monitoring plans as approved by the Regional Water Board Executive Officer. Where there is no approved monitoring plan in place for a TMDL, the Department is required to submit a plan to the State Water Board by January 1, 2015, with a time schedule to implement the plan. The submitted plan must be designed to assess the effectiveness of implemented BMPs and to inform BMP selection. The Department shall use the monitoring data to conduct an on-going assessment of the performance and effectiveness of BMPs and shall use the assessment to inform modifications to control measures to achieve WLAs and other applicable performance standards.

BMP effectiveness monitoring and the adaptive management strategy related to BMP implementation allows for flexibility in source control methods until the most appropriate BMPs are identified and installed for the control of a pollutant. The Department will evaluate the effectiveness of the controls that were implemented each year and submit the results of the evaluation in the TMDL Status Review Report, which is submitted as part of the Annual Report. If the controls implemented are shown to be ineffective, then the Department must either re-design the BMP or implement a new type of control measure to address the inadequacies of the current design. The process of assessing the performance and

[23] In the few instances where the Department's contribution is a relatively high percentage of the total contribution from identified sources, as identified in this Fact Sheet, the State Water Board would expect the Department to prioritize addressing such discharges and evaluating the performance and effectiveness of the selected BMPs.

effectiveness of BMPs and using that assessment to modify or replace inadequate BMPs ensures that the Department will make progress toward achieving the requirements of the TMDLs within the permit term.

The Department must also prepare and submit a TMDL Progress Report to the State Water Board as part of its permit reissuance application. That report must include: (1) a summary of the effectiveness of the control measures installed for each reach that has been addressed, as a result of BMP effectiveness assessment, (2) a determination as to whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final compliance deadlines, (3) where the control measures are determined not to be sufficient to achieve WLAs or other performance standards by the final compliance deadlines, a proposal for improved control measures to address the relevant pollutants, and (4) a summary of the estimated amount of pollutants that were prevented from entering into the receiving waters. The TMDL Progress Report will be subject to public review and comment and will inform the requirements of the reissued permit.

B. Sediments/Nutrients/Mercury/Siltation/Turbidity Pollutant Category

General Description of Pollutant Category

The TMDLs in this pollutant category identify sediment from roads as a significant or primary source of these pollutants. Excessive sediment loads have resulted in the non-attainment of water quality objectives for sediment, suspended material, and settleable material. Excess sediment delivery to stream channels is associated with several natural processes as well as anthropogenic sources.

Sources of Pollutant and How Pollutants Enters the Waterway

Natural sources include geologically unstable areas that are subject to landslides, as well as smaller sediment sources such as gullies and stream-bank failures. Anthropogenic sources include road-related stream crossing failures, gullies, fill failures, and landslides precipitated by road-related surface erosion and cut bank failures. Road-related activities which can increase sediment discharge to a waterway include the construction and maintenance of paved and unpaved roadways, watercourse crossing construction, reconstruction, maintenance, use, and obliteration, and many activities conducted on unstable slopes. Unstable areas are areas with a naturally high risk of erosion and areas or sites that will not reasonably respond to efforts to prevent, restore or mitigate sediment discharges. Unstable areas are characterized by slide areas, gullies, eroding stream banks, or unstable soils that are capable of delivering sediment to a watercourse. Slide areas include shallow and deep seated landslides, debris flows, debris slides, debris torrents, earthflows, headwall swales, inner gorges and hummocky ground. Unstable soils include unconsolidated, non-cohesive soils and colluvial debris.

Mercury is negatively impacting the beneficial uses of many waters of the state. As of 2010, more than 180 water bodies are designated as impaired by mercury, and fish in these waters can have mercury concentrations that pose a health risk for humans and wildlife that eat the fish, including threatened and endangered species. The beneficial uses impacted by

mercury include, but may not be limited to, COMM, WILD, and RARE beneficial uses. Also REC-1 has been used for many waters to indicate fish consumption as part of fishing. Sources of mercury include gold and mercury mines, naturally mercury enriched soils, atmospheric deposition, improper disposal of mercury containing items, such as batteries and dental amalgam. Mercury from many of these sources can end up in storm water and industrial and municipal wastewater.

Watershed Contribution
The Department is a relatively minor source of pollutants and small percentage of the watershed. The Department will address the highest problem areas and therefore, addressing the problem at the appropriate level for the Sediment, Nutrients, Mercury, Siltation and Turbidity TMDLs.

Control Measures
Attachment IV requires the Department to implement control measures to prevent erosion and sediment discharge. The measures that control the discharge of sediment can be effective in controlling releases of nutrients and mercury. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying natural runoff flow patterns.

In addition to TMDL requirements, the Department has developed a BMP program for control of pollutants from existing facilities and for new and reconstructed facilities. This BMP program includes implementation, maintenance and evaluation of BMPs, and the investigation of new BMPs. The goal of BMP implementation is to control the discharge of pollutants to achieve the applicable standards. Erosion control BMPs are typically used on construction sites, although some are also used as permanent, post-construction BMPs.

Department's Contribution
The Department's discharge contribution is discussed under the individual TMDLs below. The TMDLs in this pollutant category attribute most anthropogenic sediment related beneficial use impairments to logging activities and, to a lesser degree, some agricultural activities. Logging activities routinely include extensive construction and maintenance of unpaved roads which range over large areas, whereas the Department maintains a network of paved highways which account for a small fraction of the total area devoted to all paved roadways within the boundaries of these TMDLs.

The requirements in Attachment IV are generally sufficient to address the sediment TMDLs that originate from a comparatively minor pollutant source, and this is accomplished by focusing on the most problematic areas and activities within this relatively low-volume subset of anthropogenic discharges for this pollutant category.

NORTH COAST REGION SEDIMENT TMDLS

As discussed under individual TMDLs below, the TMDLs in this pollutant category attribute most anthropogenic sediment-related beneficial use impairments to logging activities and, to a lesser degree, some agricultural activities. Logging activities in the North Coast region routinely include extensive construction and maintenance of unpaved roads which range over large areas of the Coast Range's vertical topography, whereas the Department maintains a network of paved highways which accounts for a small fraction of the total area devoted to all paved roadways within the boundaries of these TMDLs.

WLAS

The North Coast Regional Water Board has adopted the "Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region" on November 29, 2004. The goals of the Policy are to control sediment waste discharges to impaired water bodies so that the TMDLs are met, sediment water quality objectives are attained, and beneficial uses are no longer adversely affected by sediment. This policy requires the use of NPDES permits and waste discharge requirements to achieve compliance with sediment-related water quality standards.

The sediment control requirements in Attachment IV (TMDL Requirements) of this Order are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonids fishery are often the most sensitive to sediment discharges. The North Coast Regional Water Board's basin plan has the following narrative water quality objectives which apply to sediment-related discharges to receiving waterbodies:

Parameter	Water Quality Objectives
Suspended Material	Waters shall not contain suspended material in concentrations that cause nuisance or adversely affects beneficial uses.
Settleable Material	Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affect beneficial uses.
Sediment	The suspended sediment load and suspended sediment discharge rate of surface water shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.
Turbidity	Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.

Department's Contribution:

The Department's specific discharge contribution is discussed under the individual TMDLs below.

Albion River Sediment TMDL, December 2001

Final WLA
U.S. EPA states that there are no significant individual point sources of sediment in the Albion River watershed.

Final WLA Specific to the Department
U.S. EPA states that there are no significant individual point sources of sediment in the Albion River watershed. As a consequence, its wasteload allocation is set to zero.

Final Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading)
Approximately five percent of the total miles of roads within the watershed are paved, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. The Department's paved roadways thus constitute some undetermined fraction of the total paved road mileage: its wasteload allocation is set to zero.

Big River Sediment TMDL, December 2001

Final WLA
U.S. EPA states that there are no significant individual point sources of sediment in the Big River watershed, so the wasteload allocation is zero.

Final WLA Specific to the Department
U.S. EPA states that there are no significant individual point sources of sediment in the Big River watershed.

Final Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading**)**
Approximately three (3) percent of the miles of roadways within the watershed are paved, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. The Department is not listed as a source of point source discharges of sediment.

Lower Eel River Sediment & Temperature TMDL, December 18, 2007

Final Sediment WLA
For the Department's facilities, construction sites, and municipalities, the wasteload allocation is expressed as equivalent to the load allocations, as specified in the following table:

Sediment Source		Average Daily		Average Daily		Percent Reduction 1955 -2003
		1955 – 2003 Loading	Load Allocation	1955 – 2003 Loading	Load Allocation	
		(tons/mi^2/yr)	(tons/mi^2/yr)	(tons/mi^2/day)	(tons/mi^2/day)	
Natural Load Allocation		718	718	2.0	2.0	0%
Roads	**Episodic**	43	9	0.1	0.02	80%
	Chronic	115	17	0.3	0.05	85%
Timber Harvest		590	147	1.6	0.4	75%
Skid Trail		7	1	0.02	0.5	90%
Bank Erosion		21	6	0.1	0.03	70%
Total Human-related Load Allocation		775	180	2.1	0.5	77%
Total Load Allocations Natural and Human-Related Sources		1,493	898	4.1	2.5	

Final WLA Specific to the Department
As stated above, U.S. EPA's wasteload allocation for the temperature TMDL assigned to the Department and other point source dischargers is zero net increase in receiving water temperature.

Final Deadlines
As noted above, U.S. EPA did not set a specific sediment WLA for the Department.

Department's Contribution (relative contribution to pollutant loading)
The Department's relative sediment contribution is not known.

Eel River (Middle-Fork) Eden Valley and Round Valley HSAs Temperature and Sediment TMDL, December 2003

Final Sediment WLA

U.S. EPA states that because discharge from point sources cannot be readily determined, and because possible loading from point sources is not distinguished from general management-related loading in the source analysis, U.S. EPA considers the rates set as load allocations (i.e., for nonpoint sources) to also represent wasteload allocations (i.e., for those point sources that would be covered by general NPDES permits).

Table 7: Sediment TMDLs and Allocation (t/mi^2/yr)

Source	Black Butte	Elk Creek	Round Valley	Upper MF	Williams Thatcher	BASINWIDE Load
TOTAL Natural	**724**	**1,059**	**374**	**410**	**417**	**574**
Percent Reduction over current	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**
Subtotals Landslides	**9**	**12**	**10**	**2**	**2**	**6**
Percent Reduction over current	0%	5%	5%	0%	5%	5%
Subtotal Small Management Sources	**7**	**41**	**9**	**8**	**19**	**23**
Percent Reduction over current	0%	32%	95%	0%	89%	70%
Total Management-Related	**16**	**53**	**19**	**10**	**21**	**29**
Percent Reduction over current	0%	27%	91%	0%	88%	65%
TMDL – ALL SOURCES	**740**	**1,112**	**393**	**420**	**438**	**603**
Percent Reduction over current	0%	2%	32%	0%	26%	8%
Percent Natural	98%	95%	95%	98%	95%	95%
Percent Management	2%	5%	5%	2%	5%	5%

Final Sediment WLA Specific to the Department

As discussed above, U.S. EPA did not assign a specific sediment WLA to the Department.

Final Sediment Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)
U.S. EPA states that the Department's discharges of sediment, like other point sources of anthropogenic sediment discharges in this TMDL, are comparatively minor sources of this pollutant.

South Fork Eel River Temperature & Sediment TMDL, December 16, 1999

U.S. EPA's source analysis indicates that the sediment loading due to nonpoint erosion from roads and other anthropogenic activities accounts for a substantial portion of the total sediment loading in this watershed.

The waste load allocation for point sources are for sediment only, i.e., they are not directly related to the temperature portion of the TMDL, nor does U.S. EPA set a waste load allocation for point sources under the temperature portion of the TMDL. However, U.S. EPA also states that any improvements in stream temperature from reduced sedimentation contribute to the cumulative benefits of both sediment and temperature load reductions, and this assumption is accommodated in U.S. EPA's calculations for the margin of safety in this TMDL.

Final Sediment WLA
U.S. EPA set the wasteload allocation to zero because it found that there are no point sources of sediment in this watershed.

Final Sediment WLA Specific to the Department
As stated above, U.S. EPA states that there are no point source discharges of sediment within this TMDL, so the Department's wasteload allocation is set to zero.

Final Sediment Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)
U.S. EPA states that there are no discharges from point sources within this TMDL, and because of this finding, the Department's potential contribution to anthropogenic sediment loading is insignificant.

Upper Main Eel River Temperature & Sediment TMDL, December 29, 2004

Final Sediment WLA
For the sediment TMDL, U.S. EPA states that point sources are not significant, and sets the waste load allocation to zero.

Final Sediment WLA Specific to the Department
U.S. EPA views point source contributions to sediment loading in this TMDL, so the Department's wasteload allocation is set to zero.

Final Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading)
U.S. EPA considers all point sources of anthropogenic sediment loading to be insignificant for purposes of this TMDL.

Garcia River Sediment & Temperature TMDL, March 16, 1998

Final Sediment WLA
The wasteload allocation is effectively set to zero for "controllable" anthropogenic discharges of sediment, including those associated with roads, since all controllable discharges of sediment from roadways are prohibited.

Final Sediment WLA Specific to the Department
Although not specifically included in this TMDL, the wasteload allocation for all "controllable" anthropogenic discharges of sediment from roadways is effectively set to zero.

Final Sediment Deadlines
The structure of this 2002 TMDL requires responsible parties to choose an option for controlling 'sediment delivery', and some 'due dates' have already passed, e.g., January 2005 was the deadline for the Long Term Road System Plan- it is unclear which option, if any, has been selected by the Department.

Department's Sediment Contribution (relative contribution to pollutant loading)
The Department's relative sediment pollutant loading is not known.

Gualala River Sediment &Temperature TMDL, November 29, 2004

Final Sediment WLA
U.S. EPA set the wasteload allocation for sediment discharges to zero, noting that point sources of sediment pollution are insignificant within the area described in this TMDL.

Final Sediment WLA Specific to the Department
There is no wasteload allocation specifically assigned to the Department, but as mentioned above, U.S. EPA set these to zero because of their comparative insignificance as sources.

Final Sediment Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Sediment Contribution (relative contribution to pollutant loading) Approximately three percent of the miles of roadways included within this TMDL are paved. The Department's potential contribution to pollutant loading is some unspecified fraction of the former, whereas logging road construction, logging road usage, and other activities associated with logging operations constitute the majority of anthropogenic sediment discharges. Due to its relative insignificance as a source of sediment pollution the Department's wasteload allocation is set to zero.

Klamath River in California Temperature, Dissolved Oxygen, Nutrients, and Microcystin TMDL, December 28, 2010

Final Nutrients WLA

Daily mass-based nutrient (total phosphorus and total nitrogen) and organic matter load allocations are assigned to segments of the Klamath River and its tributaries.

Source Area	Daily TP Load Allocations (lbs/day)	Daily TN Load Allocations (lbs/day)
Stateline	245+	3,139+
Upstream of Copco 1 Reservoir	(61)+	(330)+
Stateline to Iron Gate Dam inputs	22+	339+
Δ Iron Gate Hatchery	0+	0+
Tributaries between Iron Gate Dam and the Shasta River	49+	317+
Shasta River	75+	220+
Tributaries between Shasta River and Scott River	17+	97+
Scott River	87+	1,279+
Tributaries between Scott River and Salmon River	187+	1,050+
Salmon River	193+	1,583+
Tributaries between Salmon River and Trinity River	90+	504+
Trinity River	762+	5,783+
Tributaries between Trinity River and Turwar Creek	179+	1,004+
Total Maximum Daily Load	**1,845**	**14,985**

Final Nutrients WLA Specific to the Department

There are no WLAs that are assigned specifically to the Department. The Department is expected to address nutrient inputs into the Klamath River watershed through control of sediment from its road and highway facilities.

Final Nutrients Deadlines
There are no final deadlines for achievement of WLAs. However, the Department shall submit annual reports to the North Coast Regional Water Board documenting progress in implementing.

Department's Nutrients Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the nutrient pollutant loading is not known.

Lost River Nitrogen Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments December 30, 2008

The Lower Lost River TMDL was developed by the North Coast Regional Water Quality Control Board and approved by U.S. Environmental Protection Agency (U.S. EPA) (regional board resolution number R1-2010-0026). It established TMDLs for Nitrogen and Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments. The Lower Lost River TMDLs implementation plan which was established by U.S. EPA is included in the Klamath River TMDL. Both the Klamath River TMDL and the Lower Lost River TMDL were both approved on December 28, 2010.

Final Nitrogen WLAs

Segment	**Total Dissolved Inorganic Nitrogen WLA** (average kg/day)	**Total Carbonaceous Biochemical Oxygen Demand (CBOD)** (average kg/day)
Lost River from Border of Tule Lake Refuge	79.5	197.0
Tule Lake Refuge TMDLs	181.5	90.10
Lower Klamath Refuge TMDLs	76.2	889.9

Final Nitrogen WLAs Specific to the Department

Segment	**Dissolved inorganic nitrogen,** (average kg/day)	**Carbonaceous Biochemical Oxygen Demand (CBOD)** (average kg/day)
Lost River from border of Tule Lake Refuge	0.3	0.5
Tule Lake Refuge TMDLs	0.3	0.5
Lower Klamath Refuge TMDLs	0.3	0.5

Final Nitrogen Deadlines
There are no deadlines associated with these TMDLs.

Department's Nitrogen Contribution (relative contribution to pollutant loading)

Segment	Percentage of Total Dissolved Inorganic Nitrogen WLA	Percentage of Total Carbonaceous Biochemical Oxygen Demand (CBOD) WLA
Lost River from border of Tule Lake Refuge	100	100
Tule Lake Refuge TMDLs	3.0	10.1
Lower Klamath Refuge TMDLs	100	100

Mad River Sediment and Turbidity TMDL, December 21, 2007

U.S. EPA states that almost all sources of sediment in the Mad River watershed are from diffuse, nonpoint sources, including runoff from roads, timber operations, and natural background. In the Mad River basin, individual point sources are negligible sources of sediment and suspended sediment. To ensure protection of the cold water beneficial use, EPA has determined that it is appropriate to consider the rates set forth in these TMDLs as load allocations to also represent wasteload allocations for the *diffuse* discharges in the watershed that are subject to NPDES permits, as discussed below.

Final WLAs for Sediment and Turbidity

Wasteload allocations for diffuse, permitted point sources function similarly to and are represented by the nonpoint source load allocations, and wasteload allocations for permitted point sources are provided concentration-based wasteload allocations equivalent to what is included in the permits in order to account for incidental sediment and suspended sediment discharges. The TMDLs for sediment and turbidity include separate but identical load allocations for nonpoint sources and wasteload allocations for the diffuse point sources for each subarea. These WLAs are equivalent to and represented by the LAs, and the LAs are expressed on a unit loading basis (tons/mi2/year); therefore, they are not added to the LAs in the TMDL equation.

Table 20. Total Sediment Load Allocations Summary for the Mad River Watershed

Sediment Source		Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
		1976 – 2006 Loading (tons/mi^2/yr)	Load Allocation (tons/mi^2/yr)	1976 – 2006 Loading (tons/mi^2/yr)	Load Allocation (tons/mi^2/yr)	
Natural Load Allocation		**894**	**894**	**2.4**	**2.4**	**0%**
Roads	Landslides	1,298				
	Surface	242				
Roads Subtotal		**1,540**	**174**	**4.2**	**0.5**	**89%**
Harvest	Landslide	38				
	Surface	2				

Sediment Source	Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
	1976 – 2006 Loading (tons/mi^2/yr)	Load Allocation (tons/mi^2/yr)	1976 – 2006 Loading (tons/mi^2/yr)	Load Allocation (tons/mi^2/yr)	
Harvest Subtotal	40	5	0.1	0.01	89%
Total Human-related Load	1,580	179	4.3	0.5	89%
Total Load: All Sources	**2,474**	**1,073**	**6.8**	**2.9**	**57%**
Note: values have been rounded.					

Suspended sediment is estimated as a proportion of total sediment load, and the reductions for the suspended sediment load are shown in Table 21 (below). The reductions reflect similar priorities as for the total sediment load. Suspended sediment is estimated as a proportion of total sediment load, and the reductions for the suspended sediment load are shown in Table 21. The reductions reflect similar priorities as for the total sediment load.

Table 21. Suspended Sediment Load Allocations Summary for the Mad River Watershed

Sediment Source		Average Annual		Average Daily		Percent Reduction over 1976 – 2006 Period
		1976 – 2006 Loading (tons/mi^2/yr)	Load Allocation (tons/mi^2/yr)	1976 – 2006 Loading (tons/mi^2/yr)	Load Allocation (tons/mi^2/yr)	
Natural Load Allocation		809	809	2.2	2.2	0 %
Road	**Landslides**	1,174				
	Surface	219				
Roads Subtotal		**1,393**	**158**	**3.8**	**0.4**	**89%**
Harvest	**Landslides**	34				
	Surface	2				
Harvest Subtotal		**36**	**4**	**0.1**	**0.01**	**89%**
Total Human-related Load		**1,430**	**162**	**3.9**	**0.4**	**89%**
Total Load: All Sources		**2,238**	**971**	**6.1**	**2.7**	**57%**

Final WLAs for Sediment and Turbidity Specific to the Department

U.S. EPA grouped the Department's discharges under its NPDES municipal storm water permit with other "diffuse" NPDES-permitted storm water discharges occurring in this TMDL. U.S. EPA's source analysis did not distinguish between land areas subject to NPDES regulation and nonpoint sources of sediment and turbidity. U.S. EPA's TMDLs thus include separate but identical load allocations (LAs) for nonpoint sources and wasteload allocations (WLAs) for the "diffuse" point sources for each subarea. These WLAs are equivalent to and

represented by the LAs, and the LAs are expressed on a unit loading basis (tons/mi2/year); therefore, they are not added to the LAs in the TMDL equation.

For the diffuse permitted sources such as the Department's discharges under its municipal storm water permit, the waste load allocation is expressed as equivalent to the load allocation for (all) roads. The load allocations for roads are listed in the tables given above.

U.S. EPA also states that the Regional Water Board may wish to refine these TMDLs and allocations further in the future.

Final Sediment and Turbidity Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Sediment and Turbidity Contribution
U.S. EPA states that non-NPDES nonpoint sources are responsible for nearly all sediment loading in the watershed, but does not estimate the Department's potential contribution to sediment and turbidity waste loading in this TMDL. Only six percent of the roads in this watershed are paved, and some unspecified portions of the latter are State highways.

Navarro River Sediment and Temperature TMDL, December 27, 2000

Final Sediment WLA
The Navarro River TMDLs for temperature and sediment are based on separate analyses. Reduced sediment loads could be expected to lead to increased frequency and depth of pools, and to reduced wetted channel width/depth ratios.

Final Sediment WLA Specific to the Department
The Department is not specifically mentioned as a source of pollutant loading for temperature and sediment, nor are any other point sources of these pollutants. The wasteload allocation for the Department is therefore presumed to be set to zero.

Final Sediment Deadlines
U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution
As mentioned above, neither Department nor other point sources are identified as sources of pollutant loading for temperature or sediment, so U.S. EPA has determined that these potential sources are insignificant in this TMDL.

Noyo River Sediment TMDL, December 16, 1999

Final Sediment WLA
U.S. EPA apportioned the total load among several non-point sources of sediment, after accounting for background load. As a consequence, this TMDL does not include wasteload allocations for point sources.

Final Sediment WLA Specific to the Department
U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Sediment Contribution (relative to pollutant loading)
As stated above, U.S. EPA did not establish wasteload allocations for point sources of sediment.

Redwood Creek Sediment TMDL, U.S. EPA Established December 30, 1998

Final Sediment WLA
U.S. EPA did not establish wasteload allocations for point sources in this TMDL.

Final WLA
U.S. EPA established this TMDL on December 30, 1998 and it became effective immediately.

Final WLA Specific to the Department and the Department's Contribution
As stated above, U.S. EPA did not establish wasteload allocations for point sources of sediment.

Final Deadlines
U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Contribution (relative to pollutant loading)
The Department's contribution relative sediment pollutant loading is not known.

Scott River Sediment and Temperature TMDL, August 11, 2006

Final Sediment WLA
U.S. EPA states that there are no point sources of sediment and/or temperature related discharges within the area encompassed by this TMDL, so the wasteload allocation is set to zero.

Final Sediment WLA Specific to the Department
None.

Final Sediment Deadlines
U.S. EPA directed Regional Water Board staff to evaluate the Department's state-wide NPDES permit in the North Coast Region by September 8, 2008. The purpose of the evaluation was to determine the adequacy and effectiveness of the Department's storm water program in preventing and reducing elevated water temperatures in the North Coast Region, including the Scott River watershed.

Department's Sediment Contribution (relative to pollutant loading)
As noted above, U.S. EPA did not establish specific wasteload allocations for point sources, so the wasteload allocations are set to zero. The Department's point source contribution is therefore judged to be insignificant.

Ten Mile River Sediment TMDL, December 2000

Final Sediment WLA
U.S. EPA states that there are no point sources of sediment discharges within the area included within this TMDL: wasteload allocations are therefore set to zero.

Final Sediment WLA Specific to the Department
As stated above, U.S. EPA did not establish wasteload allocations for point sources such as the Department in this TMDL, so the wasteload allocations are set to zero.

Final Sediment Deadlines
U.S. EPA did not specify deadlines for implementation of this TMDL.
Department's Sediment Contribution (relative pollutant loading)
The Department's relative sediment contribution is judged to be insignificant.

Trinity River Sediment TMDL, December 20, 2001

Final Sediment WLA
U.S. EPA did not subdivide waste load and load allocations into specific sources such as roads and timber harvest, unlike several of its other sediment-related TMDLs in Region 1. U.S. EPA divided the basin into subareas because of the wide range of sediment delivery rates within each of the several subareas. U.S. EPA further states that although nonpoint sources are responsible for most sediment loading in the watershed, point sources also discharge some sediment.

The TMDL identified wasteload allocations for point sources and load allocations for nonpoint sources as pollutant loading rates (tons/square mile/year) for subareas within the Trinity Basin. The source analysis supporting these allocations evaluated sediment loading at a subarea scale, and did not attempt to distinguish sediment loading at the scale of specific land ownership, nor did the source analysis specifically distinguish between land areas subject to NPDES regulation and land areas not subject to NPDES regulation. As a

consequence, the TMDL includes separate but identical load allocations for nonpoint sources and wasteload allocations for point sources for each subarea. The joint LA/WLA's for each subarea are given in the following tables:

Table 5-2. TMDL and Allocations by Source Category for Upper Area

Source Categories		Subareas within the Upper Assessment Area				
		Reference Subwatersheds[1]	Westside Tributaries[2]	Upper Trinity[3]	East Fork Tributaries[4]	East Side Tributaries[5]
Current Sediment Delivery Rate						
Background (non-management)		1,125	421	2,759	258	241
Management	**Roads**	129	101	162	319	48
	Timber Harvest	240	31	1,084	46	22
	Legacy (Roads, Mining)	7	25	21	26	96
	Total Mgmt.	376	157	1,267	391	96
Total Sediment Delivery		1,051	578	4,026	649	337
Total as percent of background		133%	137%	146%	252%	140%
Loading Capacity (TMDL) and Allocations (tons/mi^2/yr)						
TMDL (= 1.25 X Background)		1,406	526	3,449	323	301
Background Allocation		1,125	421	2,759	258	241
Total Management Allocation (= TMDL – Background)		281	105	690	65	60
Percent reduction needed in management to attain TMDL		25%	33%	46%	83%	37%

1. Stuarts Fork, Swift Creek, Coffee Creek
2. Stuart Arm Area, Stoney Creek, Mule Creek, East Fork Stuart Fork, West Side Trinity Lake, Hatchet Creek, Buckeye Creek;
3. Upper Trinity River, Tangle Blue, Sunflower, Graves, Bear Upper Trinity Mainstem Area, Ramshorn Creek, Ripple Creek, Minnehaha Creek, Snowslide Gulch Area, Scorpion Creek
4. East Fork Trinity, Cedar Creek, Squirrel Gulch Area
5. East Side Tributaries, Trinity Lake

Table 5.3 TMDL and Allocations by Source Category for Upper Middle Area

Source Categories		Subareas within the Upper Assessment Area					
		Weaver and Rush Creeks (72 mi^2)	**Deadwood Creek, Hoadley Gulch and Poker Bar Area (47 mi^2)**	**Lewiston Lake Area (25 mi^2)**	**Grass Valley Creek[1] (37 mi^2)**	**Indian Creek (34 mi^2)**	**Reading and Brown Creek (104 mi^2)**
Current Sediment Delivery Rates (tons/mi^2/yr)							
Background (non-management)		675	273	195	175	324	263
Management	**Roads**	144	220	83	287	1.570	125
	Timber Harvest	61	280	37	1,136	330	204
	Legacy (Roads, Mining)	81	62	69	65	68	42
	Total Mgmt.	286	562	189	1,488	1,968	372
Total Sediment Delivery		961	835	384	1,663	2,292	635
Total as percent of background		142%	305%	197%	950%	707%	241%
Loading Capacity (TMDL) and Allocations (tons/mi^2/yr)							
TMDL (= 1.25 X Background)		844	341	244	219	405	329
Background Allocation		675	273	195	175	324	263
Total Management Allocation (= TMDL – Background)		169	68	49	44	81	66
Percent reduction needed in management to attain TMDL		41%	88%	74%	97%	96%	82%

1. The rates in Grass Valley Creek do not account for the amount of sediment trapped by Buckhorn Dam and Hamilton Ponds.

Table 5.4 TMDL and Allocations by Source Category for Lower Middle Assessment Area

Source Categories		Subareas within the Lower Middle Assessment Area				
		Reference Subwatersheds[1] (434 mi^2)	Canyon Creek (64 mi^2)	Upper Tributaries[2] (72 mi^2)	Middle Tributaries[3] (54 mi^2)	Lower Tributaries[2] (96 mi^2)
Current Sediment Delivery Rates (tons/mi^2/yr)						
Background (non-management)		1,568	1,302	268	210	221
Management	**Roads**	11	2,482	60	37	41
	Timber Harvest	4	4	29	16	20
	Legacy (Roads, mining)	9	17	46	28	29
	Total Mgmt.	24	2,503	135	81	90
Total Sediment Delivery		1,592	3,805	403	291	311
Total as percent of background		102%	292%	150%	139%	141%
Loading Capacity (TMDL) and Allocations (tons/mi^2/yr)						
TMDL (= 1.25 X Background)		1,592	1,628	335	263	276
Background Allocation		1,568	1,302	268	210	221
Total Management Allocation (= TMDL – Background)		24	326	67	53	55
Percent reduction needed in management to attain TMDL		0	87%	50%	35%	39%

1. New River, Big French, Manzanita, North Fork, East Fork North Fork.
2. Dutch, Soldier, Oregon Gulch, Conner Creek Area.
3. Big Bar Area, Prairie Creek, Little French Creek.
4. Swede, Italian, Canadian, Cedar Flat, Mill, McDonald, Hennessy, Quinby Creek Area, Hawkins, Sharber.

Table 5.5. TMDL and Allocations by Source Category for Lower Assessment Area

Source Categories		Subareas within the Lower Assessment Area. Outside of Hoopa Valley Tribe Reservation Boundaries				
		Reference Subwatersheds Horse Linto Creek: 64 mi^2)	Mill Creek and Tish Tang (39mi^2)	Willow Creek (43 mi^2)	Campbell Creek and Supply Creek (11 mi^2)	Lower Mainstem Area and Coon Creek (32mi^2)
Current Sediment Delivery Rates (tons/mi^2/yr)						
Background (non-management)		2,110	839	374	7,845	252
Management	**Roads**	483	703	854	14,349	76
	Timber Harvest	87	83	201	785	15
	Legacy (Roads, Mining)	26	26	26	26	22
	Total Mgmt.	596	812	1,081	15,160	113
Total Sediment Delivery		2,706	1,651	1,455	23,005	365
Total as percent of background		128%	197%	389%	293%	145%
Loading Capacity (TMDL) and Allocations (tons/mi^2/yr)						
TMDL (= 1.25 X Background)		2,638	1,049	468	9,806	315
Background Allocation		2,110	839	374	7,845	245
Total Management Allocation (= TMDL – Background)		528	210	94	1,961	63
Percent reduction needed in management to attain TMDL		11%	74%	91%	87%	44%

Note:
Since Background rates for Lower Mainstem Area and Coon Creek were not available from GMA (2001), U.S. EPA used the same rate as was calculated for the Quinby Creek Area is comparable in size and underlain by the same geology type (Galice Formation).

Final Sediment Deadlines

U.S. EPA did not specify deadlines for implementation.

Final Sediment WLA Specific to the Department

U.S. EPA issued joint LAs and WLA's, as noted above, so source-specific wasteload allocations were not developed for this TMDL.

Department's Sediment Contribution (relative pollutant loading)

It is not possible to estimate the Department's point source contribution from the source analysis developed by U.S. EPA.

South Fork Trinity River Watershed Sediment Total Maximum Daily Load (U.S. EPA, 1998)

Final Sediment WLA
U.S. EPA states that there are no point source discharges, and set the waste load allocation to zero.

Final Sediment WLA Specific to the Department
There is no waste load allocation for the Department's discharges. In keeping with U.S. EPA's rationale, this means that the waste load allocation for the Department's sediment discharges is zero.

Final Deadlines
No deadlines were specified.

Department's Pollutant Contribution
The Department is mentioned as a possible source of sediment discharges, but the relative contribution of its potential discharges were not measured or estimated. The State highways it mentions in the geographic area included in the TMDL are portions of Highways 36 and 101.

Van Duzen River Watershed Sediment Total Maximum Daily Load (U.S. EPA, 1999)

Final Sediment WLA
U.S. EPA states that there are no point source discharges, and set the waste load allocation to zero.

Final Sediment WLA Specific to the Department
There is no waste load allocation for the Department's discharges. In keeping with U.S. EPA's rationale, this means that the waste load allocation for the Department's sediment discharges is zero.

Final Sediment TMDL Deadlines
No deadlines were specified.

Department's Pollutant Contribution
The Department is mentioned as a possible source of sediment discharges, but the relative contribution of its potential discharges were not measured or estimated. The State highways it mentions in the geographic area included in the TMDL are portions of Highways 3, 36, and 299.

Napa River Sediment TMDL, January 20, 2011

Final Sediment WLA

The wasteload allocations are listed in the following table:

Point Source Category	Current Load		Reduction Needed (percentage)	Wasteload Allocations	
	Metric (Tons/year)	**Percentage of Natural Background**		**Metric** (Tons/year)	**Percent of Natural Background**
Construction Storm Water Order No. 99-08-DWQ	500	0.3	0	500	.03
Municipal Storm Water NPDES Permit No. CAS000001	800	0.5	0	800	0.5
Industrial Storm Water NPDES Permit No. CAS000001	500	0.3	0	500	0.3
Department Storm Water-Order No. 99-06-DWQ	600	0.4	0	600	0.4
Wastewater Treatment Plant Discharges [a]					
City of St. Helena NPDES Permit No. CA0038016	30	<0.1	0	30	<0.1
Town of Yountville/CA Veteran's Home NPDES Permit No. CA0038121	30	<0.1	0	30	<0.1
City of Calistoga NPDES Permit No. CA0037966	40	<0.1	0	40	<0.1
TOTAL	**2,500**	**2**		**2,500**	**2**

a. For wastewater treatment plant discharges, compliance with existing permit effluent limit of 30 mg/L of TSS is consistent with these wasteload allocations.

Note: Above estimates for loads, percent reductions, and allocations are rounded to two significant figures.

Final Sediment WLA Specific to the Department

The Department's wasteload allocation is 600 metric tons/year.

Final Sediment Deadlines
The Department is deemed to be implementing appropriate control measures if it discharges in compliance with its municipal storm water permit, and if it conducts the monitoring program included in its storm water permit.

Department's Sediment Contribution (relative to pollutant loading)
The Regional Water Board indicates that the Department is a fairly minor anthropogenic source of sediment discharges, and attributes its current discharges to only 0.4% of natural background loading. As a consequence, the Regional Water Board has determined that compliance with its NPDES permit will enable the Department to meet its sediment wasteload allocation.

Sonoma Creek Sediment TMDL, September 8, 2010

Final WLA
Although roadways are cited as a major source of sediment loading in the Sonoma Creek watershed, the Regional Water Board has determined that compliance with its NPDES permit for storm water will enable the Department to meet its wasteload allocation for sediment.

Final Sediment WLA Specific to the Department
The Department's wasteload allocation is 100 tons/year, which is its current (2005) estimated annual discharge of sediment within the area encompassed by this TMDL.

Final Sediment Deadlines
In collaboration with stakeholders in the watershed, Water Board staff will develop a detailed monitoring program to assess progress of TMDL attainment and provide a basis for reviewing and revising TMDL elements or implementation actions. As an initial milestone, by fall 2011, the Regional Water Board and watershed partners were required to complete monitoring plans to evaluate: a) attainment of water quality targets; and b) suspended sediment and turbidity conditions. Initial data collection, based on the protocols established in these monitoring plans was anticipated to begin in the winter of 2011-2012.

Department's Sediment Contribution (relative to pollutant loading)
The Regional Water Board estimates that the Department's point source discharges of sediment constitute approximately 8% of total point sources discharges of sediment.

San Francisco Bay Mercury TMDL, February 12, 2008

The San Francisco Bay Mercury TMDL was adopted by the San Francisco Bay Regional Water Quality Control Board as Resolution Number R2-2006-0052 on August 9, 2006. It was approved by U.S. EPA on February 12, 2008.

Final Mercury WLA
There are no WLAs specific to the Department. Instead, the Department's WLA is an unspecified portion of the WLA assigned to the city or municipal NPDES permit in which the Department's roads or facilities reside.

Final Mercury WLA Specific to the Department
No deadlines specified.

Final Mercury Deadlines
The WLAs must be attained by February 12, 2028.

Department's Mercury Contribution (relative contribution to pollutant loading)
The Department's contribution is unknown.

CENTRAL COAST SEDIMENT TMDLS

Although roadways are cited as a major source of sediment loading in some Central Coast watersheds, the Central Coast Regional Water Board has determined that compliance with the Department's NPDES permit will meet the Department's wasteload allocation.

San Lorenzo River (includes Carbonera Lompico, and Shingle Mill Creeks) Sediment TMDL, February 19, 2004

Final Sediment WLA
The sediment load to the San Lorenzo River derives from both nonpoint sources and point sources. The TMDL combines nonpoint source LAs and point source WLAs for each segment of this TMDL, as specified in the following table:

Sediment Source Category	Allocation (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
Upland Timber Harvest Plan (THP) Roads	0	419	362	25,215
Streamside THP Roads on Steep Slopes	0	182	164	10,949
Upland Public/ Private Roads	146	1,235	367	13,835
Streamside Public/Private Roads on Steep Slopes	77	135	239	6,178

Sediment Source Category	Allocation (tons/year)			
	Shingle Mill Creek	Carbonera Creek	Lompico Creek	San Lorenzo River
THP Land	0	23	16	1,057
Other Urban and Rural Land	310	2,622	965	43,368
Mass Wasting	0	4,082	6,440	157,388
Channel/Bank Erosion	324	3,030	989	48,149
Total Allocation = TMDL[3]	857	11,728	9,542	306,139

Note:

3 The term "TMDL" is used here for familiarity. The allowable loads for the San Lorenzo River and its tributaries are actually expressed as a Total Annual Loads (tons/year). This expression of load accounts for seasonal variation in sediment loads explained by the seasonality of rainfall in this region of the Central Coast.

Final Sediment WLA Specific to the Department
As stated above, no specific waste load allocation was assigned to the Department.

Final Sediment Deadlines
Compliance with its municipal storm water permit is deemed to be sufficient to meet the Department's waste load allocation for sediment.

Department's Sediment Contribution (relative contribution to pollutant loading)
This TMDL does not estimate the relative contribution of the Department's roadways/facilities to sediment discharges, but this source appears to be moderate based on this TMDL's source analysis.

Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary) Sediment TMDL, January 20, 2004

Final WLA
The sediment load to Morro Bay, Los Osos Creek and Chorro Creek derives from both nonpoint sources and point sources. The TMDL combines nonpoint source LAs and point source WLAs for each segment of this TMDL, as specified in the following table:

Final Sediment WLA Specific to the Department

	Watershed	Total (Tons/Yr) Rounded to the nearest ton
Loading Allocations (TMDL expressed as annual load)	Chorro Creek at Reservoir	6,541
	Dairy Creek	440
	Pennington Creek	966
	San Luisito Creek	7,315
	San Bernardo Creek	10,269
	Minor Tributaries	4,489
	Chorro Creek (Subtotal)	**30,020**
	Los Osos Creek	3,052
	Warden Creek and Tributaries	1,812
	Los Osos Creek (Subtotal)	**4,864**
	Morro Bay Watershed (Total)	**34,885**

Final Sediment WLA Specific to the Department
Although no specific wasteload allocation was assigned to the Department, this TMDL states that discharges which are in compliance with their respective storm water (and other) NPDES permits are meeting their portion of shared responsibility for achieving sediment load reduction.

Final Sediment Deadlines
Implementation will rely on the State's Plan for NPS pollution control (CWC §13369) and continued implementation of existing regulatory controls as appropriate for point sources, including storm water pursuant to NPDES surface water discharge regulations and Waste Discharge Requirements under Porter-Cologne. Final compliance with sediment load reductions is scheduled to be achieved by 2054 (50 years from the adoption of the TMDL).

Department's Sediment Contribution (relative contribution to pollutant loading)
The Department's contribution to sediment loading was not estimated in this TMDL.

LOS ANGELES REGION SEDIMENT/NUTRIENTS/MERCURY TMDLS

Department's Pollution Contribution:
Although roadways are cited as a major source of sediment loading in some watersheds**,** for purposes of current sediment-related TMDLs, the Los Angeles Regional Water Board has determined that compliance with its NPDES permit will meet the Department's wasteload allocations for sediment.

Ballona Creek Wetlands Sediment and Invasive Exotic Vegetation TMDLs, March 26, 2012

Final Sediment WLA
U.S. EPA established wasteload allocations (WLAs) for sediment to address the impairments identified for the Ballona Creek Wetlands. WLAs are assigned to the Los Angeles County MS4 and their co-permittees, and the Department, who are responsible for the loading of sediment into Ballona Creek Wetlands. The WLAs are the total allowable sediment load that can be discharged into Ballona Creek Wetlands. This total sediment load includes both suspended sediment and sediment bed load that are transported from Ballona Creek Watershed into Ballona Creek Wetlands. Invasive exotic vegetation listed on the California Noxious Weed list are given a WLA and LA of zero.

Since the current existing discharge of sediment load is not contributing to the listed impairments or otherwise causing a negative impact to Ballona Creek Wetlands, this TMDL establishes joint WLAs based on existing conditions. The allowable WLA is set at 58,354 yd^3/yr (or 44,615 m^3/yr). The joint wasteload allocation is as follows:

Responsible Jurisdiction	Input	Sediment Wasteload Allocation[1] (yd^3/yr)	Existing Total Sediment Load (yd^3/yr)
Los Angeles County MS4 , Co-Permittees & Department	Ballona Creek Watershed	58,354	58,354

Final Sediment WLA Specific to the Department
As stated above, there is no WLA specific to the Department. The joint point source WLA is 58,354 cubic yards of sediment per year, which is equivalent to the current estimated total sediment loading contributed by these sources.

Final Sediment Deadlines
U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Contribution (relative contribution to pollutant loading)
The Department's relative contribution to anthropogenic sediment loading is not estimated or quantified in this TMDL. However, the joint WLAs are set to the current estimated sediment discharges, which the Department can meet through compliance with its NPDES municipal storm water permit.

Calleguas Creek and its Tributaries & Mugu Lagoon Metals (including Mercury) and Selenium TMDL, March 26, 2007

Final Mercury WLA
The Department shares group mass-based WLAs for mercury for Calleguas Creek and Revolon Slough with other Permitted Storm water Dischargers (PSDs). Final WLAs are mass-based and are dependent upon annual flow ranges.

Final Mass-based WLAs for Annual Flow Ranges, Mercury in Suspended Sediment

Flow Range, Millions of Gallons per Year	**Calleguas Creek** (lbs/yr)	**Revolon Slough** (lbs/yr)
0-15,000 MGY	0.4	0.1
15,000-25,000 MGY	1.6	0.7
Above 25,000 MGY	9.3	1.8

Final Mercury WLA Specific to the Department
There is no specific allocation for the Department.

Final Mercury Deadlines
The final WLAs must be achieved within 15 years after the effective date of the amendment, or March 26, 2022.

Department's Mercury Contribution (relative contribution to pollutant loading)
The Department's areal proportion of the watershed is not known.

The Los Angeles Area Lakes and Reservoir

TMDLs specific to the Department include targets for the following lakes:
- Echo Park Lake: nitrogen phosphorus, chlordane, dieldrin, PCBs, and trash
- Lake Sherwood: mercury
- Legg Lakes (North, Center and Legg): nitrogen and phosphorus
- Peck Road Park Lake: nitrogen and phosphorus
- Puddingstone Reservoir: nitrogen, phosphorus, chlordane, DDT, PCBs, Hg, and Dieldrin

Wasteload allocations were assigned to responsible jurisdictions based on existing loading of nitrogen and phosphorus to each lake. To allow flexibility in implementing the nutrient TMDLs, responsible jurisdictions receiving required reductions have the option to submit a request to the Regional Board for alternative concentration-based wasteload allocations. These jurisdictions can receive alternative concentration-based wasteload allocations not to exceed 1.0 and 0.1 milligrams per liter total nitrogen and total phosphorus, respectively.

During wet weather, runoff from industrial sites has the potential to contribute pollutant loadings. During dry weather, the potential contribution of pollutant loadings from industrial storm water is low because non-storm water discharges are prohibited or authorized by the

permit only under the following circumstances: when they do not contain significant quantities of pollutants, where Best Management Practices are in place to minimize contact with significant materials and reduce flow, and when they are in compliance with Regional Board and local agency requirements.

Los Angeles Area (Echo Park Lake) Total Nitrogen, Total Phosphorus, Chlordane, Dieldrin, PCBs, and Trash TMDLs, March 26, 2012)

Final Nutrient WLAs

	Total Phosphorus, (lbs/year)	**Total Nitrogen,** (lbs/year)
TOTAL	83.3	682

Final Nutrient WLAs Specific to the Department

Subwatershed	**Total Phosphorus,** (lbs/year)	**Total Nitrogen,** (lbs/year)
Northern	0.608	4.77
Southern	0.051	0.403

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contributions *(relative contribution to pollutant loading)*

Subwatershed	**Percentage of the Total Phosphorus Load**	**Percentage of the Total Nitrogen Load**
Northern	0.6 %	0.7 %
Southern	0.05 %	0.06 %

Los Angeles Area (North, Center & Legg Lakes) Nitrogen and Phosphorus, TMDLs, March 26, 2012

Final Nutrient WLA Nitrogen & Phosphorous TMDLs

	Total Phosphorus (lbs/year)	**Total Nitrogen** (lbs/year)
TOTAL	1,541	9,135

Final WLAs Specific to the Department

Subwatershed	**Total Phosphorus,** (lbs/year)	**Total Nitrogen,** (lbs/year)
Direct to Center Lake	4.6	15.5
Direct to Legg Lake	1.2	4.0
Direct to North Lake	19.1	64.1
Northwestern	9.4	29.3
Northeastern	10.9	34.0

Alternative concentration-based WLAs are available to the Department if it satisfies certain criteria as detailed in the TMDL. Those WLAs are:

Subwatershed	**Maximum Allowable WLA for Total Phosphorus** (mg/L)	**Maximum Allowable WLA for Total Nitrogen** (mg/L)
Direct to Center Lake	0.1	1.0
Direct to Legg Lake	0.1	1.0
Direct to North Lake	0.1	1.0
Northwestern	0.1	1.0
Northeastern	0.1	1.0

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	**Percentage of the Total Phosphorus Load**	**Percentage of the Total Nitrogen Load**
Direct to Center Lake	0.2 %	0.2 %
Direct to Legg Lake	0.1 %	<0.1 %
Direct to North Lake	1.0 %	0.6 %
Northwestern	0.5 %	0.3 %
Northeastern	0.6 %	0.3 %

Los Angeles Area (Peck Road Park Lake) Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash TMDLs, March 26, 2012

Final Nutrient WLAs

	Total Phosphorus (lbs/year)	**Total Nitrogen** (lbs/year)
TOTAL	19,319	186,845

Final Nitrogen & Phosphorus WLA Specific to the Department

Subwatershed	**Total Phosphorus** (lbs/year)	**Total Nitrogen** (lbs/year)
Eastern	158	1,165
Western	34.2	251

Final Nutrient Deadlines

There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	**Percentage of the Total Phosphorus Load**	**Percentage of the Total Nitrogen Load**
Eastern	0.8 %	0.6 %
Western	0.2 %	0.1 %

Los Angeles Area (Puddingstone Reservoir) Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Mercury, and Dieldrin TMDLs, March 26, 2012

Final Nutrient WLAs for Puddingstone Reservoir

Final Nitrogen and Phosphorus WLAs

	Total Phosphorus (lbs/year)	**Total Nitrogen** (lbs/year)
TOTAL	4,226	18,756

Final Nitrogen, Phosphorus WLAs Specific to the Department

Subwatershed	**Total Phosphorus** (lbs/year)	**Total Nitrogen** (lbs/year)
Northern	167	745
Southern	14.8	68.2

Alternative concentration-based WLAs are available to the Department if it satisfies certain criteria as detailed in the TMDL. Those WLAs are:

Subwatershed	Maximum Allowable WLA for Total Phosphorus (mg/L)	Maximum Allowable WLA for Total Nitrogen (mg/L)
Northern	0.1	1.0
Direct Southern	0.1	1.0

Final Nutrient Deadlines
There are no final deadlines specified for the Department.

Department's Nutrient Contribution (relative contribution to pollutant loading)

Subwatershed	Percentage of the Total Phosphorus Load	Percentage of the Total Nitrogen Load
Northern	3.6 %	3.4 %
Southern	0.3 %	0.3 %

Final Mercury WLA for Puddingstone Reservoir
Final Waste Load Allocations are assigned to the Department for sub-watersheds for Puddingstone Reservoir, and must be met at the Department's discharge points.

Final Mercury WLA for Puddingstone Reservoir Specific to the Department
Mercury WLAs for Puddingstone Reservoir

Subwatershed	Area (ac)	Existing Annual Hg Load (g/yr)	Percent of Load	Final Wasteload Allocation (g/yr)
Puddingstone-Northern	110	1.32	1.85	0.702
Puddingstone-Southern	11.6	0.0960	0.13	0.051

Fish Harbor is impaired for mercury in sediment. The Department is named as a responsible party for WLAs to Fish Harbor. The final concentration-based WLA for sediment in Fish Harbor is 0.15 mg per kilogram of dry sediment.

Final Mercury Deadlines for Puddingstone Reservoir
The Department is subject to the prescribed point source interim WLAs which are effective as of March 23, 2012. Compliance with all final WLAs is required by March 23, 2032.

Department's Mercury Contribution for Puddingstone Reservoir (relative contribution to pollutant loading)

Subwatershed	Annual Hg Load (g/yr)	Percent of Total Load
Northern	1.32	1.85
Southern	0.096	0.13
Total	**1.42**	**1.99**

Los Angeles Area (Lake Sherwood) Mercury TMDL, March 26, 2012

Final Mercury WLA

Final waste load allocations are assigned to the Department for one sub-watershed, Lake Sherwood, and must be met at the Department's discharge points.

Final Mercury WLA Specific to the Department

Mercury WLAs for Lake Sherwood

Subwatershed	Area (ac)	Existing Annual Hg Load (g/yr)	Percent of Load	Final Wasteload Allocation (g/yr)
Carlisle Canyon	2.75	0.049	0.12	0.014

Final Mercury Deadlines

There are no final deadlines specified for the Department.

Department's Mercury Contribution (relative contribution to pollutant loading)

Subwatershed	Annual Hg Load (g/yr)	Percent of Total Load
Carlisle Canyon	0.049	0.12
Entire Watershed	**0.049**	**0.001**

Machado Lake Eutrophic, Algae, Ammonia, and Odors (Nutrients), March 11, 2009

Final Nutrients WLA

Final concentration-based Waste Load Allocations are established for total phosphorus and total nitrogen (defined as the sum of the concentrations of Total Kjeldhal Nitrogen, Nitrate as N, and Nitrite as N). For most storm water permittees, the final WLA for total phosphorus is 0.1 mg/L. For total nitrogen, the final WLA is 1.0 mg/L.

Final Nutrients WLA Specific to the Department

For the Department, the final WLA for total phosphorus is 0.1 mg/L. For total nitrogen, the final WLA is 1.0 mg/L.

Final Nutrients Deadlines

The Department must achieve its final WLAs by September 11, 2018.

Department's Nutrients Contribution (relative contribution to pollutant loading)
The Department's contribution to the overall loading is not defined in the TMDL. The draft Machado Lake Nutrients TMDL Implementation Plan, submitted on March 11, 2011 by the Department states that the Department's roadways and facilities comprise approximately 1.2 percent of the Machado Lake Watershed.

Malibu Creek & Lagoon TMDL for Sedimentation and Nutrients, July 2, 2013

Sediment loading into Malibu Lagoon is much higher than naturally expected. The excess sediment accumulates in the Lagoon tidal channels and carries greater nutrient loads and cause algae blooms with likely adverse impacts on benthic macroinvertebrates.

Final Sedimentation WLA
Allocations for Sedimentation as listed in Table 10-2. (Based on SCAG 2008 land use and Jurisdictional maps provided by MS4 Co-permittees.)

Type of Allocation	Responsible Party	Impervious Area (total acres)	Pervious Area (acres)	Allocation Fraction	Sedimentation Allocation (tons/yr)
WLA	WLA Los Angeles Co. below	887	10.612	17.4%	1,012
WLA	Department below Malibou Lake	60	61	0.8%	44
LA	Unincorporated area draining to Las Virgenes Creek**	8	267	0.3%	16
LA	Protected land below Malibou Lake*	**253**	**16,820**	**13.7**	**796**
LA	Load Allocation at outlet of Malibou Lake	**3,669**	**37,550**	**67.9%**	**3,950**
Total		**4,878**	**65,310**	**100.0 %**	**5,817**

Final Sedimentation WLA Specific to the Department
See Table 10-2 above for the Department's below Malibou Lake.

Final Sedimentation Deadlines
U.S. EPA did not develop final deadlines for this TMDL.

Department's Sedimentation Contribution (relative contribution to pollutant loading)
See the Department's Nutrients Contribution below.

Final Nutrients WLA
There are no total final WLAs for Malibu Creek and Lagoon. Below are the concentration-based numeric targets as listed in Table 10-4 of this TMDL.

Season	Total Nitrogen (mg/l)	Total Phosphorus (mg/l)
Summer (Apr 15 – Nov 15)	0.65	0.1
Winter (Nov 16 - Apr 14)	1.0	0.2

Final Nutrients WLA Specific to the Department
Final WLAs are established Total Nitrogen (TN) and Total Phosphorus (TP) for summer and winter as listed in Table 10-4 of this TMDL.

Summer TN, mg/l (Apr 15 – Nov 15)	Winter TN, mg/l (Nov 16 – Apr 14)	Summer TP, mg/l (Apr 15 – Nov 15)	Winter TP, mg/l (Nov 16 – Apr 14)
1.0	4.0	0.1	0.2

Final Nutrients Deadlines
EPA did not develop final deadlines for this TMDL.

Department's Nutrients Contribution (relative contribution to pollutant loading)
The Department's total area within the watershed is 206 acres, of a total of 65,310 acres or 0.317% of the total watershed.

The Department's contribution to the nutrient loads is not specified in the TMDL, but it can be assumed that the contribution is nearly the same as the allocation fraction for sediment in Table 10-2, at 0.8%. Multiplying the monthly watershed loads for winter and summer from Tables 5-3 and 5-4, respectively, by the Department's allocation fraction provides an approximation of the Department's total contribution to the monthly load.

Source	Summer TN Load kg/mo (Apr 15 – Nov 15)	Winter TN Load kg/mo (Nov 16 – Apr 14)	Summer TP Load kg/mo (Apr 15 – Nov 15)	Winter TP Load kg/mo (Nov 16 – Apr 14)
Total Load	789	20,442	140	2,842
Department Runoff (estimate based on area)	6.31	164	1.12	22.7

Ventura River and its Tributaries Algae, Eutrophic Conditions, and Nutrients TMDL, June 28, 2013

This TMDL establishes dry-weather and wet-weather WLAs for nitrogen and a dry-weather TMDL for phosphorus.

Final Nutrients WLA
The final dry-weather Total Nitrogen and Total Phosphorus loads are not explicitly stated in the TMDL.

Final Nutrients WLA Specific to the Department
The final total dry-weather total nitrogen WLA for the Department is 1.1 pound/day. The final dry-weather total phosphorus WLA for the Department is 0.11 pound/day.

Wet-weather allocations for "nitrogen", defined as the sum of Nitrate-N and Nitrite-N, are the same for all storm water dischargers and are site-specific to the reaches of the watershed:

Reach	Nitrate-N + Nitrite-N (mg/L)
Estuary	7.4
Reach 1	7.4
Reach 2	10
Cañada Larga	10
Reach 3	5
San Antonio Creek	5
Reach 4	5
Reach 5	5

Final Nutrients Deadlines
Wet-weather WLAs for the Department apply on the effective date of the TMDL. Dry-weather WLAs for the Department must be achieved by June 28, 2019.

Department's Nutrients Contribution
The Department's proportional contributions to the final WLAs are estimated to be approximately 1 percent each.

CENTRAL VALLEY REGION NUTRIENTS AND MERCURY TMDLS

Clear Lake Nutrients TMDL, September 21, 2007

Final Nutrients WLA
The final WLA for phosphorus for Clear Lake is 2100 kg per year.

Final Nutrients WLA Specific to the Department
The Department is given a final WLA for phosphorus of 100 kg per year.

Final Nutrients Deadlines
The Department shall achieve its WLAs by September 21, 2017.

Department's Nutrients Contribution (relative contribution to pollutant loading**)**
The Department contributes 4.8 percent to the final phosphorus WLA.

Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch Mercury TMDL, February 7, 2011

Final Methylmercury WLA

Implementation Summary Cache Creek and Bear Creek Methylmercury Allocations

Source	**Acceptable Annual Load** (g/yr)
Cache Creek (Clear Lake to North Fork Confluence	11
North Fork Cache Creek	12.4
Harley Gulch	0.04
Davis Creek	0.7
Bear Creek @ Highway 20	3
In-channel production and un-gauged tributaries	32
Bear Creek @ Bear Valley Road	0.9
Sulphur Creek	0.8
In-channel production and un-gauged tributaries	1

Final Mercury WLA Specific to the Department

No specific WLA assigned to the Department.

Final Mercury Deadlines

None specified.

Department's Mercury Contribution (relative contribution to pollutant loading)

The Department's relative contribution to pollutant loading is not known.

Sacramento-San Joaquin River Delta Estuary Methylmercury TMDL, October 20, 2011

Final Methylmercury WLA

Delta Methylmercury Allocations

Permittee	NPDES Permit	**Waste Load Allocation** (g/yr)
Central Delta		
County of Contra Costa	CAS083313	0.75
City of Lodi	CAS000004	0.053
Port of Stockton MS4	CAS084077	0.39
County of San Joaquin	CAS000004	0.57
Stockton Area MS4	CAS083470	3.6
SUBTOTAL		*5.4*
Marsh Creek		
County of Contra Costa	CAS083313	0.30
SUBTOTAL		*0.30*
Mokelumne River		

Permittee	NPDES Permit	Waste Load Allocation (g/yr)
County of San Joaquin	CAS000004	0.016
SUBTOTAL		*0.016*
Sacramento River		
City of Rio Vista	CAS000004	0.0078
Sacramento Area MS4	CAS082597	1.0
County of San Joaquin	CAS000004	0.11
County of Solano	CAS000004	0.041
City of West Sacramento	CAS000004	0.36
County of Yolo	CAS000004	0.041
SUBTOTAL		*1.6*
San Joaquin River		
City of Lathrop	CAS000004	0.097
Port of Stockton MS4	CAS084077	0.0036
County of San Joaquin	CAS000004	0.79
Stockton Area MS4	CAS083470	0.18
City of Tracy	CAS000004	0.65
SUBTOTAL		*1.7*
West Delta		
County of Contra Costa	CAS083313	3.2
SUBTOTAL		*3.2*
Yolo Bypass		
County of Solano	CAS00004	0.021
City of West Sacramento	CAS00004	0.28
County of Yolo	CAS00004	0.083
SUBTOTAL		*0.38*
TOTAL		***12.596***

Final Methylmercury WLA Specific to the Department
There are no WLAs specific to the Department. However, allocations for each of the defined municipal entities in the above table include all current and future permitted dischargers within the geographic boundaries of these municipalities and unincorporated areas, including the Department.

Final Methylmercury Deadlines
The final WLAs for dischargers in the Delta and Yolo bypass shall be met as soon as possible, but no later than January 1st, 2030.

Department's Methylmercury Contribution (relative contribution to pollutant loading)
The Department's contribution to the methylmercury load is not known.

LAHONTAN REGION SEDIMENT/NUTRIENTS TMDLS

Lake Tahoe Sediment and Nutrients TMDL, August 16, 2011

Attachment IV incorporates TMDL-specific permit requirements for the sediments and nutrients TMDL for Lake Tahoe. The TMDL requires the Department to meet pollutant load reduction requirements and to develop and implement a comprehensive Pollutant Load Reduction Plan (PLRP).

Final Sediment WLA
The pollutant load reduction requires the Department to reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by ten percent, seven percent and eight percent respectively by September 30, 2016. The Department shall prepare a Pollutant Load Reduction Plan (PLRP) describing how it expects to meet the pollutant load reductions.

Final Sediment Deadlines
This plan is to be submitted no later than July 15, 2013. By July 15, 2014, the Department shall submit a Progress Report documenting pollutant load reductions accomplished between May 1, 2004 (baseline year) and October 15, 2011. The Department shall also prepare and submit a Storm Water Monitoring Plan for review and approval by the Regional Board by July 15, 2013 and implement the approved plan.

Final deadlines for both nitrogen and phosphorus WLAs are for 65 years after the effective date of the TMDL (August 16, 2076).

Department's Sediment Contribution (relative contribution to pollutant loading)
Final Nutrient WLA

Constituent	Basin-Wide Load (MT/yr)	Urban Upland Load	Final Urban Upland Reduction %	Final WLA, (MT/yr)
Nitrogen	345	63	50	31.5
Phosphorus	38	18	46	8.28

Final Nutrient WLA Specific to the Department
The Department's specific contributions to the loads are not defined. The Department is part of a group of Urban Upland (storm water) dischargers. The Department was required to submit a 2004 baseline load estimate specific to its jurisdiction by August 16, 2013.

Final Nutrient Deadlines
Final deadlines for both nitrogen and phosphorus WLAs are for 65 years after the effective date of the TMDL (August 16, 2076).

Department's Nutrient Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pollutant loading is not known.

Truckee River Sediment TMDL, September 16, 2009

TMDL attainment will be evaluated through the TMDL targets: these targets express desired conditions in the watershed, rather than sediment mass reductions. This was deemed to be appropriate because sediment mass reductions are not a practical indication of beneficial use protection due to the inherent natural variability of sediment delivery and the uncertainties associated with accurately measuring sediment loads and reductions.

Final Sediment WLA
For the most part, point source dischargers' compliance with their respective NPDES permits are deemed to be evidence of compliance with their respective responsibilities to help achieve desired watershed conditions, as described above.

Final Sediment WLA Specific to the Department
The Department's compliance with its storm water permit is deemed to be evidence of compliance with its responsibility to help achieve desired watershed conditions, as described above.

Final Sediment TMDL Deadlines
The Truckee River instream sediment targets are currently being met and will be further evaluated for TMDL attainment.

Department's Contribution (relative contribution to pollutant loading)
The Department's relative contribution to sediment pollutant loading is not known.

SANTA ANA REGION NUTRIENTS AND MERCURY TMDLS

Big Bear Lake Nutrients for Dry Hydrological Conditions TMDL, September 25, 2007

This TMDL contains waste load allocations for phosphorus loads under dry hydrological conditions, defined as an average tributary inflow to Big Bear Lake ranging from 0 to 3,049 acre-feet, average lake levels ranging from 6,671 to 6,735 feet and annual precipitation ranging from 0 to 23 inches.

Final Nutrients WLA
The total Waste Load Allocation is 475 pounds/year.

Final Nutrients WLA Specific to the Department
There is no WLA specific to the Department.

Final Nutrients Deadlines
The WLA must be achieved by December 31, 2015.

Department's Nutrients Contribution (relative contribution to pollutant loading**)**
The Department's relative contribution to nutrient pollutant loading is not known.

Lake Elsinore and Canyon Lake Nutrients TMDL, September 30, 2005

The Department has already committed to cooperative implementation actions, monitoring actions, special studies and implementation actions jointly with other responsible agencies as an active paying member of the Lake Elsinore/Canyon Lake TMDL Task Force. If the Department doesn't fulfill its Lake Elsinore/Canyon Lake Task Force obligations or if the Department chooses to opt out of the cooperative approach with the TMDL Task Force for implementation actions, monitoring actions, and/or special studies then the Department will have to implement the requirements listed in Table IV.2. of Attachment IV.

Final Nutrients WLA

Waterbody	Final Total Phosphorus Waste Load Allocation (kg/year)	Final Total Nitrogen Waste Load Allocation (kg/year)
Canyon Lake	487	6,248
Lake Elsinore	3,845	7,791

Final Nutrients WLA Specific to the Department
There are no WLAs specific to the Department.

Final Nutrients Deadlines
Final allocation compliance is to be achieved by December 31, 2020.
Department's Nutrient Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the nutrient pollutant loading is not available.

Rhine Channel Area of Lower Newport Bay Chromium and Mercury, U.S. EPA Established on June 14, 2002

Mercury Final WLA
A WLA for mercury to Rhine Channel is 0.225 kilograms/year.

Mercury Final WLA Specific to the Department
The final mass-based Mercury WLA for the Department is 0.0027 kilograms/year.

Mercury Final Deadlines
The Santa Ana Regional Water Quality Control Board anticipated a Basin Plan Amendment addressing implementation of the above TMDLs in 2007; these amendments have not yet been completed

Department's Mercury Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the mercury loading is approximately three percent. This WLA was developed by taking the available load and dividing it roughly in proportion to the land areas associated with the remaining source categories (including the Department).

SAN DIEGO REGION SEDIMENT AND NUTRIENTS TMDLS

Historical loading of sediment to some coastal wetlands within Region 9 has resulted in impacts to natural wetland functions. The excess deposition and movement of sediment within remaining coastal wetlands has greatly altered the natural conditions. Urbanized development of the watershed and the channel straightening has modified both the sediment supply and the ability of flows to transport sediments. Additionally, channelization of streams has cut off the banks and floodplains of natural rivers within these watersheds. Sediments carried in flows are not stored within the banks but are rather transported to the outlet of coastal estuaries where they are deposited. Recurring dredging operations in coastal areas also affect sediment transport and deposition patterns in these watersheds. Wetland and estuarine habitats tend to be fragmented by existing roads, infrastructure, and surrounding urbanized development.

In some Region 9 watersheds, natural processes of erosion have been accelerated due to anthropogenic watershed disturbances, resulting in impairment of additional principally biological resources, but also recreational uses, including: RARE, MIGR, SPWN, WILD, EST, MAR, BIOL, REC1, REC2, NAV.

Rainbow Creek Total Nitrogen and Total Phosphorus TMDL, March 22, 2006

Final Nutrient WLA
The final WLA for nitrogen is 82 kilograms/year. The final WLA for phosphorus is eight kilograms/year.

Final Nutrient WLA Specific to the Department
The final WLA for nitrogen for the Department is 49 kilograms/year. The final WLA for phosphorus for the Department is five kilograms/year.

Final Nutrient Deadlines
The Department shall achieve the final WLA by December 31, 2021.

Department's Nutrient Contribution (relative contribution to pollutant loading)
The Department's contribution to the nitrogen and phosphorus WLAs is three percent of the total.

C. Metals/Toxics/Pesticides TMDL Pollutant Category

General Description of Pollutant Category
Toxic pollutants, including but not limited to Pesticides, Polycyclic Aromatic Hydrocarbons (PAHs) and Polychlorinated Biphenyls (PCBs), cause several impairments to California's water quality.

Sources of Pollutant & How it Enters the Waterway
The main transport mechanism for these pollutants is through fine sediment. Once the contaminated fine sediments wash of the roadways and into storm drains or nearby receiving waters they re-suspend in the water column and become bioavailable.

Metals including copper, zinc, lead, cadmium, nickel and chromium are toxic to aquatic life and cause impairments to California's waterbodies. Toxic metals are present in water as both dissolved and total recoverable fractions. During times of high precipitation (storm events), the primary transport mechanism for metals, especially in the total recoverable fraction, is again the mobilization of fine sediment. Accumulated contaminated fine sediment washes off roadways and into storm drains or nearby receiving waters. Metals in the sediment become bioavailable while suspended in the water column. During times of low precipitation, flows that reach storm drains or discharge points are typically insufficient to mobilize fine sediment, but dissolved metal ions are still bioavailable and reach discharge points.

Mechanical components of automobiles, especially those that are subjected to frictional stresses are either known or supposed sources of these metals (i.e., copper from brake pads and zinc from synthetic rubber tires). Some toxic metals are also present in petroleum-based lubricants and in gasoline and diesel fuel (i.e. cadmium).

Watershed Contribution
The Department is identified in many TMDLs as a source of toxic pollutants because they own and operate the roadways which act as conveyance systems of fine sediments. However, in most cases the Department makes up a relatively minor load for toxic pollutants because the models used to develop TMDLs rely on the percentage of land use to determine WLAs.

The Department is named in the TMDLs below as a source of metals in storm water because it owns, operates and maintains roadways and facilities present in these watersheds. As with toxics, in most cases, the Department is assigned a relatively minor proportion of the entire storm water WLA for each metal because its roadways and facilities comprise a small proportion of the total watershed area.

Control Measures
The requirements in Part C of Attachment IV of this permit address both dissolved and sediment-bound sources of toxics and metals. Section C.1 addresses treatment of the fine sediment fraction of toxics and metals and requires that the Department implement structural controls/BMPs.

Dissolved fraction metal impairments require an inventory of outfalls/discharge points to waterbodies within each prioritized reach impaired by dissolved fraction metals and to propose and implement appropriate controls consistent with the report.

The Reach Prioritization and Implementation Requirements in Section I.A. and I.B. of Attachment IV place a priority on identifying and addressing the highest source generating areas. This strategy will control the largest sources of fine sediment for a minor pollutant source and allow for attainment of the applicable WLAs consistent with the Toxic Pollutants and Metals TMDLs identified in Table IV.2 of Attachment IV.

In Section III.C.1, the options for controlling sediment-bound toxics and metals are essentially the same. The types of BMPs expected to be implemented to address fine sediment discharges under C.1 are those expected to be implemented to address sediment discharges for the sediment TMDLs discussed above.

Section III.C.2 explains that Dissolved Fraction Metals levels in storm water are reduced when contaminated sediment is removed or mitigated, but additional structural and non-structural BMPs may still be necessary to achieve compliance. In some cases, this may require building or instituting BMPs in addition to those used for metals in fine sediments for the same discharge points. Structural BMPS might include Infiltration or detention basins/trenches, filtration using metal-absorbing media, etc.

Section III.C.3. Pesticides. The Department is to comply with the Vegetation Control provision that specifies practices for the safe handling and use of pesticides, including compliance with federal, state and local regulations, and label directions.

SAN FRANCISCO BAY REGION TOXIC TMDLS

San Francisco Bay PCBs TMDL, March 29, 2010

The TMDL identifies storm water runoff as a major source for PCB transport and includes the Department's roadways, non-roadway facilities, and rights-of-way.

Final PCBs WLA
The total WLA for all storm water runoff sources is two kilograms/year.

Final PCBs WLA Specific to the Department
All storm water runoff sources share a two kilograms/year WLA.

Final PCBs Deadlines
The WLA of two kilograms/year is broken up by county and is to be achieved within 20 years or March 29, 2030.

Department's PCBs Contribution (relative contribution to pollutant loading**)**
The TMDL also directs the storm water sources to implement this TMDL through the applicable NPDES permits.

***San Francisco Bay Urban Creeks Diazinon and Pesticide Toxicity,* May 16, 2007**

Final Pesticide Toxicity WLA
The TMDL states that most urban runoff flows through storm drains operated by all storm water entities including the Department. The WLA for each storm water entity is 1 TUC_a (TUC_a = 100/No Observed Adverse Effect Concentration) and one TUC_c (TUC_c = 100/No Observed Effect Concentration) in water and sediment.

Final Pesticide Toxicity WLA Specific to the Department
The Department's level of responsibility is not identified.

Final Pesticide Toxicity Deadlines
The TMDL specifies that all NPDES permits for runoff management agencies, including the Department, require implementation of best management practices and control measures that reduce pesticides in urban runoff to the maximum extent practicable. No final compliance date is specified, however, the Regional Water Board may require additional control measures if the Department fails to meet the TMDL targets.

Department's Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pesticide toxicity pollutant loading is not known.

LOS ANGELES REGION METALS AND TOXICITY TMDLS

Ballona Creek Metals & Selenium TMDL, December 22, 2005 and reaffirmed on December 29, 2008

The TMDL identifies storm water as a significant contributor to loadings of copper, lead and zinc (and selenium) to Ballona Creek and Sepulveda Canyon Channel in both dry weather and wet weather.

Final Metals WLA
Storm water allocations are divided among the MS4 and general permits named in the TMDL based on an areal weighting approach.

Final Metals WLA Specific to the Department
The Department is assigned separate dry-weather and wet-weather Waste Load Allocations (WLAs). Dry-weather conditions apply to days when the maximum daily flow in Ballona Creek is less than 40 cubic feet per second (cfs), and wet-weather conditions apply to days when the maximum daily flow in Ballona Creek is equal to or greater than 40 cfs. Both dry-weather and wet-weather WLAs are mass-based, although alternate concentration-based dry-weather WLAs are allowed due to the expense of obtaining accurate flow measurements.

Dry-weather WLAs g/day, Total Recoverable Metal:

Waterbody	Copper	Lead	Zinc
Ballona Creek	11.2	6.0	143.1
Sepulveda Channel	5.1	2.7	64.7

*Wet-weather WLAs, g/day, Total Recoverable Metal; V is daily flow volume in liters***:**

Waterbody	Copper	Lead	Zinc
All	$2.37 * V * 10^{-7}$	$7.78 * V * 10^{-7}$	$1.57 * V * 10^{-6}$

Alternate dry-weather WLAs, µg/L, Total Recoverable Metal:

Waterbody	Copper	Lead	Zinc
All	24	13	304

Final Metals Deadlines
The Department is responsible for meeting its assigned mass-based WLAs, but has the option to work with the other MS4 permittees. Each municipality and permittee is required to meet the storm water waste load allocation at designated TMDL effectiveness monitoring points. The MS4 permittees including the Department may use a combination of structural and non-structural BMPs to achieve compliance with the storm water WLAs. Total compliance is to be achieved by January 11, 2021.

Department's Metals Contribution (relative contribution to pollutant loading)
The Department's relative contribution to metals pollutant loading is not known.

Ballona Creek Estuary Toxic Pollutants TMDL, **December 22, 2005**

Final OC-Compounds & PAHs WLA
The storm water WLAs are apportioned between the MS4 permittees, the Department, the general construction, and the general industrial storm water permits based on an areal weighting approach.

Final WLA Specific to the Department
The Department is assigned the following WLAs based on the 1.3 percent land area associated with the Department:

Metals Storm Water WLAs Apportioned between Permits

Cadmium (kg/yr)	Copper (kg/yr)	Lead (kg/yr)	Silver (kg/yr)	Zinc (kg/yr)
0.11	3.2	4.4	0.09	14

Organics Storm Water WLAs Apportioned between Permits

Total Chlordane (g/yr)	Total DDTs (g/yr)	Total PCBs (g/yr)	Total PAHs (g/yr)
0.05	0.15	2	400

Final WLA Deadlines
The implementation schedule for the MS4 and the Department permittees consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed with total compliance to be achieved within 15 years of the TMDL effective date or December 22, 2020.

Department's WLA Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the pollutant loading is unknown.

Calleguas Creek OC Pesticides, PCBs, and Siltation TMDL, March 14, 2006

Final OC Pesticides & PCBs WLA
In accordance with current U.S. EPA practice, a group concentration-based WLA has been developed for MS4s, including the Department's MS4. The grouped allocation will apply to all NPDES-regulated municipal storm water discharges in the Calleguas Creek Watershed. Storm water WLAs will be incorporated into the NPDES permit as receiving water limits measured at the downstream points of each subwatershed and are expected to be achieved through the implementation of BMPs as outlined in the implementation plan.

Interim WLAs as an In-stream Annual Average (ng/g)

Pollutant	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Total Chlordane	25.0	17.0	48.0	3.3	3.3	3.4
4,4-DDD	69.0	66.0	400.0	290.0	14.0	5.3
4,4-DDE	300.0	470.0	1,600.0	950.0	170.0	20.0
4,4-DDT	39.0	110.0	690.0	670.0	25.0	2.0
Dieldrin	19.0	3.0	5.7	1.1	1.1	3.0

Pollutant	Mugu Lagoon	Calleguas Creek	Revolon Slough	Arroyo Las Posas	Arroyo Simi	Conejo Creek
Total PCBs	180.0	3,800.0	7,600.0	25,700.0	25,700.0	3,800.0
Toxaphene	22,900.0	260.0	790.0	230.0	230.0	260.0

Final WLAs as an In-stream Annual Average

Pollutant	Mugu Lagoon (ng/g)	Calleguas Creek (ng/g)	Revolon Slough (ng/g)	Arroyo Las Posas (ng/g)	Arroyo Simi (ng/g)	Conejo Creek (ng/g)
Total Chlordane	3.3	3.3	0.9	3.3	3.3	3.3
4,4-DDD	2.0	2.0	2.0	2.0	2.0	2.0
4,4-DDE	2.2	1.4	1.4	1.4	1.4	1.4
4,4-DDT	0.3	0.3	0.3	0.3	0.3	0.3
Dieldrin	4.3	0.2	0.1	0.2	0.2	0.2
Total PCBs	180.0	120.0	130.0	120.0	120.0	120.0
Toxaphene	360.0	0.6	1.0	0.6	0.6	0.6

Final OC Pesticides & PCBs WLA Specific to the Department
See Tables above.

Final OC Pesticides & PCBs Deadlines
The above Final WLAs (ng/g) as an in-stream annual average are to be achieved by March 24, 2026, but the schedule and allocations can be altered based on the results of several special studies required in the TMDL implementation plan.

Department's OC Pesticides & PCBs Contribution (relative contribution to pollutant loading)

The Department's relative pesticide and PCB contribution is not known.

Calleguas Creek and its Tributaries & Mugu Lagoon Metals and Selenium TMDL, March 26, 2007

Final Metals WLAs
Urban storm water runoff was identified as a source for metals pollution in the TMDL. The Department shares group WLAs for nickel, copper and selenium with other Permitted Storm water Dischargers (PSDs). Concentration-based interim limits for nickel, copper and selenium are effective from the date of the TMDL for all PSDs. Final WLAs are mass-based.

There are final WLAs for both dry-weather and wet-weather conditions. The dry-weather WLAs apply to days when flows in the stream are less than the 86th percentile flow rate for each reach. The wet-weather WLAs apply to days when flows in the stream exceed the 86th percentile flow rate for each reach. Dry weather limits are based on chronic California Toxics Rule (CTR) criteria. Wet weather limits are based on acute CTR criteria.

Interim Concentration-based Wet and Dry Weather Limits

Metal	Calleguas and Conejo Creek			Revolon Slough		
	Dry CMC µg/L	Dry CCC µg/L	Wet CMC µg/L	Dry CMC µg/L	Dry CCC µg/L	Wet CMC µg/L
Copper	23	19	204	23	19	204
Nickel	15	13	*	15	13	*
* The current loads do not exceed the TMDL under wet conditions: interim limits not required						

Final Mass-based Dry-weather WLAs, lbs/day, Total Recoverable Metal in Water Column

Metal	Calleguas and Conejo Creek			Revolon Slough		
	Low	Average	Elevated	Low	Average	Elevated
Copper (lbs/day)	0.04 * WER – 0.02	0.12 * WER – 0.02	0.18 * WER – 0.03	0.03 * WER – 0.01	0.06 * WER – 0.03	0.13 * WER – 0.02
Nickel (lbs/day)	0.100	0.120	0.440	0.050	0.069	0.116

Final Mass-based Wet-weather WLAs, lbs/day, total recoverable metal in water column

Metal	Calleguas Creek	Revolon Slough
Copper (lbs/day)	(0.00054*Q^2*0.032*Q -0.17)*WER – 0.06	(0.0002*Q^2 +0.0005*Q)*WER
Nickel (lbs/day)	0.014*Q^2 + 0.82*Q	0.027*Q^2 + 0.47*Q

A WER is applied to final numeric targets for copper for the Mugu Lagoon, Calleguas Creek 2, and Revolon/Beardsley reaches; the WER defaults to a value of one (1) unless a site-specific study is approved. The mass-based WLAs apply to the Permitted Storm water Dischargers as a group, and the Department has no specific proportional WLA.

Final Metals WLA Specific to the Department

The WLAs above apply to all permitted storm water dischargers, including the Department. The Department has no specific final WLAs.

Final Metals Deadlines

All PSDs have required interim reductions of 25 percent and 50 percent by March 26, 2012 and March 26, 2017, respectively. The final WLAs must be achieved within 15 years after the effective date of the amendment (March 26, 2022). Implementation shall be achieved through BMPs. The Department was originally tasked with submitting an Urban Water Quality Control Plan by March 26, 2012. Implementation is meant to be achieved using BMPs. The Department was required to conduct a source control study and submit an

Urban Water Quality Management Program for copper, nickel, selenium and mercury by March 26, 2009.

Department's Metals Contribution (relative contribution to pollutant loading**)**
The Department's contribution to the metal loads is unknown.

Colorado Lagoon OC Pesticides, PCBs, Sediment Toxicity, PAHs and Metals TMDL, June 14, 2011

The TMDL identifies the point sources of OC pesticides, PCBs, PAHs, and metals discharged to Colorado Lagoon are urban runoff and storm water discharges from the MS4 and the Department. The Colorado Lagoon watershed is divided into five sub-basins that discharge storm water and urban dry weather runoff to Colorado Lagoon. Each of the sub-basins is served by a major storm sewer trunk line and supporting appurtenances that collect and transport storm water and urban dry weather runoff to Colorado Lagoon.

Final WLAS for OC Pesticides, PCBs, and PAHs
The Department and the City of Long Beach shall each be responsible for achieving the following final mass-based WLAs assigned to the Line I Storm Drain as it conveys storm water from both the Department's facilities and the City of Long Beach:

Final Mass-based WLA for MS4 Discharges

Total Chlordane	**Dieldrin** (mg/yr)	**Total PAHs** (mg/yr)	**Total PCBs** (mg/yr)	**Total DDTs** (mg/yr)
3.65	0.15	29,321.50	165.49	11.52

In addition, concentration-based WLAs for sediment are assigned to MS4 permittees including the City of Long Beach, LACFCD, and the Department. Concentration-based WLAs for sediment are applied as average monthly limits. Compliance with the concentration-based WLAs for sediment shall be determined by pollutant concentrations in the sediment in the lagoon at points in the West Arm, North Arm, and Central Arm that represent the cumulative inputs from the MS4 drainage system to the lagoon. Concentration-based interim WLAs for sediment are set to allow time for removal of contaminated sediment through proposed implementation actions. Interim WLAs are based on the 95th percentile value of sediment data collected from 2000-2008. The following interim and final WLAs will be included in MS4 permits in accordance with NPDES guidance and requirements:

Concentration-based WLAs

Pollutants	Interim WLAs (µg/dry kg)	Final WLAs (µg/dry kg)
Total Chlordane	129.65	0.50
Dieldrin	26.20	0.02
Total PAHs	4,022	4,022
Total PCBs	89.90	22.7
Total DDTs	149.80	1.58

Final WLAs for Metals

The Department is jointly responsible with the City of Long Beach in attaining final mass-based WLAs for lead and zinc in sediment and storm water conveyed to Colorado Lagoon via the Line I Storm Drain. In addition, concentration-based interim limits are established for all storm water dischargers, including the Department.

Interim Concentration-based WLAs for Metals in Sediment

Metal	Average Monthly Sediment	
	Interim WLA (µg/kg)	**Final WLA** (µg/kg)
Lead	399,500	46,700
Zinc	565,000	150,000

Final Mass-based WLAs for Metals in Line I Storm Drain

Metal	mg/yr
Lead	340,455.99
Zinc	1,093,541.72
Proposed BMPs that may apply to the Line I Storm Drain include: Low-flow diversion, trash separation devices, vegetated bioswales, cleaning of existing culverts, or direct removal of accumulated sediment	

Final OC Pesticides, PCBs & PAHs WLA Specific to the Department

See tables above.

Final OC Pesticides, PCBs & PAHs Deadlines

The Department is subject to the prescribed point source interim WLAs which are effective as of July 28, 2011. Compliance with all final WLAs is required by July 28, 2018.

The Department's OC Pesticides, PCBs & PAHs Contribution (*relative contribution to pollutant loading****)***

The Department's relative contribution to the OC Pesticides, PCBs, and PAHs pollutant loading is not known.

Dominguez Channel and Greater Los Angeles and Long Beach Harbor Toxic Pollutants TMDL, March 23, 2012

The toxic pollutants included in this TMDL include Copper, lead, zinc, DDT, PAHs, and PCBs.

Final WLAs for OC Pesticides PCBs, and PAHs

Interim and final WLA are assigned to storm water discharges including those from the Department's MS4. Dominguez Channel freshwater allocations are set for wet weather only because exceedances have only been observed in wet weather. Mass-based allocations have been set where sufficient data was available to calculate mass-based allocations; otherwise, concentration-based allocations have been set. Interim and final WLAs shall be included in permits in accordance with state and federal regulations and guidance.

An interim freshwater toxicity allocation of two chronic toxicity units (TUc) applies to all point sources to Dominguez Channel during wet weather including the Department. A final freshwater toxicity allocation of one (1) TUc applies to all point sources to Dominguez Channel during wet weather including the Department.

Interim sediment allocations for Dominguez Channel Estuary and greater Los Angeles and Long Beach Harbor waters are assigned to storm water discharges based on the 95th percentile of sediment data collected from 1998-2006. The final mass-based allocations for PAHs expressed as an annual loading (kilograms/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long beach Harbor Waters. The final mass-based allocations for Total DDT and Total PCBs, expressed annual loading (grams/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters.

OC Pesticides PCBs, and PAHs Interim and Final WLAs

Interim Concentration-Based Sediment Allocations			
	Total PAHs (mg/kg)	**Total DDTs** (mg/kg)	**Total PCBs** (mg/kg)
Dominguez Channel Estuary	31.60	1.727	1.490
Long Beach Inner Harbor	4.58	0.070	0.060
Los Angeles Inner Harbor	90.30	0.341	2.107
Long Beach Outer Harbor	4,022	0.075	0.248
Los Angeles Outer Harbor	4,022	0.097	0.310
Los Angeles River Estuary	4.36	0.254	0.683
San Pedro Bay	4,022	0.057	0.193
Cabrillo Marina	36.12	0.186	0.199
Consolidated Slop	386.00	1.724	1.920
Cabrillo Beach Area	4,022	0.145	0.033
Fish Harbor	2102.7	40.5	36.6

Final Mass-Based Sediment Allocations for the Department			
	Total PAHs (kg/yr)	**Total DDTs** (g/yr)	**Total PCBs** (g/yr)
Dominguez Channel Estuary	0.0023	0.004	0.004
Consolidated Slip	0.00009	0.00014	0.00006
Inner Harbor	0.0017	0.0010	0.0011
Outer Harbor	0.00021	0.000010	0.00004
Fish Harbor	0.000021	0.0000010	0.000006
Cabrillo Marina	0.0000016	0.00000028	0.00000024
San Pedro Bay	0.077	0.002	0.019
LA River Estuary	0.333	0.014	0.047

Final Concentration-based Sediment WLAs for Other Bioaccumulative Compounds (dry sediment)		
Total Chlordane (µg/kg)	**Dieldrin** (µg/kg)	**Toxaphene** (µg/kg)
0.5	0.02	0.10

Final OC Pesticides PCBs, and PAHs WLAs for Metals

Interim and final WLAs for copper, lead and zinc are assigned to storm water discharges including those from the Department's MS4. Freshwater allocations for Dominguez Channel are set for wet weather only because exceedances have only been observed in wet weather. Wet weather conditions in Dominguez Channel and all of its upstream tributaries apply to any day when the maximum daily flow is greater than 62.7 cfs at any point in Dominguez Channel. Mass-based allocations have been set where sufficient data were available to calculate mass-based allocations; otherwise, WLAs are concentration-based.

Interim allocations for Dominguez Channel and Torrance Lateral are assigned to storm water dischargers, including the Department, and are based on the 95th percentile of total metals data collected from January 2006 to January 2010 using a log-normal distribution. Interim sediment allocations for Dominguez Channel Estuary and greater Los Angeles and Long Beach Harbor waters are assigned to storm water discharges based on the 95th percentile of sediment data collected from 1998-2006.

Interim Concentration-Based WLAs for Dominguez Channel and Torrance Lateral

Total Copper (µg/L)	**Total Lead** (µg/L)	**Total Zinc** (µg/L)
207.51	122.88	898.87

Interim Concentration-Based Sediment Allocations (mg/kg sediment)

Waterbody	Copper (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
Dominguez Channel Estuary	220.0	510.0	789.0
Long Beach Inner Harbor	142.3	50.4	240.6
Los Angeles Inner Harbor	154.1	145.5	362.0
Long Beach Outer Harbor	67.3	46.7	150
Los Angeles Outer Harbor	104.1	46.7	150
Los Angeles River Estuary	53.0	46.7	183.5
San Pedro Bay	76.9	66.6	263.1
Cabrillo Marina	367.6	72.6	281.8
Consolidated Slip	1470.0	1100.0	1705.0
Cabrillo Beach Area	129.7	46.7	163.1
Fish Harbor	558.6	116.5	430.5

Wet-weather freshwater metals allocations are assigned to Dominguez Channel and all of its upstream reaches and tributaries above Vermont Avenue. Mass-based (grams/day) WLAs are divided between the Department and other MS4 permittees by subtracting the other storm water or NPDES WLAs, air deposition and margin of safety from the total loading capacity. Metals targets used to calculate these WLAs were based on an assumed hardness of 50 mg/L and 90th percentile annual flow rates for Dominguez Channel (62.7 cfs).

The Department's Final mass-based water WLAs for Dominguez Channel

Total Copper	Total Lead	Total Zinc
32.3 *(g/day)*	142.6 *(g/day)*	232.6 *(g/day)*

For the Torrance Lateral subwatershed, concentration-based freshwater WLAs for both water and sediment are assigned to all dischargers, including the Department. Metals targets used to calculate these WLAs were based on an assumed hardness of 50 mg/L and 90th percentile annual flow rates.

The Department's Final concentration-based WLAs for Torrance Lateral

Media (units)	Total Copper	Total Lead	Total Zinc
Water (µg/L, unfiltered)	9.7	42.7	69.7
Sediment (mg/kg, dry)	31.6	35.8	121

The final mass-based allocations for metals are expressed as an annual loading (kilograms/year) of pollutants in the sediment deposited to the Dominguez Channel Estuary, Los Angeles River Estuary, and the Greater Los Angeles and Long Beach Harbor Waters. The Interim and Final WLAs are:

Reach	Total Copper (kg/yr)	Total Lead (kg/yr)	Total Zinc (kg/yr)
Dominguez Channel Estuary	0.384	0.93	4.7
Consolidated Slip	0.043	0.058	0.5

Reach	Total Copper (kg/yr)	Total Lead (kg/yr)	Total Zinc (kg/yr)
Inner Harbor	0.032	0.641	2.18
Outer Harbor	0.0018	0.052	0.162
Fish Harbor	0.0000005	0.00175	0.0053
Cabrillo Marina	0.00019	0.0028	0.007
San Pedro Bay	0.88	2.39	9.29
LA River Estuary	5.1	9.5	34.8

In addition to the above, Fish Harbor is impaired for mercury in sediments, Consolidated Slip is impaired for mercury, cadmium and chromium in sediments and Dominguez Channel Estuary is impaired for cadmium in sediments. These waterbodies are assigned no interim WLAs but are assigned final concentration-based WLAs. The Department is NOT named as a responsible party for WLAs to Consolidated Slip.

Final concentration-based sediment WLAs for other metals, dry sediment

Reach	Cadmium mg/kg	Chromium mg/kg	Mercury mg/kg
Dominguez Channel Estuary	1.2	-	-
Fish Harbor	-	-	0.15
Note: The Department is NOT specifically named as a responsible party for implementation actions to Dominguez Channel proper in the 1st Phase of implementation to reduce the amount of sediment transport from point sources that directly or indirectly discharge to the Dominquez Channel and the Harbor waters, even though it has specific WLAs.			

Final Toxic Pollutant WLA Specific to the Department
See tables above.

Final Toxic Pollutant Deadlines
The Department is subject to the prescribed point source interim WLAs which are effective as of March 23, 2012. Compliance with all final WLAs is required by March 23, 2032.

Department's Toxic Pollutant Contribution (relative contribution to pollutant *loading)*
The Department's relative contribution to the toxic pollutant loading is not known.

Los Angeles Area Lakes for Organochlorine Pesticides and PCBs

To assess compliance with the organochlorine (OC) compounds TMDLs, monitoring should include monitoring of fish tissue at least every three years as well as once yearly sediment and water column sampling. For the OC pesticides and PCBs TMDLs a demonstration that fish tissue targets have been met in any given year must at minimum include a composite sample of skin off fillets from at least five common carp each measuring at least 350mm in length. At a minimum, compliance monitoring should measure the following in-lake water quality parameters: total suspended sediments, total PCBs, total chlordane, dieldrin, and total DDTs; as well as the following in-lake sediment parameters: total organic carbon, total PCBs, total chlordane, dieldrin, and total DDTs. WLAs are assigned to storm water inputs.

These sources should be measured near the point where they enter the lakes once a year during a wet weather event. Sampling should be designed to collect sufficient volumes of suspended solids to allow for the analysis of at minimum: total organic carbon, total suspended solids, total PCBs, total chlordane, dieldrin, and total DDTs. Measurements of the temperature, dissolved oxygen, pH and electrical conductivity should also be taken.

U.S. EPA established TMDLs do not include implementation plans so all WLAs are considered in effect as of the approval date.

Los Angeles Area (Echo Park Lake) Nitrogen, Phosphorus, Chlordane, Dieldrin, and Trash TMDLs, U.S. EPA Established on March 26, 2012

The entire watershed of Echo Park Lake is contained in MS4 jurisdictions, and watershed loads are therefore assigned WLAs. The Department's areas and facilities that operate under a general industrial storm water permit also receive WLAs. There are TMDLs for PCBs, Chlordane, and Dieldrin, and each has specific WLAs for the Department which are detailed below. The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Final WLAs

PCBs WLA

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (µg/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.77	0.17
Southern	Department	State Highway Storm water	1.77	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	59.8	0.17
Southern	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	2.10	0.59
Southern	Department	State Highway Storm water	2.10	0.59

If Fish Tissue Targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.24	0.59
Southern	Department	State Highway Storm water	3.24	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.80	0.14
Southern	Department	State Highway Storm water	0.80	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.90	0.14
Southern	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department
See tables above.

Final OC Compounds Deadlines
U.S. EPA did not establish deadlines.

Department's OC Compounds Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the OC Pesticide pollutant loading is unknown.

Los Angeles Area (Peck Road Park Lake) Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash

Final OC Compounds WLA
The entire watershed of Peck Road Park Lake is contained in MS4 jurisdictions, and watershed loads are therefore assigned WLAs. The Department areas and facilities that operate under a general industrial storm water permit also receive WLAs. There are TMDLs for PCBs, Chlordane, DDTs, and Dieldrin and each has specific WLAs for the Department which are detailed below. The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Final OC Compounds WLA Specific to the Department

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.29	0.17
Western	Department	State Highway Storm water	1.29	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	59.8	0.17
Western	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.73	0.59
Western	Department	State Highway Storm water	1.73	0.59

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	3.24	0.59
Western	Department	State Highway Storm water	3.24	0.59

Total DDTs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	5.28	0.59
Western	Department	State Highway Storm water	5.28	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	0.43	0.14
Western	Department	State Highway Storm water	0.43	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Eastern	Department	State Highway Storm water	1.90	0.14
Western	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department
See tables above.

Final OC Compounds Deadlines
U.S. EPA did not establish deadlines.

Department's OC Compounds Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the OC Pesticides and PCBs pollutant loading is not known.

Los Angeles Area (Puddingstone Reservoir) Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Mercury, and Dieldrin TMDLs, U.S. EPA Established on March 26, 2012

Final OC Compounds WLA

In the Puddingstone Reservoir watershed, WLAs are required for all permittees in the northern subwatershed and the Department's areas in the southern subwatershed. There are TMDLs for PCBs, Chlordane, DDTs, and Dieldrin and each has specific WLAs for the Department which are detailed below.

Final OC Compounds WLA Specific to the Department

The TMDLs have two sets of WLAs, one of which relies on meeting various fish tissue targets that would supersede the initial set of WLAs. Each WLA must be met at the point of discharge.

Total PCBs TMDL

Subwatershed	**Responsible Jurisdiction**	**Input**	**Suspended Sediment WLAs** (ug/kg dry weight)	**Water Column WLAs** (ng/L)
Northern	Department	State Highway Storm water	0.59	0.17
Southern	Department	State Highway Storm water	0.59	0.17

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	59.8	0.17
Southern	Department	State Highway Storm water	59.8	0.17

Total Chlordane TMDL

Subwatershed	**Responsible Jurisdiction**	**Input**	**Suspended Sediment WLAs** (ug/kg dry weight)	**Water Column WLAs** (ng/L)
Northern	Department	State Highway Storm water	0.75	0.57
Southern	Department	State Highway Storm water	0.75	0.57

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.24	0.57
Southern	Department	State Highway Storm water	3.24	0.57

Total DDTs TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	3.94	0.59
Southern	Department	State Highway Storm water	3.94	0.59

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	5.28	0.59
Southern	Department	State Highway Storm water	5.28	0.59

Dieldrin TMDL

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	0.22	0.14
Southern	Department	State Highway Storm water	0.22	0.14

If the Fish Tissue targets are met:

Subwatershed	Responsible Jurisdiction	Input	Suspended Sediment WLAs (ug/kg dry weight)	Water Column WLAs (ng/L)
Northern	Department	State Highway Storm water	1.90	0.14
Southern	Department	State Highway Storm water	1.90	0.14

Final OC Compounds WLA Specific to the Department
See tables above.

Final OC Compounds Deadlines
U.S. EPA did not establish deadlines.

Department's OC Compounds *Contribution* *(relative contribution to pollutant loading)*

The Department's relative contribution to pollutant loading is not known.

Los Angeles River Watershed Metals TMDL, September 6, 2007

Final Metals WLA
This TMDL includes wet-weather and dry-weather WLAs for copper, lead, and zinc. Wet-weather conditions are when the maximum daily flow of the Los Angeles River is greater than or equal to 500 cfs. Dry-weather conditions are where maximum daily flow is less than 500 cfs; critical flows are also listed for each of the reaches in this TMDL.

Final Metals WLA Specific to the Department
For dry-weather conditions, the Department is assigned grouped WLAs with other MS4 permittees.

WERs are explicitly included in these WLAs, but default to a value of 1 (unit less) unless site-specific values are approved by the Regional Water Board. Concentration-based limits are also allowed for dry weather due to the expense of obtaining accurate flow measurements; in this case, the concentration-based limits are equal to dry-weather reach-specific dry-weather numeric targets.

Final Mass-based Dry-weather WLAs for Storm water and MS4s, Total Recoverable Metals

Waterbody	Critical Flow (CFS)	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
LAR 6	7.20	0.53 x WER	0.33 x WER	-
LAR 5	0.75	0.05 x WER	0.03 x WER	-
LAR 4	5.13	0.32 x WER	0.12 x WER	-

Waterbody	Critical Flow (CFS)	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
LAR 3	4.84	0.06 x WER	0.03 x WER	-
LAR 2	3.86	0.13 x WER	0.07 x WER	-
LAR 1	2.58	0.14 x WER	0.07 x WER	-
Bell Creek	0.79	0.06 x WER	0.04 x WER	-
Tujunga Wash	0.03	0.001x WER	0.0002xWER	-
Burbank Channel	3.3	0.15 x WER	0.07 x WER	-
Verdugo Wash	3.3	0.18 x WER	0.10 x WER	-
Arroyo Seco	0.25	0.01 x WER	0.01 x WER	-
Rio Hondo Reach 1	0.50	0.01 x WER	0.006 x WER	0.16 x WER
Compton Creek	0.90	0.04 x WER	0.02 x WER	-
Note: All WERs are equal to 1 (unit less)				

Final Concentration-based reach-specific numeric targets, total recoverable metals

Waterbody	Copper (µg/L)	Lead (µg/L)	Zinc (µg/L)
LA River Reach 6	WER[1] * 30	WER[1] * 19	-
LA River Reach 5	WER[1] * 30	WER[1] * 19	-
LA River Reach 4	WER[2] * 26	WER[1] * 10	-
LA River Reach 3 above LA-Glendale WRP	WER[2] * 23	WER[1] * 12	-
LA River Reach 3 below LA-Glendale WRP	WER[2] * 26	WER[1] * 12	-
LA River Reach 2	WER[2] * 22	WER[1] * 11	-
LA River Reach 1	WER[2] * 23	WER[1] * 12	-
Bell Creek	WER[1] * 30	WER[1] * 19	-
Burbank Western Channel (above WRP)	WER[2] * 26	WER[1] * 14	-
Burbank Western Channel (below WRP)	WER[2] * 19	WER[1] * 9.1	-
Verdugo Wash	WER[2] * 23	WER[1] * 12	-
Compton Creek	WER[1] * 19	WER[1] * 8.9	-
Arroyo Seco	WER[2] * 22	WER[1] * 11	-
Rio Hondo Reach 1	WER[1] * 13	WER[1] * 5.0	WER[1] * 131
Monrovia Canyon	-	WER[1] * 8.2	-
Note: [1] WER is equal to 1 (unit less) [2] WER for this constituent in this reach is 3.96			

Wet-weather allocations are apportioned among storm water permit holders based on percent area of the watershed served by storm drains.

Final Mass-based wet-weather WLAs, Total Recoverable Metals

Metal	**Waste Load Allocation** (kg/day) **Total Recoverable**
Cadmium	WER * 5.3 * 10^{-11} * daily volume (L) – 0.03
Copper	WER * 2.9 *10^{-10} * daily volume (L) – 0.2
Lead	WER * 1.06 * 10^{-09} * daily volume (L) – 0.07
Zinc	WER * 2.7 * 10^{-09} * daily volume (L) – 1.6

Final Metals Deadlines
By January 11, 2024, the jurisdictional group shall demonstrate that 100 percent of the group's total drainage area served by the storm drain system is effectively meeting the dry-weather WLAs and 50 percent of the group's total drainage area served by the storm drain system is effectively meeting the wet-weather WLAs. By January 11, 2028, the jurisdictional group shall demonstrate that 100 percent of the group's total drainage area served by the storm drain system is effectively meeting both the dry-weather and wet-weather WLAs. MS4s and the Department may meet the TMDL using a phased implementation approach using a combination of structural and non-structural BMPs.

Department's Metals Contribution (relative contribution to pollutant loading)
Unknown

Los Cerritos Channel Metals TMDL, March 17, 2010

Final Metals WLA
This TMDL assigns the Department wet-weather WLAs for copper, lead and zinc and a dry-weather WLA for copper only. Wet weather is defined as where the maximum daily flow of Los Cerritos Channel is greater than 23 cfs, and dry weather is where the maximum daily flow of the Channel is less than 23 cfs. For dry-weather copper targets, a site-specific translator was used, defined as the median value of the ratio of direct measurements to CTR criteria. Only the Department and other MS4s have a mass-based WLA for copper for dry weather, and this is divided among permittees based on estimates of respective percentage of total watershed area.

Final mass-based wet-weather WLAs are divided among the Department, other MS4 permittees, General Construction permittees and General Industrial permittees based on an estimate of the percentage of land area covered under each permit. The Department's estimated percent area of the watershed is 0.8 percent.

Final Metals WLA Specific to the Department

Copper Dry-weather WLA, Total Recoverable Metal	
Copper	1.0 g/day

Metals Wet-weather WLAs, Total Recoverable Metal (V is daily flow volume in liters)		
Copper g/day	**Lead** g/day	**Zinc** g/day
$0.070 * V * 10^{-6}$	$0.397 * V * 10^{-6}$	$0.680 * V * 10^{-6}$

Final Metals Deadlines
U.S. EPA did not include implementation measures for the TMDL, and as such implementation procedures are the responsibility of the Los Angeles Regional Water Board. Implementation measures for this TMDL are currently being developed by the Los Angeles Regional Water Board.

Department's Metals Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the metals pollutant loading is not known.

Machado Lake Pesticides and PCBs TMDL, March 20, 2012

The point sources of pesticides and PCBs into Machado Lake are storm water and urban runoff discharges including those from the Department's MS4. Storm water and urban runoff dischargers to Machado Lake occur through the following sub-drainage systems: Wilmington Drain, Project 77 and Project 510.

Final Pesticides and PCBs WLA
The following WLAs apply to all point sources:

Pollutants	WLAs (ug/kg dry weight)
Total PCBs	59.8
DDT (all congeners)	4.16
DDE (all congeners)	3.16
DDD (all congeners)	4.88
Total DDT	5.28
Total Chlordane	3.24
Dieldrin	1.9

Final Pesticides and PCBs WLA Specific to the Department
See table above.

Final Pesticides and PCBs Deadlines
The TMDL WLAs are applied with a three-year averaging period and shall be incorporated into MS4 permits, including the Department's MS4 permit, and general construction and industrial storm water NPDES permits and any other non-storm water NPDES permits.

Storm water dischargers may coordinate compliance with the TMDL. Permitted storm water dischargers can implement a variety of implementation strategies to meet the required WLAs, such as non-structural and structural BMPs, and/or diversion and treatment to reduce sediment transport from the watershed to the lake. Compliance with the TMDL may be based on a coordinated Monitoring and Reporting Program. The Department is subject to the prescribed point source WLAs with a final compliance date of September 30, 2019.

Department's Pesticides and PCBs Contribution (relative contribution to pollutant loading)

The Department's relative contribution to the OC Pesticides and PCBs pollutant loading is not known.

Marina Del Rey Harbor Toxics Pollutants TMDL, March 26, 2006

Final Toxic Pollutant WLAs
The Department is assigned mass-based WLAs for copper, lead and zinc along with other storm water permittees in the watershed. The Copper, Lead, and Zinc WLAs are apportioned between the permittees based on an estimate of the percentage of land area covered under each permit.

Total Mass-based Storm Water Metal WLAs:

Copper (kg/yr)	**Lead** (kg/yr)	**Zinc** (kg/year)
2.06	2.83	9.11

Total Mass-based Storm Water Organics WLAs:

Total Chlordane (g/yr)	**Total PCBs** (g/yr)
0.03	1.38

Final Toxic Pollutants WLAs Specific to the Department
Mass-based Metals WLAs for Caltrans

Copper (kg/yr)	**Lead** (kg/yr)	**Zinc** (kg/year)
0.022	0.03	0.096

Mass-based Organics WLAs for the Department:

Total Chlordane (g/yr)	**Total PCBs** (g/yr)
0.0003	0.015

Final Toxic Pollutant Deadlines
The implementation schedule for the MS4 permittees and the Department consists of a phased approach. A combination of non-structural and structural BMPs may be used to achieve compliance with the WLAs, with compliance to be achieved in prescribed percentages of the watershed. Total compliance is to be achieved within 10 years or March 22, 2016. However, the Regional Board may extend the implementation period up to 15 years or March 22, 2021, if an integrated water resources approach is employed.

Department Toxic Pollutant Contribution (relative contribution to pollutant loading)
The Department is assigned approximately one percent of the WLA for each pollutant, based on an estimate of area within the watershed.

San Gabriel River Metals & Selenium TMDL, U.S. EPA Established on March 26, 2007

Final Metals WLA
The Department is assigned WLAs for dry-weather and wet-weather for copper, lead and zinc (as well as selenium). For San Gabriel River Reach 2, the critical flow for wet weather is 260 cfs; for Coyote Creek, the critical flow is 156 cfs. The combined storm water WLA is allocated to individual permits based on percent area of the developed portion of the watershed.

For dry-weather copper, all MS4 storm water permittees, including the Department, are assigned concentration-based WLAs specific to San Gabriel River Reach 1, Coyote Creek, and the San Gabriel River Estuary.

Dry-weather Concentration-Based Copper WLAs for Storm water Permittees

Waterbody	Concentration-based WLA (µg/L)
Estuary	3.7
San Gabriel Reach 1	18
Coyote Creek	20

The TMDL establishes wet-weather WLAs to San Gabriel River Reach 2 for lead, and the Department is part of a grouped mass-based WLA. For Coyote Creek, mass-based WLAs are applied to copper, lead, and zinc. These WLAs are further divided among municipal storm water, industrial storm water, and construction storm water permits that are expressed as an area-based proportion of the total WLA. The Department and other MS4s share WLAs because there are not enough data on the relative reach-specific extent of these permittees' areas. The mass-based WLAs for the grouped Department's and MS4s are defined as the

daily storm volume times the numeric target of the metal for the waterbody times the estimated percentage of watershed covered by these permits.

WLAs for San Gabriel River Reach 2, Coyote Creek and to all of their respective Tributaries

Reach	Copper (kg/day)	Lead (kg/day)	Zinc (kg/day)
San Gabriel Reach 2	--	Daily storm vol * 166 µg/L * 49%	--
Coyote Creek	Daily storm vol * 27 µg/L * 91.5%	Daily storm vol * 106 µg/L * 91.5%	Daily storm vol * 158 µg/L * 91.5%

Final Metals WLA Specific to the Department
No specific WLAs.

Final Metals Deadlines
U.S. EPA did not include implementation measures for the TMDL, and implementation procedures are the responsibility of the Los Angeles Regional Water Board. Implementation measures or this TMDL are currently being developed by the Los Angeles Regional Water Board.

Department's Metals Contribution (relative contribution to pollutant loading)
The Department's contribution to the metals loads is not known.

Santa Monica Bay PCBs and DDTs TMDLs, U.S. EPA Established on March 26, 2012

Final PCBs and DDTs WLA
The grouped WLAs are apportioned to the Los Angeles County MS4 permit, the Department's MS4 permit, and enrollees under the general construction and industrial storm water permits. Mass-based WLAs are to be partitioned among the four groups based on the percent area of each major group in the watersheds draining to Santa Monica Bay. Permittees covered under the general construction and storm water permittees are not expected to perform individual sampling; instead, monitoring should be conducted on a coordinated, watershed-wide basis consistent with the WLAs in the TMDL. The establishment of watershed efforts to identify and address sources of DDTs and PCBs within the watersheds and reporting of the total storm water loadings of DDT and PCB to Santa Monica Bay is encouraged.

The analysis of DDT and PCBs on suspended particle loadings from the mass emission stations will provide more robust measures of mass loadings. If additional data indicate that existing storm water loadings differ from the storm water WLAs defined in the TMDL, the Los Angeles Regional Water Board should consider re-opening the TMDL to better reflect actual loadings.

BMPs and pollutant removal are the most suitable courses of action to reduce DDT and PCBs in the Santa Monica Bay Watershed. Attention should be focused on those watersheds with the highest potential loadings to Santa Monica Bay, such as those that are more heavily urbanized. BMPs should also be targeted to reduce potential PCB loads from industrial and construction runoff as studies have shown that these may be a major source of PCBs. U.S. EPA also recommends implementation of a PCB Source Identification and Control program within storm water permits to evaluate and identify controllable sources of PCBs.

Final PCBs and DDT WLAs Specific to the Department

Final PCBs and DDTs WLAs

Total PCBs (g/yr)	**Total DDTs** (g/yr)
3.9	0.75

Final PCBs and DDTs Deadlines

U.S. EPA recommends that storm water WLAs be evaluated based on a three year averaging period. This will provide more robust assessment for compliance and should smooth out variability due to wet years. This is consistent with timeframes provided for the Los Angeles Harbor/Long Beach TMDL.

Department's PCBs and DDTs Contribution (relative contribution to pollutant loading)

The footprint of the Department's MS4 is 2.7 percent of the area within the Santa Monica Bay watersheds.

SANTA ANA REGION METALS/TOXICS/PESTICIDES TMDLS

Rhine Channel Area of Lower Newport Bay Chromium and Mercury, U.S. EPA Established on June 14, 2002

Final Chromium WLA

For Rhine Channel, the final Chromium WLA is 7.44 kg/yr in sediment.

Final Chromium WLA Specific to the Department

The final mass-based Chromium WLA for the Department is 0.89 kilograms/year in sediment.

Final Chromium Deadlines

The Santa Ana Regional Water Board anticipated a Basin Plan Amendment addressing implementation of the above TMDLs in 2007; these amendments have not yet been completed.

Department's Chromium Contribution (relative contribution to pollutant loading**)**

The Department's relative contribution to the Chromium loading is approximately three percent of the total, based on area.

San Diego Creek and Newport Bay, including Rhine Channel Metals (Copper and Zinc) TMDL, U.S. EPA Established on June 14, 2002

Final Metals WLA

WLAs are established for cadmium, copper, lead and zinc in the San Diego Creek watershed, for cadmium, copper, lead and zinc in Newport Bay, and for cadmium, copper, lead, zinc and chromium (and mercury) in Rhine Channel. San Diego Creek is a fresh water stream, while Newport Bay and Rhine Channel are saltwater.

Final Metals WLA Specific to the Department

For San Diego Creek, the Department is assigned concentration-based WLAs for cadmium, copper, lead, and zinc. There are no wet-weather or dry-weather WLAs, but there are four sets of WLAs for each metal for four different flow tiers. All flow tiers have an acute and chronic WLA, except for the highest flow tier, which only has an acute WLA.

Concentration-based WLAs for San Diego Creek Watershed by Flow Tiers, µg/L

Metal	< 20 cfs); H = 400 mg/L		21 – 181 cfs		182 - 815 cfs		> 815 cfs
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute
Cu	50	29.3	40	24.3	30.2	18.7	25.5
Pb	281	10.9	224	8.8	162	6.3	134
Zn	379	382	316	318	243	244	208
* Applies to Upper Newport Bay Only							

For Newport Bay, mass-based WLAs for cadmium, copper, lead and zinc were assigned to the Department. These WLAs were developed on estimates made using Best Professional Judgment because insufficient data were available to accurately estimate relative contributions to existing loads. The Department's share of the estimated loads is based on the relative proportion of watershed land area among the Department and adjacent permit-holders.

Final mass-based WLAs in Newport Bay, Dissolved Metals

Metal	Cu	Pb	Zn
Total	423 lbs/yr	2,171 lbs/yr	22,866 lbs/yr

Additional concentration-based limits apply only to sources which discharge directly to the Bay, including storm water dischargers from storm drains direction to Bay segments.

Newport Bay Concentration-based Dissolved Metal TMDLs, WLAs/LAs

Metal	Dissolved saltwater Acute TMDLs and allocations (µg/L)	Dissolved saltwater chronic TMDLs and allocations (µg/L)
Cu	4.8	3.1
Pb	210	8.1
Zn	90	81
* Applies to Upper Newport Bay Only		

Final Metals Deadlines
U.S. EPA did not include implementation measures for the TMDL.

Department's Metals Contribution (relative contribution to pollutant loading**)**
The Department's relative contribution to the metals pollutant loading is not known.

San Diego Creek and Upper Newport Bay Cadmium TMDL, U.S. EPA Established on June 14, 2002

Final Cadmium WLA
Concentration-based WLAs for San Diego Creek Watershed by Flow Tiers

Metal	< 20 cfs); H = 400 mg/L		21 – 181 cfs		182 - 815 cfs		> 815 cfs
	Acute	Chronic	Acute	Chronic	Acute	Chronic	Acute
Cd (µg/L)	19.1	6.2	15.1	5.3	10.8	4.2	8.9
* Applies to Upper Newport Bay Only							

Newport Bay Concentration-based Dissolved Metal TMDLs, WLAs/LAs

Metal	Dissolved saltwater Acute TMDLs and allocations (µg/L)	Dissolved saltwater chronic TMDLs and allocations (µg/L)
Cd	42	9.3
* Applies to Upper Newport Bay Only		

Final Cadmium WLA Specific to the Department
See Table above.

Final Cadmium Deadlines
U.S. EPA did not include implementation measures for the TMDL.

Department's Cadmium Contribution
The Department's relative contribution to the cadmium pollutant loading is not known.

San Diego Creek Watershed, Organochlorine Compounds and PCBs TMDLs, November 12, 2013

Final OC Compounds WLA

The Department is listed as a primary source of pollutant loads to the San Diego Creek watershed. The mass-based WLAs were expressed as both daily and annual values. Pollutants include Total DDT, Chlordane, Total PCBs and Toxaphene.

WLAs Expressed as a Daily Value (grams/day)					
Watershed	**Input**	**Total DDT**	**Chlordane**	**Total PCBs**	**Toxaphene**
San Diego Creek	Department (11%)	0.11	0.07	0.03	0.002
WLAs Expressed as a Annual Value (grams/year)					
Watershed	**Input**	**Total DDT**	**Chlordane**	**Total PCBs**	**Toxaphene**
San Diego Creek	Department (11%)	39.2	25.2	12.4	0.6

Final OC Compounds WLA Specific to the Department

See Tables above.

Final OC Compounds Deadlines

Compliance with the TMDLs and WLAs is to be achieved as soon as possible, but no later than December 31, 2020. The way that this deadline applies to a particular discharger differs depending on whether the discharger is participating in the Working Group. Ultimate compliance with permit limitations based on WLAs is expected to be based upon iterative implementation of effective BMPs to manage the discharge of fine sediments containing organochlorine compounds, along with monitoring to measure BMP effectiveness.

Department's OC Compounds Contribution (relative contribution to pollutant loading)

Based upon the percentage of the total urban land use comprised by Urban-Roads, Department's facilities and roadways make up 11 percent of the land area and are assigned a proportion of the overall WLAs accordingly.

Upper & Lower Newport Bay Organochlorine Compounds TMDL, November 12, 2013

Final OC Compounds WLA

Upper Newport Bay and Lower Newport Bay OC Compounds WLAs

WLAs Expressed as a Daily Value (grams/day)					
Watershed	**Input**	**Total DDT**	**Chlordane**	**Total PCBs**	**Toxaphene**
Upper Newport Bay	Department (11%)	0.04	0.03	0.02	-
Lower Newport Bay	Department (11%)	0.02	0.01	0.07	-

WLAs Expressed as a Annual Value (grams/year)					
Watershed	**Input**	**Total DDT**	**Chlordane**	**Total PCBs**	**Toxaphene**
Upper Newport Bay	Department (11%)	15.8	9.2	9.1	-
Lower Newport Bay	Department (11%)	5.8	3.4	23.9	-

Final OC Compounds WLA Specific to the Department

See Tables above.

Final OC Compounds Deadlines

Compliance with the TMDLs and WLAs is to be achieved as soon as possible, but no later than December 31, 2020. The way that this deadline applies to a particular discharger differs depending on whether the discharger is participating in the Working Group. Ultimate compliance with permit limitations based on WLAs is expected to be based upon iterative implementation of effective BMPs to manage the discharge of fine sediments containing organochlorine compounds, along with monitoring to measure BMP effectiveness.

Department's OC Compounds Contribution (relative contribution to pollutant loading)
Based upon the percentage of the total urban land use comprised by Urban-Roads, Department's facilities and roadways make up 11 percent of the land area and are assigned a proportion of the overall WLAs accordingly.

Chollas Creek Dissolved Copper, Lead and Zinc TMDLs, December 18, 2008

Final Metals WLA
WLAs are concentration-based and set as the acute and chronic limits in the California Toxics Rule times 90 percent for all permitted dischargers, in units of µg/L, as dissolved metals. The final WLAs are based on statistical measures of hardness used in calculating permit requirements.

Final Concentration-based WLAs
Chollas Creek, Copper, Lead, and Zinc WLAs, Dissolved Metal

Metal	Numeric Target for Acute Conditions: Criteria Maximum Concentration, (µg/L)	Numeric Target for Chronic Conditions: Criteria Continuous Concentration, (µg/L)
Copper	(1) * (0.96) * {e^ [0.9422 * ln (hardness) - 1.700]} * 0.9	(1) * (0.96) * {e^[0.8545 * ln (hardness) - 1.702]} * 0.9
Lead	(1) * {1.46203 – [0.145712 * ln (hardness)]} * {e^ [1.273 * ln (hardness) - 1.460]} * 0.9	(1) * {1.46203 – [0.145712 * ln (hardness)]} * {e^[1.273 * ln (hardness) - 4.705]} * 0.9
Zinc	(1) * (0.978) * {e^ [0.8473 * ln (hardness) + 0.884]} * 0.9	(1) * (0.986) * {e^[0.8473 * ln (hardness) + 0.884]} * 0.9

Final Metals WLA Specific to the Department
There are no WLAs specific to the Department.

Final Metals Deadlines
The Department along with other responsible parties must meet 100 percent of Chollas Creek Metals TMDL WLA reductions by December 18, 2028.

Department's Contribution *(relative contribution to pollutant loading)*
The Department's contribution to the metal loads is not known.

D. Trash TMDL Pollutant Category

General Description of Pollutant Category
As discussed under the ten individual TMDLs below, the TMDLs in the trash pollutant category establish that the Department varies in the significance of a source of trash and debris. The scale of the Department as a source depends on the magnitude and location of the impacted water body and corresponding land uses. For the individual TMDLs, the Department is not the sole responsible party for source of trash and debris. Other point source responsible parties include Los Angeles County MS4 permittees, Ventura County MS4 permittees, and industrial permittees.

Since trash generation rates are dependent on land use, the requirements for the Department in Attachment IV Section III.D.1 focus on significant trash generating areas. These areas include: highway on- and off-ramps in high density residential, commercial and industrial land uses, rest areas and park-and-rides, state highways in commercial and industrial land uses, and mainline highway segments to be identified by the Department through pilot studies and/or surveys. The requirements in Attachment IV are expected to address the highest source of trash from the Department by focusing management practices on the highest problem areas.

Attachment IV Section III.D.1 establishes a prohibition of discharge of trash to receiving waters. All of the individual TMDLs set a numeric target of zero trash, since the receiving water body lacks an assimilative capacity for any piece of the trash. Attaining the numeric target is difficult due to the transport mechanisms of the trash, specifically for the Department whose users are temporary and transitory. Attachment IV Section III.D.2 sets forth two compliance options to achieve the prohibition of discharge. The compliance options focus on implementation of management practices, treatment controls, and institutional controls in the significant trash generating areas and the coordination with neighboring municipalities to implement treatment and institutional controls in significant trash generating areas and priority land use areas (high density residential, industrial, commercial, mixed urban, and public transportation stations).

Sources of Pollutant & How it Enters the Waterway
Trash and debris are the man-made products that are improperly discarded and transported to surface water bodies. Trash is considered a 'gross pollutants' and excludes sediments, oil and grease, and vegetation. Trash can include cigarette butts, paper, fast food containers, plastic grocery bags, cans and bottles, used diapers, construction site debris, industrial plastic pellets, old tires and appliances. Trash and debris cause impairments to beneficial uses of surface water bodies, including rivers, lakes, enclosed bays and estuaries, and ocean waters.

Watershed Contribution
Trash impacts aquatic habitat and life. Mammals, turtles, birds, fish, and crustaceans are threatened following the ingestion or entanglement of trash. Ingestion and entanglement can be fatal for freshwater, estuarine, saline and marine aquatic life. Similarly, habitat alterations and degradations due to trash can make natural habitats unsuitable for spawning, migration, and preservation of aquatic life. These negative effects of trash to aquatic life can impact several beneficial uses. The aquatic life beneficial uses that can be impacted by negative effects of trash include: Warm Freshwater Habitat (WARM); Cold Freshwater habitat (COLD); Inland Saline Water Habitat (SAL); Estuarine Habitat (EST); Marine Habitat (MAR); Wildlife Habitat (WILD); Preservation of Biological Habitats (BIOL); Rare, Threatened, or Endangered Species (RARE); Migration of Aquatic Organisms (MIGR); Spawning, Reproduction, and/or Early Development (SPWN); and Wetland Habitat (WET).

Trash impacts human activity by means of jeopardizing public health and safety and posing harm and hindrance in recreational, navigational, and commercial activities. The human

beneficial uses impacted by trash and debris include: Navigation (NAV); Water Contact Recreation (REC-1); Non-Contact Water Recreation (REC-2); Commercial and Sport Fishing (COMM); Aquaculture (AQUA); Shellfish Harvesting (SHELL); and Industrial Service Supply (IND).

Trash and debris, which is intentionally or accidentally discarded in watershed drainage areas, enter a water body through a transport mechanism. Transport mechanisms include the following:

1. Storm drains: trash is deposited throughout the watershed and is carried to a water body during and after significant rainstorms through storm drains.
2. Wind/wave action: trash can also blow into the waterways directly.
3. Direct disposal: direct dumping of trash to water body.

The amount and type of trash and debris that is washed into the storm drain system is generally a function of the surrounding land use. It is generally accepted that commercial, industrial, high density residential land use contribute larger loads of gross pollutants per area compared to low residential and open space and park land use areas.

Control Measures

Full capture system is a type of treatment control that is a device or series of devices that traps all particles that are 5 mm or greater and has a design treatment capacity that is not less than the peak flow rate, Q, resulting from a one-year, one-hour, storm in the subdrainage area. For the Department, there are three types of full capture systems that fall under the category of Gross Solids Removal Devices (GSRDs). Gross Solids Removal Devices (GSRDs) were developed by the Department to be retrofitted into existing highway drainage systems or implemented in future highway drainage systems. GSRDs are structures that remove litter and solids five mm and larger from the storm water runoff using various screening technologies. Overflow devices are incorporated, and the usual design of the overflow release device is based upon the design storm for the roadway. Though designed to capture litter, the devices can also capture some of the vegetation debris. The devices shown below are generally limited to accept flows from pipes 30 inches in diameter and smaller.

The three types of potential GSRDs the Department could utilize are linear radial and two versions using an inclined screen. A linear radial device is relatively long and narrow, with flow entering one end and exiting the other end. It is suited for narrow and flat rights-of-way with limited space. It utilizes modular well screen casings with 5 mm louvers and is contained in a concrete vault, although it also could be attached to a headwall at a pipe outfall. While runoff flows enter into the screens, they pass radially through the louvers and trap litter in the casing. A smooth bottom to convey litter to the end of the screen sections is required, so a segment of the circumference of each screen is uncovered. The louvered sections have access doors for cleaning by vacuum truck or other equipment. Under most placement conditions the goal would be to capture within the casing one year’s volume of

litter. This device has been configured with an overflow/bypass for larger storm events and if the unit becomes plugged.

Two Inclined Screen Devices have also been developed. Each device requires about 1-meter of hydraulic head and is better suited for fill sections. In the Type 1 device, the storm water runoff flows over the weir and falls through the inclined bar rack. The screen has five-mm maximum spacing between the bars. Flow passes through the screen and exits via the discharge pipe. The trough distributes influent over the inclined screen. Storm water pushes captured litter toward the litter storage area. The gross solids storage area is sloped to drain to prevent standing water. This device has been configured with an overflow/bypass for larger storm events and if the unit becomes plugged. It has a goal of litter capture and storage for one year. The Type 2 Inclined Screen only comes in a sloped sidewall version.

Full capture devices and treatment controls are highly effective to capture and retain trash when properly maintained. However, there are locations that might be infeasible to install treatment controls. The Department may elect to employ institutional controls, which are non-structural best management practices that may include street sweeping and anti-litter education and outreach programs. Street sweeping minimizes trash loading to the river by removing trash from streets and curbs. Maintaining a regular street sweeping schedule reduces the buildup of trash on streets and prevents trash from entering catch basins and the storm drain system. Street sweeping can also improve the appearance of roadways. There are at least three types of street sweepers the Department may employ: 1) mechanical, 2) vacuum filter, and 3) regenerative air sweepers. Public education can be an effective implementation alternative to reduce the amount of trash entering water bodies. The public is often unaware that trash littered on the street ends up in receiving waters, much less the cost of abating it. The Department may elect to continue to participate in educational programs like ‘Adopt-A-Highway’ and ‘Don’t Trash California’.

As specified in Attachment IV Section III.D.3, the Department shall submit an annual status report of the selected treatment and institutional control measures implemented to comply with the prohibition of discharge of trash. In addition to the annual status report, the Department should conduct a pilot survey to further determine highway characteristics and sections that should be included in the category of significant trash generating areas. The pilot study will further assure compliance with the prohibition of discharge and reduction of trash to receiving water bodies from high trash generation areas from the Department’s jurisdiction.

Ballona Creek Trash TMDL, August 1, 2002 and February 8, 2005

Final WLA

The numeric target for this TMDL is zero trash in the water. Storm drains were identified as a major source of trash. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final WLA Specific to the Department

The Department is assigned the following baseline WLAs of trash.

Weight (lbs/mile^2)	**Volume** (ft^3/mile^2)
7479.36	892.64

Final Deadlines

The implementation schedule for the MS4 and the Department permittees consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within twelve years from the effective date of the TMDL (September 30, 2015).

Department's Contribution (relative contribution to pollutant loading)

The Department's Baseline WLA relative to all other point sources (municipal permittees) is 13 percent.

Legg Lake Trash TMDL, February 27, 2008

Final WLA

The numeric target for this TMDL is zero trash in Legg Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash in Legg Lake. WLAs were assigned to the permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department

The Department is assigned the following baseline WLAs assuming a trash generation rate of 6677 (gallons of uncompressed litter per mile^2 per year).

Point Source Area (mile^2)	**Baseline WLA** (gal/yr)
0.09	586.92

Final Trash Deadlines
The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years from the effective date of the TMDL (March 6, 2016).

Department's Trash Contribution (relative contribution to pollutant loading)
The Department's Baseline WLA relative to all other point sources (municipal permittees) is 7.9 percent.

Los Angeles Area (Echo Park Lake) Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, and Trash TMDL, March 26, 2012

Final Trash WLA
The numeric target for this TMDL is zero trash in Echo Park Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash. WLAs could be assigned to permittees of the Los Angeles County MS4 permit and the Department.

The Department is estimated to have the following baseline WLAs assuming a trash generation rate of 6,677 (gallons of uncompressed litter per mile^2 per year).

Point Source Area (mile^2)	**Current Point Source Trash Load** (gal/yr)
0.022	150

Final Trash WLA Specific to the Department
No WLAs were assigned to the Department.

Final Trash Deadlines
There is no compliance and implementation schedule for the Echo Park Lake Trash TMDL.

Department's Trash Contribution (relative contribution to pollutant loading**)**
As there is no assigned WLA, the Department's contribution to the estimated point source trash loads is 16.7 percent.

Los Angeles Area (Peck Road Park) Lake Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash TMDL, March 26, 2012

Final Trash WLA
The numeric target for this TMDL is zero trash in Peck Road Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash. WLAs could be assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department
No WLAs were assigned to the Department.

Final Trash Deadlines
There is no compliance and implementation schedule for the Peck Road Park Lake Trash TMDL.

Department's Trash Contribution (relative contribution to pollutant loading**)**
As there are no assigned WLAs, the Department's contribution to the estimated point source trash loads is 3.9 percent or 950 gal/yr.

Los Angeles River Trash TMDL, December 24, 2008

Final Trash WLA
The numeric target for the Los Angeles River Watershed Trash TMDL is zero trash in the water. Storm drains were identified as a major source of trash in the Los Angeles River. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department
The Department is assigned the following baseline WLAs for trash.

WLA (gal)	**WLA** (lbs)
59421	66,566

Final Trash Deadlines
The implementation schedule for the MS4 and the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within seven years from the effective date of the TMDL (September 30, 2014).

Department's Trash Contribution (relative contribution to pollutant loading)
The Department's Baseline WLA relative to all other point sources (municipal permittees) is 11.8 percent.

Machado Lake Trash TMDL, February 27, 2008

Final Trash WLA
The numeric target for this TMDL is zero trash in Machado Lake and on the shoreline. Both point sources and nonpoint sources are identified as sources of trash in Machado Lake. WLAs were assigned to permittees of the Los Angeles County MS4 permit and the Department.

Final Trash WLA Specific to the Department
The Department is assigned the following baseline WLA assuming a trash generation rate of 5,334 (gallons of uncompressed litter per mile^2 per year).

Point Source Area (mile^2)	**Baseline WLA** (gal/yr)
0.63	4,215.84

Final Trash Deadlines
The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 6, 2016).
Department's Trash Contribution (relative contribution to pollutant loading)
The Department's Baseline WLA relative to all other point sources (municipal permittees) is 4.5 percent.

Malibu Creek Watershed Trash TMDL, June 26, 2009

Final Trash WLAs
The numeric target for the Malibu Creek Watershed Trash TMDL is zero trash in or on the water and on the shoreline. For point sources, zero means that no trash is discharged into the water body of concern, shoreline, and channels. Both point source and nonpoint sources of trash were identified in the water bodies in the Malibu Creek Watershed. For point sources, WLAs were assigned to permittees of the Los Angeles County MS4 permit and Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department
The Department is assigned the following WLAs assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile^2)	**Baseline WLA** (gal/yr)
0.32	10,813

Final Trash Deadlines
The implementation schedule for the MS4 and the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (July 7, 2017).

Department's Trash Contribution (relative contribution to pollutant loading)
The Department's Baseline WLA relative to all other point sources (municipal permittees) is 65.5. percent.

Revolon Slough and Beardsley Wash Trash TMDL, August 1, 2002, February 8, 2005, and February 27, 2008

Final Trash WLA
The numeric target for the Revolon Slough and Beardsley Wash TMDL is zero trash within Revolon Slough, Beardsley Wash and their tributaries. Both point source and nonpoint sources of trash were identified in the Revolon Slough and Beardsley Wash. For point sources, WLAs were assigned to permittees of the Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department
The Department is assigned the following WLA (gal/year) assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area ($mile^2$)	**Baseline WLA** (gal/yr)
1.68	11,215.45

Final Trash Deadlines
The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 6, 2016).

Department's Trash Contribution (relative contribution to pollutant loading)
The Department's Baseline WLA relative to all other point sources (municipal permittees) is 64.1 percent.

Santa Monica Bay Nearshore & Offshore Debris (trash and plastic pellets), March 20, 2012

Final Trash WLA
The numeric target for the Santa Monica Bay Debris TMDL is zero trash in Santa Monica Bay. For point sources, zero trash is defined as no trash discharged into water bodies within the Santa Monica Bay Watershed and into Santa Monica Bay or on the shoreline of Santa Monica Bay. For nonpoint sources, zero trash is defined as no trash on the shoreline or beaches, or in harbors adjacent to Santa Monica Bay. The numeric target for plastic pellets in the Santa Monica Bay Debris TMDL is zero plastic pellets in Santa Monica Bay. Both point source and nonpoint sources of trash were identified in Santa Monica Bay Nearshore and Offshore areas. For point sources, WLAs were assigned to permittees of the Los Angeles County MS4 permit and Ventura County MS4 permit and the Department.

Final Trash WLA Specific to the Department
The Baseline WLA for the Department was based on a trash generation rate of 33,452.8 gallons per mile^2 per year.

Point Source Area (mile^2)	Baseline WLA (gal/year)
1.08	36,129.0

Final Trash Deadlines
The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 12, 2020).

Department's Trash Contribution (relative contribution to pollutants)
The Department's Baseline WLA relative to all other point sources (municipal permittees) is 32.8 percent.

Ventura River Estuary Trash TMDL, February 27, 2008

Final Trash WLA
The numeric target for the Ventura River Estuary Trash TMDL is zero trash in or on the water and on the shoreline. Both point source and nonpoint sources of trash were identified in the Ventura River Estuary.

Final Trash WLA Specific to the Department
The Department is assigned the following WLAs assuming a trash generation rate of 640 (gallons of uncompressed litter).

Point Source Area (mile^2)	Baseline WLA (gal/yr)
0.31	2,049.86

Final Trash Deadlines
The implementation schedule for the Department consists of a phased approach with compliance to be achieved in prescribed percentages. Total compliance, 100 percent reduction of trash from the Baseline WLA, is to be achieved within eight years of the effective date of the TMDL (March 8, 2016).

Department's Trash Contribution (relative contribution to pollutants)
The Department's Baseline WLA relative to all other point sources (municipal permittees) is 34.8 percent.

E. Bacteria TMDL Pollutant Category

General Description of Pollutant Category

Receiving waters are often adversely affected by urban storm water runoff containing bacteria. Several reaches and tributaries have been impaired due to excessive amounts of coliform bacteria. There is a causal relationship between adverse health effects and recreational water quality, as measured by bacterial indicator densities. Fecal coliform bacteria may be introduced from a variety of sources including storm water runoff, dry-weather runoff, onsite wastewater and animal wastes. In addition, humans may be exposed to waterborne pathogens through recreation water use or by harvesting and consuming filter-feeding shellfish.

Attachment IV of this permit requires the Department to prioritize reaches, including those within watersheds under a bacteria TMDL, and then further to select each year the reaches for implementing control measures to address the highest priority reaches.

Sources of Pollutant & How it Enters the Waterway

Major contributors are flows and associated bacteria loading from storm water conveyance systems. The extent of bacteria loading from natural sources such as birds, waterfowl and other wildlife, however, are unknown as data does not exist to quantify the impact of wildlife on the waterbodies.

Watershed Contribution

The TMDLs in the Bacteria Pollutant Category show that the Department is a relatively minor source of pollutants.

Control Measures

This prioritization strategy will control the largest sources of bacteria first and allow for attainment of the applicable WLAs consistent with the bacteria TMDLs identified in Part E of Attachment IV. The Department must install structural and nonstructural controls utilizing BMPs to variously control dry weather discharges and wet weather discharges.

The Department has options that would be effective for controlling non-storm water runoff during dry weather. The Department is required to implement control measures to ensure that the effective prohibition of non-storm water discharges is implemented. This can be achieved through infiltration, diversion, or other methods. Generally, there should be no flow from areas during dry weather. Overwatering, broken sprinklers and irrigation pipes can be a source of dry weather flows. The Department can limit dry weather discharges by ensuring that broken sprinklers and irrigation pipes are fixed within 72 hours. To control overwatering and the resulting runoff, the Department could review watering schedules for irrigated areas on an annual basis.

To control runoff during wet weather, the Department should work with responsible agencies to jointly comply with the TMDL whenever possible. If the Department does not work with the other responsible agencies, non-structural and structural BMPs would be necessary.

Increasing infiltration through the slowing of runoff and improving soil structure and texture to encourage infiltration of storm water are non-structural ways to reduce runoff. In addition, structural BMPs like biofiltration strips, biofiltration swales and detention basis can work in concert with the non-structural BMPs to capture of the runoff.

Wet-weather flows for the most part impact water contact recreation beneficial uses (REC-1). The Department shall implement control measures to prevent or eliminate the discharge of bacteria from its ROW through a combination of source control and treatment BMPs. These treatment BMPs shall include retention/detention, infiltration, diversion of storm water or through preemptive activities such as sweeping, clean-up of illegal dumping, and public education on littering.

SAN FRANCISCO BAY BACTERIA TMDLS

Richardson Bay Pathogens TMDL, December 18, 2009

The TMDL identifies storm water runoff as a potential pathogen source, along with sanitary sewer systems and houseboats and vessel marinas. The Department is listed in the storm water runoff source category along with other implementing parties.

Final Pathogens WLA
The WLA for Fecal Coliform in the pollutant category of storm water runoff is a median of < 14 MPN/100 ml and a 90th percentile limit of <43 MPN/100 ml (no more than 10 percent of total samples during any 30-day period may exceed this number)

The implementation plan for storm water runoff has the following actions:

1. Implement applicable storm water management plan.
2. Update/amend storm water management plan, as appropriate, to include specific measures to reduce pathogen loading, including additional education and outreach efforts, and installation of additional pet waste receptacles.
3. Report progress on implementation of pathogen reduction measures to the Water Board.

For most pollutants, TMDLs are expressed on a mass-load basis (e.g., kilograms per year). For pathogen indicators such as fecal coliform, however, it is the number of organisms in a given volume of water (i.e., their density), and not their total number (or mass) that is significant with respect to public health risk and protection of beneficial uses. The density of fecal coliform organisms in a discharge and/or in the receiving waters is the technically relevant criteria for assessing the impact of discharges, water quality, and public-health risk. U.S. EPA guidance recommends establishing density-based TMDLs for pollutants that are not readily controllable on a mass basis. Therefore, we propose density-based TMDLs and pollutant load allocations, expressed in terms of fecal coliform concentrations.

Establishment of a density-based, rather than a mass-based, TMDL carries the advantage of eliminating the need to conduct a complex and potentially error-prone analysis to link loads and projected densities. A load-based pathogens TMDL would require calculation of acceptable loads based on acceptable bacterial densities and anticipated discharge volumes, and then back-calculation of expected densities under various load reduction scenarios. Since discharge volumes in Richardson Bay are highly variable and difficult to measure, such an analysis would inevitably involve a great deal of uncertainty with no increased water quality benefit.

Pathogen WLA Specific to the Department
As stated in the TMDL, the Department's wasteload allocations for discharges from municipal separate storm sewers are set by NPDES permits No. CAS000004 [Storm Water Discharges from Small Municipal Separate Storm Sewer Systems (MS4s)] and CAS000003 (National Pollutant Discharge Elimination System (NPDES) Statewide Storm Water Permit Waste Discharge Requirements (WDRs) for State Of California Department Of Transportation).

Final Pathogens Deadline
The completion date for these implementation actions is "as specified in approved storm water management plan and in applicable NPDES permit." Region 2 does not anticipate that the Department's storm water management plan will need to be revised because they believe that the source of bacteria in highway runoff is wildlife.

The TMDL also notes that in 2013, the Water Board will evaluate monitoring results and assess progress towards attaining TMDL targets and load allocations.

Department's Pathogens Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pathogen pollutant loading is not known.

San Pedro and Pacifica State Beach Bacteria TMDL, August 1, 2013

The San Pedro and Pacifica State Beach Bacteria TMDL was developed by the San Francisco Bay Regional Water Quality Control Board and approved by U.S. EPA on August 1, 2013. The TMDL identifies sanitary sewer systems, horse facilities and municipal storm water runoff and dry weather flows as sources that have the potential to discharge bacteria, if not properly managed, to San Pedro Creek and Pacifica State Beach.

Final Bacteria WLA
The TMDL established a desired, or target condition for the water contact recreation use in San Pedro Creek and at Pacifica State Beach based on the water quality objectives for indicator bacteria. The wasteload allocations are based on the water quality objectives shown in the table below:

Bacteriological Water Quality Objectives for San Pedro Creek and Pacifica State Beach		
Indicator Type	**Pacifica State Beach (Marine REC-1)** MPN/100 mL	**San Pedro Creek (Freshwater REC-1)** MPN/100 mL[1]
	Single Sample Maximum	**90th Percentile/No Sample Greater Than**
E. coli	NA	235
Fecal Coliform	400	400
Enterococcus	104	NA
Total Coliform	10,000[2]	10,000
	Geometric Mean[3]	**Geometric Mean/Log Mean/Median**
E. coli	NA	
Fecal Coliform	200	126
Enterococcus	35	200
Total Coliform	1,000	NA
		240

Notes:
1. Based on a minimum of five consecutive samples equally spaced over a 30-day period.
2. Total coliform density shall not exceed 1,000/100 ml, if the ratio of fecal-to-total coliform exceeds 0.1.
3. Calculated based on the five most recent samples from each site during a 30-day period.

NA: not applicable.

For this TMDL, a reference system and antidegradation approach has been incorporated the wasteload allocations as an allowable number of times that the water quality objectives can be exceeded. The following table lists the allowable exceedances:

Numeric Targets, TMDLs and Allocations Based on Allowable Exceedances of Single-Sample Objective for San Pedro Creek and Pacifica State Beach					
	San Pedro Creek		**Pacifica State Beach**		
	Dry Weather	**Wet Weather[5]**	**Summer Dry Weather** (Apr. 1 - Oct. 31)	**Winter Dry Weather** (Nov. 1 - Mar. 31)	**Wet Weather[5]**
Allowable Exceedances of Single-Sample Objectives (assuming daily sampling is conducted) [1,2,3]	4	26	0	2	30
Allowable Exceedances of Single-Sample	1	4	0	1	5

Numeric Targets, TMDLs and Allocations Based on Allowable Exceedances of Single-Sample Objective for San Pedro Creek and Pacifica State Beach					
	San Pedro Creek		Pacifica State Beach		
	Dry Weather	**Wet Weather[5]**	**Summer Dry Weather** (Apr. 1 - Oct. 31)	**Winter Dry Weather** (Nov. 1 - Mar. 31)	**Wet Weather[5]**
Objectives (assuming weekly sampling is conducted)[4]					

Notes:
1. Allowable exceedances are calculated by multiplying exceedance rates observed in the reference system(s) by the number of days during each respective period in the reference year (1994).
2. To end up with whole numbers, where the fractional remainder for the calculated allowable exceedance days exceeds 0.1, then the number of days is rounded up.
3. The calculated number of exceedance days assumes that daily sampling is conducted.
4. To determine the allowable number of exceedance events given a weekly sampling regime, as practiced for monitoring San Pedro Creek and Pacifica State Beach, the number of exceedance days was adjusted by solving for "X" in the following equation: X = (exceedance days x 52 weeks) / 365 days.
5. Wet weather is defined as any day with 0.1 inches of rain or more and the following three days.

Final Bacteria Deadlines

The TMDLs, load allocations and wasteload allocations for Pacifica State Beach shall be attained within eight years of the effective date of the TMDL (August 1, 2021). The TMDLs, load allocations and wasteload allocations to San Pedro Creek shall be attained within 15 years of the effective Date of the TMDL (August 1, 2028).

Storm water discharges from the Department's stretch of Highway 1 crossing the northwestern edge of the San Pedro Creek watershed are not a significant source of indicator bacteria because that section of the highway does not include any typical bacteria-generating sources such as homeless encampments, restroom facilities, garbage bins, etc. The Department's existing BMPs and storm water NPDES permit requirements, as of the effective date of the TMDL (August 1, 2013), are sufficient to attain and maintain its portion of the wasteload allocation.

Department's Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is not known.

Ballona Creek, Ballona Estuary, and Sepulveda Channel Bacteria TMDL, March 26, 2007

Final Bacteria WLA
The Department is noted as a source of storm water runoff. The Department and municipal storm water permittees and co-permittees are assigned waste load allocations (WLAs) expressed as the number of daily or weekly sample days that may exceed the single sample targets equal to the TMDLs established for the impaired reaches and WLA assigned to waters tributary to impaired reaches. The County of Los Angeles, the Department, and the Cities of Los Angeles, Culver City, Beverly Hills, Inglewood, West Hollywood, and Santa Monica are the responsible jurisdictions and responsible agencies for the Ballona Creek Watershed.

For the single sample objectives of the impaired REC-1 and LREC-1 reaches, the proposed WLA for summer dry-weather is zero (0) days of allowable exceedances, and those for winter dry-weather and wet-weather are three (3) days and seventeen (17) days of exceedance, respectively. In the instances where more than one single sample objective applies, exceedance of any one of the limits constitutes an exceedance day. The proposed waste load allocation for the rolling 30-day geometric mean for the responsible agencies and jurisdictions is zero (0) days of allowable exceedances.

For the single sample objectives of the impaired REC-2 reach, the proposed WLA for all periods is a 10 percent exceedance frequency of the REC-2 single sample water quality objectives. The proposed waste load allocation for the rolling 30-day geometric mean for the responsible agencies and jurisdictions is zero (0) days of allowable exceedances.

In addition to assigning TMDLs for the impaired reaches, Waste Load Allocations and Load Allocations are assigned to the tributaries to these impaired reaches. These WLAs and LAs are to be met at the confluence of each tributary and its downstream reach (see Table 7.21.2b of Attachment A to Resolution No. 2006-011). See Chapter 3 of Region 4's Basin Plan for bacteriological objectives for Water Contact Recreation for Marine and Fresh Waters, for Limited Water Contact Recreation and for Non-contact Water Recreation.

Final Bacteria WLA Specific to the Department
There is no specific WLA assigned to the Department. The responsible jurisdictions and responsible agencies within the watershed are jointly responsible for complying with the waste load allocation in each reach.

Final Bacteria Deadlines
See Final WLA above.

Department's Bacteria Contribution (relative contribution to pollutant loading)
The Department's jurisdiction within the cities and unincorporated areas in the Ballona Creek Watershed totals 1206 acres. This equals 1.5 percent of the watershed.

Long Beach City Beaches Indicator Bacteria TMDL, March 26, 2012

The TMDL identifies storm water runoff from the Department's properties such as the highway system, park and ride facilities, and maintenance yards as a potential source of bacteria. The Department has jurisdiction of some areas in the Los Angeles River (LAR) Estuary direct drainage, but not in the Long Beach City beaches direct drainage.

Final Bacteria WLA
To implement the single sample bacteria water quality objectives (total coliform, fecal coliform, enterococcus, and fecal-to-total coliform ratio) for waters designated REC-1, an allowable number of exceedance days for three seasons (summer dry, winter dry and winter wet) is set for marine waters using a reference system/anti-degradation approach. This approach ensures that bacteriological water quality is at least as good as that of a reference system and that no degradation of the existing bacteriological water quality is permitted where the existing condition is better than that of the selected reference system(s). The exceedance days are used to set load allocations (LA) and waste load allocations (WLAs) in these TMDLs.

Storm water systems covered under the City of Long Beach, Los Angeles County and the Department's MS4 permits are assigned WLAs in the form of exceedance days. During summer dry conditions, reductions in exceedance days are estimated to be 13-120 days during a 120 day period (11 percent to 100 percent of the time), depending on the location of the monitoring site. During winter wet conditions, reductions in exceedance days are estimated to be 11-45 days during a 75-day period (15 percent to 60 percent of the time) depending on the location of the monitoring site. During winter dry conditions, reductions in exceedance days are estimated to be 0-11 days during an 80 day period (zero (0) percent to 14 percent of the time) depending on the location of the monitoring site.

Final Bacteria WLA Specific to the Department
See Final WLA above.

Final Bacteria Deadlines
As this TMDL was established by U.S. EPA, U.S. EPA only described recommendations to the Regional Board that could be used. No timelines were noted.

Department's Bacteria Contribution (relative contribution to pollutant loading)
The loading of bacteria specifically from the Department's properties has not been determined in the LAR Estuary direct drainage. However a conservative estimate of 128 acres or approximately two percent of the LAR Estuary drainage area is noted in the TMDL.

Los Angeles River Watershed Bacteria, March 23, 2012

Final Bacteria WLA

The Los Angeles River Watershed Bacteria TMDL was developed by the Los Angeles Regional Water Quality Control Board and approved by U.S. EPA. The TMDL identifies storm water from the MS4 Permittees (the Department along with the County of Los Angeles and the Incorporated Cities therein and the City of Long Beach) as the principal source of bacteria in both dry weather and wet weather.

Final Bacteria WLA Specific to the Department

This TMDL uses a "reference system/anti-degradation approach" to implement the water quality objectives per the implementation provisions in Chapter 3 of the Basin Plan. On the basis of the historical exceedance frequency at Southern California reference reaches, a certain number of daily exceedances of the single sample bacteria objectives are permitted. The allowable number of exceedance days is set such that (1) bacteriological water quality at any site is at least as good as at the reference site(s) and (2) there is no degradation of existing bacteriological water quality. This approach recognizes that there are natural sources of bacteria that may cause or contribute to exceedances of the single sample objectives and that it is not the intent of the Regional Board to require treatment or diversion of natural coastal creeks or to require treatment of natural sources of bacteria from undeveloped areas.

For MS4 dischargers, the final dry-weather WLAs and wet-weather WLA for the single sample targets are listed below**:**

Allowable Number of Exceedance Days	Daily Sampling	Weekly Sampling
Dry Weather	5	1
Non-High Flow Suspension (HFS) Waterbodies Wet Weather	15	2
HFS Waterbodies Wet Weather	10 (not including HFS days)	2 (not including HFS days)

The final WLAs for the geometric mean target during any time at any river segment and tributary in the Los Angeles River Watershed is zero (0) days of allowable exceedances.

Final Bacteria Deadlines

The Department has from 8.5 to 25 years (September 23, 2020 to March 23, 2037) to achieve final WLAs depending on the segment of the waterbody. Table 7-39.3 in Attachment A to Resolution No. R10-007 lists other interim implementation compliance dates.

Department's Bacteria Contribution (relative contribution to pollutant loading)
The Department's MS4 permit covers approximately 6,950 acres, which is equivalent to around one percent of the urban watershed.

Malibu Creek and Lagoon Bacteria TMDL, June 7, 2012

The TMDL identifies on-site wastewater treatment plants, storm water runoff, dry weather runoff and wildlife (birds) as possible sources of bacterial contamination.

Final WLA
Malibu Creek and Lagoon Bacteria TMDL: Final Annual Allowable Exceedance Days for Single Sample Limits by Sampling Location

Compliance Deadline		January 24, 2012		July 15, 2021	
Station ID	Location Name	Dry Weather ^		Wet Weather ^	
		Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling
LA RWQCB	**Triunfo Creek**	5	1	15	2
LA RWQCB	**Lower Las Virgenes Creek**	5	1	15	2
LA RWQCB	**Lower Medea Creek**	5	1	15	2
LVMWD (R-9)	**Upper Malibu Creek, above Las Virgenes Creek**	5	1	15	2
LVMWD (R-2)	**Middle Malibu Creek, below Tapia discharge 001**	5	1	15	2
LVMWD (R-3)	**Lower Malibu Creek, 3 mi below Tapia**	5	1	15	2
LVMWD (R-4)	**Malibu Lagoon, above PCH**	5	1	15	2
LVMWD (R-11)	**Malibu Lagoon, below PCH**	9*	2*	17	3
	Other sampling stations as identified in the Compliance Monitoring Plan as approved by the Executive Officer including at least one sampling station in each subwatershed, and areas where frequent REC-1 use is known to occur.	5	1	15	2

Compliance Deadline		January 24, 2012		July 15, 2021	
Station ID	Location Name	Dry Weather ^		Wet Weather ^	
		Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling

Notes:
The number of allowable exceedances is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical monitoring data.
The allowable number of exceedance days is calculated based on the 90th percentile storm year in terms of wet days at the LAX meteorological station.
^ A dry day is defined as a non-wet day.
A wet day is defined as a day with a 0.1 inch or more of rain and the three days following the rain event.
* The number of allowable exceedance days is for the winter dry-weather period. No exceedance days are allowed for the summer dry-weather period.

Final Bacteria WLA Specific to the Department
No exceedances are allowed for the geometric mean limits. The allowable days of exceedance for the single sample limits differ depending on season, dry weather or wet weather, and by sampling locations as described in the Table above (Malibu Creek and Lagoon Bacteria TMDL: Final Annual Allowable Exceedance Days for Single Sample Limits by Sampling Location

Final Bacteria Deadlines
This TMDL will be implemented in two phases as outlined in the TMDL. By January 24, 2012, compliance with the allowable number of dry-weather exceedance days must be achieved. By July 15, 2021, compliance with the allowable number of wet-weather exceedance days and the geometric mean targets must be achieved.

Department's Bacteria Contribution (relative contribution to pollutant loading**)**
The Department's relative contribution to bacteria pollutant loading is not known.

Marina del Rey Harbor (MdRH) Mother's Beach and Back Basin Bacteria TMDL, March 18, 2004, revised November 7, 2013

The TMDL identifies dry-weather urban runoff and storm water conveyed by storm drains as the primary sources of elevated bacterial indicator densities to MdRH Mothers' Beach and back basins during dry and wet weather. Potential sources of bacterial contaminations at Mothers' Beach and the back basins of MdRH include marina activities such as waste disposal from boats, boat deck and slip washing, swimmer "wash-off," restaurant washouts and natural sources from birds, waterfowl and other wildlife.

Final Bacteria WLA
Implementation of the bacteria objectives and the associated TMDL numeric targets is achieved using a "reference system/anti-degradation approach" as set forth in Chapter 3 of

the Basin Plan. As required by the Clean Water Act and California Water Code, Basin Plans include beneficial uses of waters, water quality objectives to protect those uses, an anti-degradation policy, collectively referred to as water quality standards, and other plans and policies necessary to implement water quality standards. This TMDL and its associated waste load allocations, which shall be incorporated into relevant permits, and load allocations are the vehicles for implementation of the Region's standards.

The geometric mean targets may not be exceeded at any time. For purposes of this TMDL, the geometric means shall be calculated weekly as a rolling geometric mean using five or more samples, for six week periods starting all calculation weeks on Sunday. For the single sample targets, each existing monitoring site is assigned an allowable number of exceedance days for three time periods: (1) summer dry-weather (April 1 to October 31), (2) winter dry-weather (November 1 to March 31), and (3) wet-weather (defined as days with 0.1 inch of rain or greater and the three days following the rain event).

The County of Los Angeles, Los Angeles County Flood Control District, City of Los Angeles, and Culver City are the Los Angeles County MS4 permittees identified as the responsible jurisdictions and responsible agencies for the Marina del Rey Watershed. All proposed WLAs for summer dry weather are zero (0) days of allowable exceedances.[24] The proposed WLAs for winter dry weather and wet weather vary by monitoring location as identified in the following table:

Marina del Rey Harbor Mothers' Beach and Back Basins Bacteria TMDL: Final Allowable Exceedance Days by Sampling Location

Compliance Deadline		**March 18, 2007**		**March 18, 2007**		**July 15, 2021**	
		Summer Dry Weather ^		**Winter Dry Weather ^**		**Wet Weather ^**	
		Apr 1 – Oct 31		Nov 1 – Mar 31		Nov 1 – Oct 31	
Station ID	**Location Name**	**Daily sampling** (No. days)	**Weekly sampling** (No. Days)	**Daily sampling** (No. days)	**Weekly sampling** (No. days)	**Daily sampling** (No. days)	**Weekly sampling** (No. days)
MdRH-1	**Mothers' (Marina) Beach, at playground area**	0	0	9	2	17	3

[24] In order to fully protect public health, no exceedances are permitted at any monitoring location during summer dry-weather (April 1 to October 31). In addition to being consistent with the two criteria, waste load allocations of zero (0) days of allowable exceedances are further supported by the fact that the California Department of Public Health has established minimum protective bacteriological standards – the same as the numeric targets in this TMDL – which, when exceeded during the period April 1 to October 31, result in posting a beach with a health hazard warning (California Code of Regulations, Title 17, Section 7958).

Compliance Deadline		March 18, 2007		March 18, 2007		July 15, 2021	
		Summer Dry Weather ^		Winter Dry Weather ^		Wet Weather ^	
		Apr 1 – Oct 31		Nov 1 – Mar 31		Nov 1 – Oct 31	
MdRH-2	**Mothers' (Marina) Beach, at lifeguard tower**	0	0	9	2	17	3
MdRH-3	**Mothers' (Marina) Beach, between lifeguard tower and boat dock**	0	0	9	2	17	3
MdRH-4	**Basin D, near first slips outside swim area**	0	0	9	2	17	3
MdRH-5	**Basin E, in front of tide-gate from Oxford Basin**	0	0	9	2	17	3
MdRH-6	**Basin E, center of basin**	0	0	9	2	17	3
MdRH-7	**Basin E, in front of Boone-Olive Pump Outlet**	0	0	9	2	17	3
MdRH-8	**Back of Main Channel**	0	0	9	2	17	3
MdRH-9	**Basin F, center of basin**	0	0	9	2	8	1

Compliance Deadline	March 18, 2007	March 18, 2007	July 15, 2021
	Summer Dry Weather ^	Winter Dry Weather ^	Wet Weather ^
	Apr 1 – Oct 31	Nov 1 – Mar 31	Nov 1 – Oct 31

Notes:

The number of allowable exceedances is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical monitoring data.

The allowable number of exceedance days during winter dry-weather is calculated based on the 10th percentile storm year in terms of dry days at the LAX meteorological station.

The allowable number of exceedance days during wet-weather is calculated based on the 90th percentile storm year in terms of wet days at the LAX meteorological station.

^ A dry day is defined as a non-wet day.

A wet day is defined as a day with a 0.1 inch or more of rain and the three days following the rain event.

Final Bacteria WLA Specific to the Department

See Final WLA above.

Final Bacteria Deadlines

This TMDL will be implemented over an 18-year period. By March 18, 2007, there shall be no allowable exceedances of the single sample limits at any location during summer dry weather (April 1 to October 31) or winter dry weather (November 1 to March 31). By July 15, 2021, compliance with the allowable number of wet weather exceedance days and the geometric mean targets must be achieved.

Department's Bacteria Contribution (relative contribution to pollutant loading**)**

The Department's jurisdiction covers one percent of the watershed.

Santa Clara River Estuary and Reaches 3, 5, 6, and 7 Indicator Bacteria TMDL, January 13, 2012

The TMDL identifies dry- and wet-weather urban runoff discharges from the storm water conveyance systems as significant contributors of bacteria loading to the Santa Clara River and Estuary. Mass emission data collected by MS4 Permittees show elevated levels of bacteria in the river. Data from natural landscapes in the region indicate that open space loading is not a significant source of bacteria.

Final Bacteria WLA

The Statewide Storm Water Permit for Department Activities (CAS000003) are assigned WLAs of zero (0) allowable exceedance days of the single sample targets for both dry and wet weather and no exceedances of the geometric mean targets because they are not expected to be significant source of indicator bacteria. Compliance with an effluent limit based on the bacteria water quality objectives will be used to demonstrate compliance with the WLA.

Final Bacteria WLA Specific to the Department
See Final WLA above.

Final Deadlines
The TMDL states that WLAs assigned to the Department's permit must be attained on the effective date of the TMDL.

Department's Contribution (relative contribution to pollutant loading)
The Department's relative contribution to pollutant loading is unknown.

Santa Monica Bay Beaches Bacteria TMDL June 19, 2003, Revised November 7, 2013

Final WLA
With the exception of isolated sewage spills, dry weather urban runoff and storm water runoff conveyed by storm drains and creeks is the primary source of elevated bacterial indicator densities to Santa Monica Beaches (SMB). Limited natural runoff and groundwater may also potentially contribute to elevated bacterial indicator densities during winter dry weather. Because the bacterial indicators used as targets in the TMDL are not specific to human sewage, storm water runoff from undeveloped areas may also be a source of elevated bacterial indicator densities. For example, storm water runoff from natural areas may convey fecal matter from wildlife and birds or bacteria from soil. This is supported by the finding that, at the reference beach, the probability of exceedance of the single sample targets during wet weather is 0.22.

Implementation of the bacteria objectives in Chapter 3 of the Basin Plan and the associated TMDL numeric targets is achieved using a "reference system/anti-degradation approach" rather than the alternative "natural sources exclusion approach" or strict application of the single sample objectives. As required by the Clean Water Act and Porter-Cologne Water Quality Control Act, Basin Plans include beneficial uses of waters, water quality objectives to protect those uses, an anti-degradation policy, collectively referred to as water quality standards, and other plans and policies necessary to implement water quality standards. This TMDL and its associated waste load allocations, which shall be incorporated into relevant permits, and load allocations are the vehicles for implementation of the Region's standards.

The geometric mean targets may not be exceeded at any time. For the single sample targets, each existing shoreline monitoring site is assigned an allowable number of exceedance days during three time periods as defined in the table below (summer dry weather, winter dry weather, and wet weather [defined as days with 0.1 inch of rain or greater and the three days following the rain event]). The allowable exceedance days for each associated shoreline monitoring site are identified in the following table:

Allowable Number of Days that may Exceed any Single Sample Bacterial Indicator Target for Existing Shoreline Monitoring Stations

Compliance Deadline			15-Jul-06		1-Nov-09		15-Jul-21	
			Summer Dry Weather^		Winter Dry Weather^		Wet Weather Year-round	
Station ID	Location Name	Subwatershed	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
SMB 1-1	**Leo Carillo Beach (REFERENCE**	**Arroyo Sequit**	**0**	**0**	**9**	**2**	17	3
SMB 1-2	El Pescador State Beach	Los Alisos	0	0	1	1	5	1
SMB 1-3	El Matador State Beach	Encinal Canyon	0	0	1	1	3	1
SMB 1-4	Trancas Creek	Trancas Canyon	0	0	9	2	17	3
SMB 1-5	Zuma Creek	Zuma Canyon	0	0	9	2	17	3
SMB 1-6	Walnut Creek	Ramirez Canyon	0	0	9	2	17	3
SMB O-1#	Paradise Cove	Ramirez Canyon	0	0	9	2	15	3
SMB 1-7	Ramirez Creek	Ramirez Canyon	0	0	9	2	17	3
SMB 1-8	Escondido Creek	Escondido Canyon	0	0	9	2	17	3
SMB 1-9	Latigo Canyon Creek	Latigo Canyon	0	0	9	2	17	3
SMB 1-10	Solstice Creek	Solstice Canyon	0	0	5	1	17	3
SMB O-2#	Puerco Canyon storm drain	Corral Canyon	0	0	0	0	6	1
SMB 1-11	Wave wash of unnamed creek on Puerco Beach	Corral Canyon	0	0	9	2	17	3
SMB 1-12	Marie Canyon Storm Drain on	Corral Canyon	0	0	9	2	17	3
SMB 1-13	Sweetwater Creek on Carbon	Carbon Canyon	0	0	9	2	17	3
SMB 1-14	Las Flores Creek	Las Flores	0	0	6	1	17	3
SMB 1-15	Big Rock Beach at 19948 Pacific	Piedra Gorda	0	0	9	2	17	3
SMB 1-16	Pena Creek	Pena Canyon	0	0	3	1	14	2
SMB 1-17	Tuna Canyon Creek	Tuna Canyon	0	0	7	1	12	2
SMB 1-18	Topanga Creek	Topanga Canyon	0	0	9	2	17	3
SMB 4-1	San Nicholas Canyon Creek	Nicholas Canyon	0	0	4	1	14	2
SMB 2-1	Castlerock (Parker Mesa) Storm	Castlerock	0	0	9	2	17	3
SMB 2-2	Santa Ynez Storm Drain	Santa Ynez	0	0	9	2	17	3
SMB 2-3	Will Rogers State Beach at 17200	Santa Ynez	0	0	9	2	17	3
SMB 2-4	Pulga Canyon storm drain	Pulga Canyon	0	0	9	2	17	3
SMB 2-5	Temescal Storm Drain	Pulga Canyon	0	0	9	2	17	3
SMB 2-6	Bay Club Storm Drain	Santa Ynez	0	0	9	2	17	3
SMB 2-7	Santa Monica Canyon, Will	Santa Monica	0	0	9	2	17	3
SMB 2-8	Venice Pier, Venice	Ballona	0	0	9	2	17	3
SMB 2-9	Topsail Street extended	Ballona	0	0	9	2	17	3
SMB 2-10	Dockweiler State Beach at Culver	Dockweiler	0	0	9	2	17	3
SMB 2-11	North Westchester Storm Drain	Dockweiler	0	0	0	0	17	3
SMB 2-12	World Way extended	Dockweiler	0	0	9	2	17	3
SMB 2-13	Imperial Highway storm drain	Dockweiler	0	0	4	1	17	3
SMB 2-14	Opposite Hyperion Plant, 1 mile	Dockweiler	0	0	9	2	17	3
SMB 2-15	Grand Avenue Storm Drain	Dockweiler	0	0	9	2	17	3

Compliance Deadline			15-Jul-06		1-Nov-09		15-Jul-21	
			Summer Dry Weather^		Winter Dry Weather^		Wet Weather Year-round	
Station ID	Location Name	Subwatershed	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)	Daily sampling (No. days)	Weekly sampling (No. days)
SMB 3-1	Montana Ave. Storm Drain	Santa Monica	0	0	9	2	17	3
SMB 3-2	Wilshire Blvd., Santa Monica	Santa Monica	0	0	9	2	17	3
SMB 3-3	Santa Monica Municipal Pier at	Santa Monica	0	0	9	2	17	3
SMB 3-4	Santa Monica Beach at	Santa Monica	0	0	9	2	17	3
SMB 3-5	Ashland Av. storm drain (Venice)	Santa Monica	0	0	9	2	17	3
SMB 3-6	Rose Ave. Storm Drain on	Santa Monica	0	0	6	1	17	3
SMB 3-7	Venice City Beach at Brooks	Ballona	0	0	9	2	17	3
SMB 3-8	Venice Pavilion at projection of	Ballona	0	0	9	2	17	3
SMB 3-9	Strand Street extended	Santa Monica	0	0	9	2	17	3
SMB 5-1	Manhattan State Beach at 40th	Hermosa	0	0	1	1	4	1
SMB 5-2	Terminus of 28th Street Drain in	Hermosa	0	0	9	2	17	3
SMB 5-3	Manhattan Beach Pier	Hermosa	0	0	3	1	6	1
SMB 5-4	Near 26th Street on Hermosa	Hermosa	0	0	3	1	12	2
SMB 5-5	Hermosa Beach Pier	Hermosa	0	0	2	1	8	2
SMB 6-1	Herondo Storm Drain	Redondo	0	0	9	2	17	3
SMB 6-2	Redondo Municipal Pier - 100	Redondo	0	0	3	1	14	2
SMB 6-3	4' x 4' outlet at projection of	Redondo	0	0	5	1	17	3
SMB 6-4	120' north of Topaz groin	Redondo	0	0	9	2	17	3
SMB 6-5	Storm Drain at Projection of	Redondo	0	0	4	1	11	2
SMB 6-6	Malaga Cove, Palos Verdes	Redondo	0	0	1	1	3	1
SMB 7-1	Malaga Cove	Palos Verdes	0	0	1	1	14	2
SMB 7-2	Bluff Cove	Palos Verdes	0	0	1	1	0	0
SMB 7-3	Long Point	Palos Verdes	0	0	1	1	5	1
SMB 7-4	Abalone Cove	Palos Verdes	0	0	0	0	1	1
SMB 7-5	Portuguese Bend Cove	Palos Verdes	0	0	1	1	2	1
SMB 7-6	Royal Palms	Palos Verdes	0	0	1	1	6	1
SMB 7-8	Wilder Annex	Palos Verdes	0	0	1	1	2	1
SMB 7-9	Outer Cabrillo Beach	Palos Verdes	0	0	1	1	3	1
SMB MC-1	Malibu Point, Malibu Colony Dr.	Malibu Canyon	0	0	9	2	17	3
SMB MC-2	Surfrider Beach (breach point of	Malibu Canyon	0	0	9	2	17	3
SMB MC-3	Malibu Pier on Carbon Beach	Malibu Canyon	0	0	9	2	17	3

Notes: The allowable number of exceedance days during winter dry weather is calculated based on the 10th percentile year in terms of non-wet days at the LAX meteorological station.
The number of allowable exceedances during winter dry weather is based on the lesser of (1) the reference system or (2) existing levels of exceedance based on historical shoreline data.
^Dry weather days are defined as those with <0.1 inch of rain and those days not less than 3 days after a rain day. Rain days are defined as those with >=0.1 inch of rain.
Detailed descriptions of the sampling locations are provided in the Santa Monica Bay Beaches Bacterial TMDLs Coordinated Shoreline Monitoring Plan.
#Monitoring began in 2010 and data was examined from April 2010 to November 2011

Final Bacteria WLA Specific to the Department
See Final WLA above.

Final Bacteria Deadlines
The final implementation targets in terms of allowable wet-weather exceedance days must be achieved at each individual beach location no later than July 15, 2021.

Department's Contribution (relative contribution to pollutant loading)
The Department's relative contribution to bacteria pollutant loading is not known.

COLORADO RIVER REGION BACTERIA TMDL

Coachella Valley Storm Water Channel (CVSC) Bacterial Indicators TMDL, April 27, 2012

The TMDL identifies flows from urban MS4s as violating applicable water quality objectives for REC l and REC II. Birds and other animals are possible sources of bacteria in the CVSC.

Final Bacterial Indicator WLA
Wasteload allocations (WLAs) for bacteria indicator dischargers into CVSC are described below:

Allocation Type	Discharger	E. Coli Allocations
Point Source (WLAs)	Department	A log mean (Geomean) of the MPN of ≤126/100ml (based on a minimum of not less than five samples during a 30-day period), or 400 MPN/100ml for a single sample.

Final Bacterial Indicator WLA Specific to the Department
See Final WLA above.

Final Bacterial Indicator Deadlines
The final implementation targets in terms of allowable wet-weather exceedance days must be achieved at each individual beach location no later than July 15, 2021.

Department's Bacterial Indicator Contribution (relative contribution to pollutant loading)
The Department's relative contribution to bacteria pollutant loading is not known.

Project I – Twenty Beaches and Creeks in the San Diego Region (including Tecolote Creek) TMDL, June 22, 2011

The TMDL identifies dry and wet weather runoff as the source of bacterial loading.

Final Indicator Bacteria WLA
In general, controllable point and nonpoint sources generating less than five percent of the total loads (e.g., The Department and/or Agriculture) were assigned WLAs and LAs equal to their existing loads, resulting in no load reduction requirements.

The dry weather mass-load based TMDLs were assigned entirely to discharges from MS4 land uses because the runoff that transports bacteria to surface waters during dry weather is expected to occur in urban areas. The allocation of the dry weather mass-based TMDL assumes that no surface runoff discharge to receiving waters occurs from the Department, Agriculture, or Open Space land use categories (i.e., $WLA_{Caltrans} = 0$, $LA_{Agriculture} = 0$, and $LA_{OpenSpace} = 0$) , meaning the entire dry weather mass-based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., WLA_{MS4} = TMDL).

For the wet weather TMDLs, discharges of surface runoff are expected from all land use types, thus allocations were assigned to each land use category (i.e., Municipal MS4s, the Department, Agriculture, and Open Space). The Department's wet weather WLAs were set equal to existing loads, since the Department's discharges were found to account for less than 1 percent of the wet weather load. Allocations were assigned based on discharges of "existing" bacteria loads predicted with a wet weather watershed model. In general, the Department WLAs, Agriculture LAs (in all but four of the modeled watersheds), and Open Space LAs were set equal to the "existing" bacteria loads predicted by the wet weather watershed model. The remainder of allowable bacteria load that can be discharged to the receiving waters as part of the TMDL was assigned as the Municipal MS4s WLAs (or proportionally divided between the Municipal MS4s and Agriculture land use categories in four of the modeled watersheds).

Final Indicator Bacteria WLA Specific to Department
See Final WLA above.

Final Indicator Bacteria Deadlines
TMDL Compliance Schedule: Full implementation of the TMDLs for indicator bacteria shall be completed within 10 to 20 years (April 4, 2021 to April 4, 2031) from the effective date of the Basin Plan amendment. The compliance schedule for implementing the load and wasteload reductions required to achieve the wet weather and dry weather TMDLs is phased in over time.

The dry weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years (April 4, 2021) from the effective date of the Basin Plan amendment

that establishes the TMDLs. For dischargers that undertake wet weather load reduction programs only for bacteria, the wet weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years (April 4, 2021) from the effective date.

For dischargers in watersheds that undertake concurrent wet weather load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, an alternative compliance schedule may be proposed and incorporated by the San Diego Water Board into the implementing orders. The wet weather TMDL compliance schedules may be extended, but no more than a total of 20 years (April 4, 2031) from the effective date of the Basin Plan amendment. The dry weather TMDL compliance schedule cannot be extended to be more than 10 years (April 4, 2021) from the effective date of the Basin Plan amendment.

Department's Indicator Bacteria Contribution (relative contribution to pollutant loading)

The Department's relative contribution to bacteria pollutant loading is unknown.

F. Diazinon TMDL Pollutant Category

General Description of Pollutant Category
Diazinon is an organophosphate insecticide has been banned for residential use; it is still used in agriculture.

Sources of Pollutant & How it Enters the Waterway
It is a broad spectrum contact insecticide. Residential use was for general-purpose gardening use and indoor pest control of ants, fleas, cockroaches, silverfish, mosquitos and spiders in residential, non-food buildings.

Watershed Contribution
The Department does not use Diazinon. The Department is identified as a source of Diazinon because they own and operate storm water conveyance systems in association with roadways and facilities. In some areas the Department's storm water systems are connected to municipal storm water systems.

Control Measures
Attachment IV, Section III.F, prohibits the discharge of Diazinon. This prohibition is consistent with the TMDLs for Diazinon which generally limit the discharge of this pesticide to non-toxic levels. Since the Department does not use Diazinon it is in compliance with the prohibition of discharge. Attachment IV, Part F does not require additional monitoring beyond what is specified in the permit.

SAN FRANCISCO BAY REGION DIAZINON TMDL

San Francisco Bay Urban Creeks Diazinon and Pesticide Toxicity May 16, 2007

The TMDL states that most urban runoff flows through storm drains operated by all storm water entities including the Department. The use of diazinon is prohibited in the Department's NPDES permit, and no additional measures are required.

Final Diazinon WLA
The WLA for each storm water entity is 100 ng/L as a one-hour average.

Final Diazinon WLA Specific to the Department
The Department's level of responsibility is not identified.

Final Diazinon Deadlines
The TMDL does not specify any interim or final compliance dates but states that the requirements included in the permits are inadequate to meet the targets the San Francisco Bay Water Board will require additional control measures or additional actions by others.

Department's Diazinon Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the diazinon pollutant loading is not known.

SAN DIEGO REGION DIAZINON TMDL

Chollas Creek Diazinon TMDL, November 3, 2003

Final Diazinon WLA
The below concentration-based waste load allocations are applied equally to all diazinon discharge sources in the Chollas Creek watershed:

Waterbody	Diazinon (ng/L)	
	Acute (1 hour ave)	Chronic (4 day ave)
Chollas Creek	72	45

Final Diazinon WLA Specific to the Department
The final WLA for the Department is noted above.

Final Diazinon Deadlines
The TMDL states that the phased compliance schedule will apply only to attainment of numeric limitations for diazinon and all other requirements of this TMDL will be immediately effective upon incorporation into applicable NPDES permits.

Department Diazinon Contribution
In the supporting technical documentation, the San Diego Regional Water Board stated that the Department is responsible for the major freeways and roadways making up approximately four percent of the land in the watershed; that the Department reports diazinon is not used; and that the Department has an integrated pest management plan. Since the Department does not use Diazinon it is in compliance with the prohibition of discharge.

G. Selenium TMDL Pollutant Category

General Description of Pollutant Category

Sources of Pollutant & How it Enters the Waterway
Selenium is naturally occurring in geologic formations, soils and aquatic sediments. Storm water runoff, dewatering, ground water seepage, irrigation of high selenium content soils, and oil refineries are identified as sources of selenium to surface waters in southern California. Generally, atmospheric deposition was determined to be a not significant source. Selenium bioaccumulates to levels that cause severe impacts on invertebrates, fish, birds that prey on fish, and humans.

Watershed Contribution
Selenium in soil may be a contributing source, and naturally occurring selenium in groundwater may be a significant source.

Control Measures
As discussed under the individual TMDLs below, the TMDLs in this pollutant category generally establish that the Department is a relatively minor source of selenium since the sources of selenium are not transportation related. The Department is expected to continue its current pollutant control activities in order to remain in compliance with the TMDLs.

LOS ANGELES REGION SELENIUM TMDL

Ballona Creek Metals and Selenium TMDL, December 22, 2005 and reaffirmed on October 29, 2008.

This TMDL addresses dry- and wet-weather discharges of metals and selenium in Ballona Creek and Sepulveda Canyon Channel. There are significant differences in the sources of metals and selenium loadings during dry and wet weather because hardness values and flow conditions in Ballona Creek and Sepulveda Canyon Channel vary between dry and wet weather. A grouped mass-based waste load allocation is developed for the storm water permittees that includes the Department.

Final Selenium WLA
The Department and MS4 storm water NPDES permittees will be found to be effectively meeting the dry-weather WLAs if the instream pollutant concentrations or load at the first downstream monitoring location is equal to or less than the corresponding concentration- or load based WLA.

Selenium Dry-weather Storm Water WLAs Apportioned between Storm Water Permits (grams total recoverable metals/day)

Permittee	Waste Load Allocation (grams/day)
Ballona Creek	
MS4 Permittees	169
Department	2
Sepulveda Channel	
MS4 Permittees	76
General Industrial	1

Selenium Wet-weather Storm Water WLAs Apportioned between Storm Water Permits (total recoverable metals)

Permittee	Waste Load Allocation (grams/day)
MS4 Permittees	4.73E-06 x Daily storm volume (L)
Department	6.59E-08 x Daily Storm Volume (L)
General Construction	1.37E-07 x Daily storm volume (L)
General Industrial	3.44E-08 x Daily storm volume (L)

The Department and MS4 NPDES permittees will be found to be effectively meeting the wet-weather WLAs if the loading at the most downstream monitoring location is equal to or less than the wet-weather WLA.

Final Selenium WLA Specific to the Department
See Tables above for specific Department WLAs.

Final Deadlines
The implementation schedule for the MS4 permittees and the Department consists of a phased approach, with compliance to be achieved in prescribed percentages of the watershed, with total compliance to be achieved within 15 years. The Department shall demonstrate that 100 percent of the total drainage area served by the MS4 system is effectively meeting the dry-weather and wet-weather WLAs.

Whereas the Department is responsible for meeting their mass-based waste load allocations they may choose to work with the MS4 Permittees.

Department's Selenium Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the selenium loading is not known.

Calleguas Creek, its Tributaries and Mugu Lagoon Metals and Selenium TMDL, March 26, 2007

Significant sources were identified as urban runoff, agricultural runoff, groundwater seepage and POTW effluent. The Department is a participant in the watershed-wide water monitoring program.

Final Selenium WLA
Dry-weather is defined as days when flows in the stream are less than the 86th percentile flow rate for each reach; wet weather is defined as flows greater than 86th percentile. The daily maximum interim limit is set equal to the 99th percentile of available discharge data, the monthly average interim limit is set equal to the 95th percentile. The interim WLAs for dry-weather in Revolon Slough are 14 μg/L criteria maximum concentration (CMC), and 13 μg/L criteria continuous concentration (CCC) for wet-weather. There is no interim wet-weather WLA because current loads do not exceed the TMDL. In this TMDL interim limits and WLAs are applied to receiving waters.

Final Selenium WLA Specific to the Department
Final WLAs for selenium in Revolon Slough are:
Dry weather: In lbs/day are 0.004 low flow, 0.003 average flow, 0.004 elevated flow.
Wet weather: In lbs/day is 0.027*Q^2+0.47*Q, where Q equals the daily storm volume.
Current loads do not exceed the loading capacity during wet weather, therefore no additional action by the Department is needed during wet weather.

Final Deadlines
The TMDL states that storm water dischargers are expected to achieve compliance through implementation of BMPs. A group watershed monitoring plan was required and receiving water monitoring compliance points are specified for all dischargers subject to the TMDL. A 25 percent reduction was required by March 2012, and a 50 percent reduction is required by March 2017. Final compliance is required by March 2022. The TMDL states that achievement of required reductions will be evaluated based on progress towards BMP implementation as outlined in the UWQMPs and in consideration of background loading information. The requirements of Attachment IV, Section III.G are consistent with the requirements of the TMDL.

Department's Selenium Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the selenium pollutant loading is not known.

San Gabriel River and Impaired Tributaries Metals and Selenium TMDL, March 26, 2007

The San Gabriel River and impaired tributaries metals and selenium TMDL was established by U.S. EPA (and therefore there are no milestones, compliance schedule, or monitoring requirements) and includes a dry-weather TMDL for selenium in San Jose Creek Reach 1.

The TMDL notes that selenium is present in local marine sedimentary rocks and presumes that much of the selenium in San Jose Creek results from natural soils, and that this assumption is corroborated by the fact that many of the impairments in San Jose Creek occur after the channel becomes soft-bottomed. Other potential sources were identified as mobilization of groundwater, such as by dewatering, irrigation of soils naturally high in selenium, and discharges from petroleum-related activities.

The requirements of Attachment IV, Section III.G are consistent with the requirements of the TMDL.

Final WLA for Selenium
The TMDL sets a dry-weather selenium WLA of five (5) μg/L for all storm water discharges to San Jose Creek. The TMDL states that a review of the storm water permits indicates that the Department discharges entirely to municipal storm water systems.

Final Selenium WLA Specific to the Department
No specific selenium WLAs are assigned to the Department. The dry-weather WLAs for the storm water permittees are shared by the MS4 permittees and the Department because there is not enough data on the relative extent of MS4 and the Department's areas.

Final Deadlines for Selenium
The MS4 permittees and the Department shall demonstrate that 100 percent of the total drainage area served by the storm drain system is effectively meeting both the dry-weather and wet-weather WLAs and attaining water quality standards for metals and selenium.

Department's Selenium Contribution (relative contribution to pollutant loading)
The Department's relative contribution to selenium pollutant loading is not known.

H. Temperature TMDL Pollutant Category

General Description of Pollutant Category
The North Coast Region Basin Plan defines the water quality objective for temperature as follows:

(1) For estuaries, the Basin Plan incorporates by reference the statewide plan entitled "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California."

(2) The following temperature objectives apply to surface waters:

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any COLD water be increased by more than five degrees Fahrenheit

above natural receiving water temperature. At no time or place shall the temperature of WARM intrastate waters be increased more than five degrees Fahrenheit above natural receiving water temperature.

The designated beneficial uses affected by thermal pollution of receiving waters include: cold freshwater habitat (COLD); rare, threatened, and endangered species (RARE); migration of aquatic organisms (MIGR); and spawning, reproduction, and/or early development of fish (SPWN); commercial and sport fishing (COMM); and contact and non-contact water recreation (REC-1 and REC-2).

Sources of Pollutant & How it Enters the Waterway

Anthropogenic processes that influence water temperature include changes to stream shade, stream flow via changes in groundwater accretion, streamflow via surface water use, changes to local microclimates, and channel geometry. Road construction and maintenance can, for example, involve the removal of some riparian vegetation, thus increasing ambient water temperature along the affected segment of a surface water body unless this impact is minimized via re-planting and/or by reducing the amount of vegetation removed.

Natural sources of sediment which can increase receiving water temperatures include geologically unstable areas that are subject to landslides, as well as smaller sediment sources such as gullies and stream-bank failures. Anthropogenic sources include road-related stream crossing failures, gullies, fill failures, and landslides precipitated by road-related surface erosion and cut bank failures. Road-related activities which can increase sediment discharge to a waterway include the construction and maintenance of paved and unpaved roadways, watercourse crossing construction, reconstruction, maintenance, use, and obliteration, and many activities conducted on unstable slopes. Unstable areas are areas with a naturally high risk of erosion and areas or sites that will not reasonably respond to efforts to prevent, restore or mitigate sediment discharges. Unstable areas are characterized by slide areas, gullies, eroding stream banks, or unstable soils that are capable of delivering sediment to a watercourse. Slide areas include shallow and deep seated landslides, debris flows, debris slides, debris torrents, earthflows, headwall swales, inner gorges and hummocky ground. Unstable soils include unconsolidated, non-cohesive soils and colluvial debris.

Watershed Contribution

The Department is a relatively minor source of pollutants and small percentage of the watershed. The Department will address the highest problem areas soonest and therefore address the problem at the appropriate level for the temperature and sediment TMDLs.

Control Measures

Dischargers responsible for vegetation removal are encouraged (and sometimes required) to preserve and restore such vegetation where possible. This may include planting riparian trees, minimizing the removal of vegetation that provides shade to a water body, and minimizing activities that might suppress the growth of new or existing vegetation. Reductions in sediment loads are expected to increase the number and depth of pools in

streams and rivers, and to reduce wetted channel width/depth ratios. These changes would tend to result in lower stream temperatures overall and in more lower-temperature pool habitat.

The Department is required to implement control measures to prevent erosion and sediment discharge. The measures that control the discharge of sediment can be effective in reducing thermal pollution in receiving waters. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and avoidance of alterations of natural runoff flow patterns.

The sediment control requirements in Attachment IV are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonids fishery are often the most sensitive to sediment discharges.

The Sediment TMDL Implementation Policy also directs staff to develop: (1) the Work Plan, which describes how and when permitting and enforcement tools are to be used; (2) the Guidance Document on Sediment Waste Discharge Control; (3) the Sediment TMDL Implementation Monitoring Strategy; and (4) the Desired Conditions Report. Of these items, the Guidance Document on Sediment Waste Discharge Control and the Sediment TMDL Implementation Monitoring Strategy are still under development by the North Coast Region. At present, the requirements in Attachment IV are generally sufficient to address the sediment/temperature TMDLs in the North Coast Region that originate from a comparatively minor pollutant source, and this is accomplished by focusing on the most problematic areas and activities within this relatively low-volume subset of anthropogenic discharges for this pollutant category.

Attachment IV requires continuation of existing monitoring plans, or monitoring consistent with the TMDLs' requirements as approved by the Regional Water Board Executive Officer. A primary focus of the monitoring required by Attachment IV is management practice effectiveness monitoring and "Adaptive Management" for BMP implementation requirements ensures compliance with the sediment/temperature TMDLs.

The North Coast Regional Water Board is also in the process of amending its basin plan for the control of thermal pollution. These revisions will add a policy for implementing the water quality objective for temperature. The amendment will also add additional action plans to implement total maximum daily loads for temperature in the Navarro, and Eel, and Mattole watersheds.

The proposed revisions to the Basin Plan include changes to Chapter 4 –Implementation Plans. The Regional Water Board directed staff to prepare an amendment incorporating a temperature implementation policy into the Basin Plan by adoption of resolution R1-2012-0013.The proposed Basin Plan amendment will describe the approach to implementing the interstate water quality objective for temperature in one cohesive policy. It will identify the

regulatory mechanisms staff will employ to ensure achievement of the water quality objective for temperature, it will describe the significance of stream shade as a factor determining stream temperatures, and it will direct staff to address temperature concerns through existing authorities and processes.

The proposed Basin Plan amendment will also establish implementation plans for the Navarro, Mattole, Upper Main Eel, Middle Main Eel, Lower Eel, Middle Fork Eel, North Fork Eel, and South Fork Eel River temperature TMDLs.

NORTH COAST REGION TEMPERATURE TMDLS

Eel River (Lower HA) Temperature and Sediment TMDL, U.S. EPA Established on December 18, 2007

Final Temperature WLA
For the diffuse permitted sources, such as municipal and industrial storm water discharges, the Department's facilities, construction sites, and municipalities, as well as for discharges that are subject to NPDES permits but are not currently permitted, the waste load allocation (WLA) is expressed as follows: zero net increase in receiving water temperature.

Final Temperature WLA Specific to the Department
As stated above, U.S. EPA's wasteload allocation for the temperature TMDL assigned to the Department and other point source dischargers is zero net increase in receiving water temperature.

Final Temperature Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Contribution (relative contribution to pollutant loading**)**
U.S. EPA states that although nonpoint sources are responsible for most heat loading in the watershed, point sources may also discharge some heat in the watershed.

Eel River (Middle-Fork) Eden Valley, and Round Valley HSAs Temperature and Sediment TMDL, U.S. EPA Established on December 2003

Final Temperature WLA
Although U.S. EPA states that because appropriate heat loads, water temperatures and tree heights cannot be generalized on a basin-wide scale, this reduction is best achieved by allowing trees to grow so as to provide the equivalent amount of shade that would be provided under natural conditions. In addition, measures to reduce sediment discharge and promote establishment or protection of additional refugia pool areas will facilitate attainment of water quality standards. In this sense, the temperature and sediment TMDLs overlap to some degree.

Final Temperature WLA Specific to the Department
Please see above discussion of the temperature WLA.

Final Temperature Deadlines
U.S. EPA did not specify deadlines for implementation.
Department's Temperature Contribution (relative contribution to pollutant loading)
U.S. EPA states that although nonpoint sources are responsible for most heat loading in the watershed, point sources may also discharge some heat in the watershed.

Eel River (South Fork) HA Temperature and Sediment TMDL, U.S. EPA Established on December 16, 1999

U.S. EPA's source analysis indicates that the sediment loading due to nonpoint erosion from roads and other anthropogenic activities accounts for a substantial portion of the total sediment loading in this watershed.

The waste load allocation for point sources are for sediment only, i.e., they are not directly related to the temperature portion of the TMDL, nor does U.S. EPA set a waste load allocation for point sources under the temperature portion of the TMDL. However, U.S. EPA also states that any improvements in stream temperature from reduced sedimentation contribute to the cumulative benefits of both sediment and temperature load reductions, and this assumption is accommodated in U.S. EPA's calculations for the margin of safety in this TMDL.

Final Temperature WLAs
As stated above, there is no wasteload allocation for point sources.

Final Temperature WLA Specific to the Department
As stated above, there is no specific wasteload allocation for the Department.

Final Temperature Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Temperature Contribution to Thermal Loading (relative contribution to pollutant loading)

U.S. EPA attributes most sediment and thermal pollutant loading in the TMDL to nonpoint sources, and considers the Department's and other point source contributions to be comparatively minor.

Eel River (Upper Main HA) Temperature and Sediment TMDL, U.S. EPA Established on December 29, 2004

Final Temperature WLA
U.S. EPA states that there are no point source discharges included in the temperature TMDL for purposes of attaining temperature reductions via "shade allocation," so the waste load allocation is set to zero. U.S. EPA states that permitted sources of increased water temperatures and sediment loading, if they occur in the future, will be attributable only to construction-related storm water discharges.

Final Temperature WLA Specific to the Department
As stated above, U.S. EPA stated that there are no point source discharges for thermal pollution, so the wasteload allocation for all point source discharges (including the Department) is set to zero.

Final Temperature Deadlines
U.S. EPA did not specify deadlines for implementation.

Department's Temperature Contribution (relative contribution to pollutant loading)
U.S. EPA considers all point sources of temperature pollution to be insignificant for purposes of this TMDL.

Klamath River in California Temperature, Dissolved Oxygen, Nutrients, and Microcystin TMDL, December 28, 2010

Final Temperature WLA
The Iron Gate Fish Hatchery was identified as the only point-source heat load in the Klamath River watershed: The interstate water quality objective for temperature prohibits the discharge of thermal waste to the Klamath River, and therefore the waste load allocation for Iron Gate Hatchery is set to zero, as monthly average temperatures. The TMDL addresses elevated temperatures from natural and non-point anthropogenic sources. The non-point sources include: (1) excess solar radiation, expressed as its inverse, shade; (2) heat loads associated with increased sediment loads; (3) heat loading from impoundments; and (4) heat loads from Oregon. The assigned load allocations for temperature are expressed as follows (as adapted from Table 4-15 in the basin plan):

Source	Allocation
Excess Solar Radiation (expressed as effective shade)	The shade provided by topography and full potential vegetation conditions at a site, with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire.
Increased Sediment Loads	Zero temperature increase caused by substantial human-caused sediment-related channel alterations.
Impoundment Discharges	Zero temperature increase above natural temperatures[1]
Excess Solar Radiation	The shade provided by topography and full potential

Source	Allocation
(expressed as effective shade)	vegetation conditions at a site, with an allowance for natural disturbances such as floods, wind throw, disease, landslides, and fire.
Increased Sediment Loads	Zero temperature increase caused by substantial human-caused sediment-related channel alterations.[2]
Impoundment Discharges	Zero temperature increase above natural temperatures

1. Natural temperatures are those water temperatures that exist in the absence of anthropogenic influences, and are equal to natural background.
2. Substantial human-caused sediment-related channel alteration: "A human-caused alteration of stream channel dimensions that increases channel width, decreases depth, or removes riparian vegetation to a degree that alters stream temperature dynamics and is caused by increased sediment loading."

Final Temperature WLA Specific to the Department
The Department was not assigned a waste load allocation for temperature.

Final Deadlines
No deadlines were specified.

Department's Pollutant Contribution (relative contribution to pollutant loading)
The Department is listed as a source of thermal pollution: however, the relative magnitude of the Department's contribution to thermal pollution was not specified or estimated.

Navarro River Sediment and Temperature TMDL, U.S. EPA Established on December 27, 2000

Final Temperature WLA
U.S. EPA states that there are no known point sources of heat to the Navarro or its tributaries. The source analysis therefore focused on non-point sources. The wasteload allocation any for point sources which might be present is thus presumed to set to zero.

The Navarro River TMDLs for temperature and sediment are based on separate analyses. Reduced sediment loads could be expected to lead to increased frequency and depth of pools and to reduced wetted channel width/depth ratios. These changes would tend to result in lower stream temperatures overall and in more lower-temperature pool habitat.

Improvements in stream temperature that may result from reduced sedimentation were not considered in the analysis.

Final Temperature WLA Specific to the Department
The Department is not specifically mentioned as a source of pollutant loading for temperature, therefore the wasteload allocation for the Department is presumed to be set to zero.

Final Temperature Deadlines
U.S. EPA did not specify deadlines for implementation of this TMDL.

Department's Temperature Contribution (relative contribution to pollutant loading**)**

As mentioned above, neither the Department nor other point sources are identified as sources of pollutant loading for temperature or sediment, so U.S. EPA has determined that these potential sources are insignificant in this TMDL.

Scott River Sediment and Temperature TMDL, August 11, 2006

Final Temperature WLA
U.S. EPA states that there are no point sources for temperature related discharges within the area encompassed by this TMDL, so the waste load allocation is set to zero.

Final Temperature WLA Specific to the Department
U.S. EPA directed Regional Water Board staff shall evaluate the effects of the Department's state-wide NPDES permit, storm water permit, and waste discharge requirements (collectively known as the Department's Storm Water Program) by September 8, 2008. The evaluation shall determine the adequacy and effectiveness of the Department's Storm Water Program in preventing, reducing, and controlling sediment waste discharges and elevated water temperatures in the North Coast Region, including the Scott River watershed.

Final Temperature Deadlines
U.S. EPA did not establish specific wasteload allocations for point sources, so the wasteload allocations are set to zero.

Department's Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the temperature pollutant loading is not known.

Shasta River Dissolved Oxygen and Temperature TMDL, U.S. EPA Established on December 26, 2007

Final Temperature WLA
There are no point source heat loads in the Shasta River watershed, and therefore no waste load allocations apply.

Final Temperature WLA Specific to the Department
The Department was not assigned a waste load allocation for temperature: as stated above, there are no point sources of heat loads in the Shasta River watershed.

Final Deadlines
No deadlines were specified.

Department's Pollutant Contribution
The Department's relative contribution to the temperature pollutant loading in Shasta River Watershed is not known.

I. Chloride Pollutant Category

General Description of Pollutant Category
The Department is named as a responsible party in the Santa Clara River watershed chloride TMDL.

Sources of Pollutant & How it Enters the Waterway
Chloride in the Santa Clara River watershed is principally due to increased salt loadings from imported water and the use of self-regenerating water softeners.

Watershed Contribution
The Department does not import water and does not use self-generating water softeners.

Control Measures
The Department is expected to be in compliance with the chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

LOS ANGELES REGION CHLORIDE TMDLS

Santa Clara River Reach 3 Chloride TMDL, U.S. EPA Established on June 18, 2003

There are two major sources that discharge into Reach 3, the Santa Paula and Fillmore WRPs, that comprise approximately 80 percent of the total estimated load under flow conditions.

The Department is one of five minor point sources that discharge to Reach 3. Although the Department is a minor source, the minor discharges to the Santa Clara River are typically related to dewatering and construction projects that are covered by other NPDES permits.

Final Chloride WLA

Estimated Chloride Loads to Reach 3 Under Low Flow Conditions

Point Sources	Waste Load Allocation (mg/L)
Fillmore WRP	80
Santa Paula WRP	80
MS4 Stormwater	80

Point Sources	Waste Load Allocation (mg/L)
Construction General Permit	80
Department	80
Other Minor Permits	80
NonPoint Sources	**Load Allocation** (mg/L)
Other Tributaries to Reach 3*	80
Sespe Creek	40
Santa Clara Reach 4	100
Total	**80**
***** Although other tributaries to Reach 3 were not included in the linkage analysis above, their contributions to Reach 3 chloride loads and flows are believed to be insignificant.	

Final Chloride WLA Specific to the Department
Specific WLA for the Department is 80 mg/L.

Final Chloride Deadlines
U.S. EPA established this TMDL and it became effective on June 18, 2003. The Department is expected to be in compliance with the Chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

Department's Chloride Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the chloride pollutant loading in the Santa Clara River Reach 3 is not known.

Upper Santa Clara River Chloride TMDL, April 6, 2010
The principal source of chloride in the Upper Santa Clara River is discharges from the Saugus WRP and Valencia WRP, which are estimated to contribute 70 percent. These sources of chloride accumulate and degrade groundwater in the lower area east of Piru Creek in the basin.

Final Chloride WLA
Other minor NPDES discharges receive conditional WLAs shown below.

Reach	Concentration-based Conditional WLA for Chloride (mg/L)
6	150 (12-month Average)
	230 (Daily Maximum)
5	150 (12-month Average)
	230 (Daily Maximum)
4B	117 (3-month Average)
	230 (Daily Maximum)

Final Chloride WLA Specific to the Department
The Department is assigned the above concentration based WLAs.

Final Chloride Deadlines
The interim and final WLAs for TDS and sulfate contained in the Basin Plan Amendment are essentially established for the principal sources. The Department does not import water and does not use self-generating water softeners. The Department is expected to be in compliance with the Chloride WLA without any additional control actions as long as the Department is in compliance with this Order.

Department's Chloride Contribution (relative contribution to pollutant loading)
The Department's relative contribution to the chloride pollutant loading in the Upper Santa Clara River is not known.

Region Specific Requirements

The Regional Water Boards have identified specific areas within their Regions requiring special conditions (Attachment V). These special conditions are needed to account for the unique value of the resource(s) within the Region, special pollutant or pollution control issues within the Region, or storm water management and compliance issues applicable to the Region. These special requirements need not be applied statewide but are applicable only to Department discharges within the Regions as specified in Attachment V. Region specific requirements are included for the North Coast, San Francisco Bay, and Lahontan Regional Water Boards.

North Coast Region

1. Sediment. Region specific requirements addressing sediment discharges in sediment-impaired watersheds in the North Coast Region are based on the "Total Maximum Daily Load Implementation Policy Statement for Sediment-Impaired Receiving Waters in the North Coast Region," as included in the Basin Plan and Resolution No. R1-2004-0087. The Policy requires the use of NPDES permits and waste discharge requirements to achieve compliance with sediment-related water quality standards. The requirements in Attachment V to systematically inventory, prioritize, control, monitor, and adapt, as well as to include a time schedule in the annual District Workplan, are consistent with region-wide excess sediment control regulations.

   The sediment requirements are intended to reduce the adverse impacts of excessive sediment discharges to sediment-impaired waters, including impacts to the cold water salmonid fishery and the COLD, COMM, RARE, SPWN, and MIGR beneficial uses. The beneficial uses associated with the cold water salmonid fishery are often the most sensitive to sediment discharges. Risks to salmonids from excessive sediment are well documented in scientific literature and include:

   - the filling of pools and subsequent reduction in available in-stream salmonid habitat;
   - burial of spawning gravels;
   - gill abrasion and death due to extremely high turbidity levels;
   - reduction in macroinvertebrate populations available as food for salmonids; and

- alterations in channel geometry to a wider, shallower channel which is subject to increases in solar heating.

2. Riparian Vegetation Requirements. Region specific requirements to protect and restore riparian vegetation are based on the Water Quality Objective for temperature. The temperature objective states, in part, that the natural receiving water temperature shall not be altered unless it can be demonstrated that such alteration does not adversely affect beneficial uses. Removal of riparian vegetation associated with Department activities has the potential to decrease shade, increase solar radiation, and raise water temperatures, and may therefore cause an exceedance of the temperature objective.

   The requirements in Attachment V direct the Department to protect and restore riparian vegetation to the greatest extent feasible. In many cases, activities involving the removal of riparian vegetation will require a 401 water quality certification, which will contain more specific conditions regarding the removal and/or establishment of vegetation.

   These requirements are intended to prevent alterations to natural receiving water temperature from Department activities. The primary mechanism in which riparian vegetation influences water temperature is through the shade. Loss of riparian vegetation and the shade that it provides can lead to increased solar radiation, hotter water temperatures, and adverse impacts to beneficial uses. The beneficial uses most sensitive to increases in water temperature are often those associated with the cold water salmonid fishery. Risks to salmonids are well documented in scientific literature and include:

   - reduced feeding rates and growth rates;
   - impaired development of embryos and alevins;
   - changes in the timing of life history events, such as upstream migration, spawning, and seaward migration;
   - increased disease infection rates and disease mortality; and
   - direct mortality.

San Francisco Bay Region

The Urban Runoff Management, Comprehensive Control Program section of the Basin Plan (Chapter 4.14) requires municipalities and local agencies, including the Department, to address existing water quality problems and prevent new problems associated with urban runoff through the development and implementation of a comprehensive control program focused on reducing current levels of pollutant loading to storm drains to the maximum extent practicable.

The Highway Runoff Control Program section of the Basin Plan (Chapter 4.14.2) requires the Department to manage and monitor pollutant sources from its ROW through development and implementation of a highway runoff management plan.

The Basin Plan comprehensive and highway runoff program requirements are designed to be consistent with federal regulations (40 C.F.R., §§ 122-124) and are implemented through issuance of NPDES permits to owners and operators of MS4s. A summary of the regulatory provisions is contained in Title 23 of the California Code of Regulations at section 3912. The Basin Plan identifies beneficial uses and establishes water quality objectives for surface waters in the Region, as well as effluent limitations and discharge prohibitions intended to protect those uses. The region-specific requirements in Attachment V of this Order implement the plans, policies, and provisions of the Regional Water Board's Basin Plan.

1. Trash Load Reduction.

    a. Legal Authority. The following legal authorities apply to the trash load reduction requirements specified in Attachment V:

        - Clean Water Act sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 Code of Federal Regulations sections 122.26(d)(2)(i)(B, C, D, E, and F) and 40 Code of Federal Regulations section 122.26(d)(2)(iv).
        - Federal NPDES regulations 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B) requires, "shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer."
        - Federal NPDES regulation 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(2) requires, "a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens."
        - Federal NPDES regulation 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(3) requires, "a description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water."
        - Federal NPDES regulations 40 Code of Federal Regulations section 122.26(d)(2)(iv)(B)(4) requires, "a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer."
        - San Francisco Bay Basin Plan, Chapter 4 – Implementation, Table 4-1 Prohibitions, Prohibition 7, which is consistent with the State Water Board's Enclosed Bays and Estuaries Policy, Resolution 95-84, prohibits the discharge of rubbish, refuse, bark, sawdust, or other solid wastes into surface waters or at any place where they would contact or where they would be eventually transported to surface waters, including flood plain areas. This prohibition was adopted by the Regional Water Board in the 1975 Basin Plan, primarily to protect recreational uses such as boating.

b. Extent, Impacts, and Conclusions. Trash[25] and litter are a pervasive problem near and in creeks and in San Francisco Bay having major impacts on the environment, including aquatic life and habitat in those waters. Ubiquitous, unacceptable levels of trash in waters of the San Francisco Bay Region warrant a comprehensive and progressive program of education, warning, and enforcement, and certain areas warrant consideration of structural controls and treatment. Trash in urban waterways of coastal areas can become *marine debris*, known to harm fish and wildlife and cause adverse economic impacts.[26] It accumulates in streams, rivers, bays, and ocean beaches throughout the San Francisco Bay Region, particularly in urban areas.

Trash adversely affects numerous beneficial uses of waters, particularly recreation and aquatic habitat. Not all litter and debris delivered to streams are of equal concern with regard to water quality. Besides the obvious negative aesthetic effects, most of the harm of trash in surface waters is to wildlife in the form of entanglement or ingestion.[27,28] Some elements of trash exhibit significant threats to human health, such as discarded medical waste, human or pet waste, and broken glass.[29] Also, some household and industrial wastes can contain toxic batteries, pesticide containers, and fluorescent light bulbs containing mercury. Large trash items such as discarded appliances can present physical barriers to natural stream flow, causing physical impacts such as bank erosion. From a management perspective, the persistent accumulation of trash in a waterbody is of particular concern, and signifies a priority for prevention of trash discharges. Also of concern are trash *hotspots* where illegal dumping, littering, and/or accumulation of trash occur.

The narrative water quality objectives applicable to trash are Floating Material (Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses), Settleable Material (Waters shall not contain substances in concentrations that result in the deposition of material that cause nuisance or adversely affect beneficial uses), and Suspended Material (Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses).

[25] For the purposes of this provision, trash is defined to consist of litter and particles of litter. Man-made litter is defined in California Government Code section 68055.1 (g): *Litter* means all improperly discarded waste material, including, but not limited to, convenience food, beverage, and other product packages or containers constructed of steel, aluminum, glass, paper, plastic, and other natural and synthetic materials, thrown or deposited on the lands and waters of the state, but not including the properly discarded waste of the primary processing of agriculture, mining, logging, sawmilling, or manufacturing.

[26] Moore, S.L., and M.J. Allen. 2000. Distribution of anthropogenic and natural debris on the mainland shelf of the Southern California Bight. *Mar. Poll. Bull*. 40:83-88.

[27] Laist, D. W. and M. Liffmann. 2000. *Impacts of marine debris: research and management needs*. Issue papers of the International Marine Debris Conference, Aug. 6-11, 2000. Honolulu, HI, pp. 16–29.

[28] McCauley, S.J. and K.A. Bjorndahl. 1998. Conservation implications of dietary dilution from debris ingestion: sublethal effects in post-hatchling loggerhead sea turtles. *Conserv. Biol*. 13(4):925-929.

[29] Sheavly, S.B. 2004. *Marine Debris: an Overview of a Critical Issue for our Oceans*. 2004 International Coastal Cleanup Conference, San Juan, Puerto Rico. The Ocean Conservancy.

The Regional Water Board, at its February 11, 2009 hearing, adopted a resolution proposing that 26 waterbodies be added to the 303(d) list for trash. The adopted Resolution and supporting documents are contained in Attachment 10.1 – 303(d) Trash Resolution and Staff Report, February 2009.

Data collected by Regional Water Board staff using the SWAMP Rapid Trash Assessment (RTA) Protocol,[30] over the 2003–2005 period,[31] suggest that the current approach to managing trash in waterbodies is not reducing the adverse impact on beneficial uses. The levels of trash in the waters of the San Francisco Bay Region are high, even with the Basin Plan prohibitions and potentially large fines. During dry weather conditions, a significant quantity of trash, particularly plastic, is making its way into storm drains and being transported downstream to San Francisco Bay and the Pacific Ocean. On the basis of 85 surveys conducted at 26 sites throughout the Bay Area, staff have found an average of 2.93 pieces of trash for every foot of stream, and all the trash was removed when it was surveyed, indicating high return rates of trash over the 2003–2005 study period.

A number of key conclusions can be made from the RTA study:

- Lower watershed sites have higher densities of trash.
- All watersheds studied in the San Francisco Bay Region have high levels of trash.
- There are trash source hotspots, usually associated with parks, schools, or poorly kept commercial facilities.
- Dry season deposition of trash, associated with wind and dry season runoff, contributes measurable levels of trash to downstream locations.
- The majority of trash is plastic at lower watershed sites where trash accumulates in the wet season. This suggests that urban runoff is a major source of floatable plastic found in the ocean and on beaches as marine debris.
- Parks that have more evident management of trash by city staff and local volunteers, including cleanup within the creek channel, have measurably less trash and higher RTA scores.

c. Trash Reduction measures shall demonstrate compliance through timely implementation of controls in all high trash generating areas for the prohibition of discharge of trash and include the following:

- Implementation of full capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchment that service the significant trash generating areas.
- Coordinate with neighboring MS4 permittees to construct, operate and maintain those controls listed above.

[30] SWAMP Rapid Trash Assessment Protocol, Version 8
[31] SWAMP S.F. Bay Region Trash Report, January 23, 2007

- Assess for the effectiveness of enhanced maintenance controls implemented in high generating trash areas, as well as coordination with local municipalities.
- Abate trash from construction and reconstruction projects.
- Include trash capture devices on the outlets of treatment systems for new and redeveloped highway projects to achieve the full trash capture standard.
- Report in each Annual Report, as part of the TMDL STATUS REVIEW REPORT a per District summary of trash reduction controls and their effectiveness.

d. Costs of Trash Control. Costs for either enhanced trash management measure implementation or installation and maintenance of trash capture devices are significant, but when spread over several years, and when viewed on a per-capita basis, are reasonable. To meet Basin Plan and local MS4 requirements, trash capture devices have already been installed by other municipalities in the Bay Area.

   Cost information on various trash capture devices is included in the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) BMP Trash Toolbox (July 2007). The Toolbox contains cost information for both trash capture devices and enhanced trash management measure implementation, covers a broad range of options, and also discusses operation and maintenance costs.

2. Storm Water Pump Stations. In late 2005, Regional Water Board staff investigated an occurrence of low salinity and dissolved oxygen conditions in Old Alameda Creek (Alameda County) and Alviso Slough (Santa Clara County). In the case of Old Alameda Creek, discharge of black-colored water from the Alvarado pump station to the slough was observed at the time of the data collection on September 7, 2005, confirming dry weather urban runoff as the source of the violations of the five (5) mg/L dissolved oxygen water quality objective. Such conditions were measured again on September 21, 2005.

   On October 17, 2005, waters in Alviso Slough were much less saline than the salt ponds and had the lowest documented dissolved oxygen of the summer, suggesting a dry weather urban runoff source. The dissolved oxygen sag was detected surface to bottom at 2.3 mg/L at a salinity of less than one part per thousand (ppt), mid-day, when oxygen levels should be high at the surface. The sloughs have a typical depth of six feet.

   Board staff's investigations of these incidents, documented in a memorandum,[32] found that "storm water pump stations, universally operated by automatic float triggers, have been confirmed as the cause in at least one instance, and may represent an overlooked source of controllable pollution to the San Francisco Bay Estuary and its tidal sloughs... [that] discharges of dry weather urban runoff from these pump stations are not being managed to protect water quality, and [that] surveillance monitoring has detected measurable negative water quality consequences of this current state of pump station management."

[32] Internal Water Board Memo dated December 2, 2005: "Dry Weather Urban Weather Urban Runoff Causing or Contributing to Water Quality Violations: Low Dissolved Oxygen (DO) in Old Alameda Creek and Alviso Slough."

Pump station discharges of dry weather urban runoff can cause violations of water quality objectives. These discharges are controllable point sources of pollution that are virtually unregulated. The Regional Water Board has determined that the measures included in Attachment V are necessary to address these discharges and water quality problems.

Lahontan Region

1. The Lahontan Basin Plan encourages the infiltration of storm water runoff to treat pollutants in discharges and mitigate the effects of increased runoff to surface waters from the addition of impervious surfaces. The 20-year, one-hour design storm has been historically applied and accepted as an effective requirement to mitigate discharges of storm water to surface waters in the sensitive high mountain watersheds of the Lahontan Region. Water Board staff has estimated that facilities designed to treat or infiltrate the 20-year, one-hour storm event effectively capture approximately 85 percent of the average annual runoff volume in the Lake Tahoe Basin. However, it is recognized that the natural environment provides adequate infiltration and/or treatment in areas where there is little or no connectively to surface waters. Therefore the Lahontan Water Board encourages the Department to focus implementation of storm water treatment facilities in those areas that discharge directly to surface waters to maximize water quality benefits. This requirement is applicable to existing highways and facilities in the Mammoth Lakes Area Hydrologic Unit.

2. The Natural Environment as Treatment (NEAT) study has helped identify the priority areas within the Lake Tahoe Hydrologic Unit where storm water treatment and control measure implementation has the most benefit for water quality protection. Similarly, the NEAT study has helped identify those areas where there may be limited water quality benefits associated with implementing structural treatment and control measures. The NEAT approach is also applicable in other areas. This provision is needed to focus available resources on the areas where the most water quality benefit can be achieved.

3. The October 15 to May 1 grading prohibition is necessary to reduce erosion and sedimentation from disturbed areas within the sensitive high elevation areas within the Lahontan Region. These are areas where snow fall restricts the ability to control storm water pollution through the winter months. This requirement mitigates winter erosion issues by requiring disturbed soil areas to be winterized prior to the onset of snow, and allows for exceptions where there is a compelling need.

Regional Water Board Authorities

Regional Water Boards and their staff will oversee implementation and compliance with this Order. As appropriate, they will review reports, conduct inspections, and take enforcement actions on violations of this Order.

Cost of Compliance and Other MEP Considerations

General Cost Considerations in Storm Water Regulation and Management

The Department will incur incremental costs in implementing this Order, such as the cost of complying with the Order's storm water treatment BMP, post-construction, hydromodification, Low Impact Development, and monitoring and reporting requirements. The Department will also incur additional costs in following the iterative process as required by the Order. The cost of complying with TMDL waste load allocations is not considered since TMDLs are not subject to the MEP standard.

In adopting Order WQ 2000-11, the State Water Board found that cost is a relevant factor, among others such as feasibility and public acceptance that should be considered in determining MEP. The State Water Board considered the costs in preparing this Order and has determined that the costs reflect the MEP standard. The State Water Board further found in adopting Order WQ 2000-11 that in considering the cost of compliance, it is also important to consider the costs of impairment; that is, the negative impact of pollution on the economy and the positive impact of improved water quality. So, while it is appropriate and necessary to consider the cost of compliance, it is also important to consider the larger economic impacts of implementation of the storm water management program.

Many studies have been undertaken to assess the cost of compliance with storm water permits. Most studies have focused on municipal programs as opposed to "linear MS4s" or Departments of Transportation. A study by the Los Angeles Regional Water Board reported wide variability in the cost of compliance among municipal permit holders which was not easily explained (LARWQCB, 2003).

In 1999, U.S. EPA reported on multiple studies it conducted to determine the cost of urban runoff management programs. A study of Phase II municipalities determined that the annual cost of the Phase II program was expected to be $9.16 per household. U.S. EPA also studied 35 Phase I municipalities, finding costs to be similar to those anticipated for Phase II municipalities, at $9.08 per household annually (U.S. EPA, 1999a).

A program cost study was also conducted by the Los Angeles Regional Water Board, where program costs reported in the municipalities' annual reports were assessed. The Water Board estimated the average per household cost to implement the MS4 program in Los Angeles County was $12.50.

The State Water Board also commissioned a study by California State University, Sacramento to assess costs of the Phase I MS4 program. This study is current and includes an assessment of costs incurred by the City of Encinitas in implementing its program. Annual cost per household ranged from $18-46, with the City of Encinitas representing the upper end of the range (SWRCB, 2005). The cost of the City of Encinitas' program is understandable, given the city's coastal location, reliance on tourism, and additional costs resulting from a consent decree with environmental groups regarding its program. For these reasons, as well as the general recognition the city receives for implementing a superior program, the city's program cost can be considered as the high end of the spectrum for municipal storm water management program costs.

The California Department of Finance (Finance, 2003) conducted a comprehensive review of the Department's storm water program. Finance noted widely divergent compliance cost estimates produced by regulators and environmental organizations versus consultant's estimates. Finance also had difficulty identifying compliance costs because of the way storm water activities are integrated with other functions and allocated among the different divisions within the Department, and because they are funded from different sources. Finance made three findings related to cost:

- The projected costs of compliance are escalating.
- Storm water compliance costs are integrated into many of the Department's business processes and are not accurately tracked.
- As storm water compliance costs increase, the amount of funding available for highway projects decreases, which reduces the number of projects that can be constructed.

The review concluded that balancing costs and benefits is a difficult policy decision and there should be a recognition of the trade-offs associated with resource allocation decisions given the Department's limited resources.

It is important to note that storm water program costs are not all attributable to compliance with MS4 permits. Many program components and their associated costs existed before any MS4 permits were issued. For example, for the Department, storm drain maintenance, street sweeping and trash/litter collection costs cannot be solely or even principally attributable to MS4 permit compliance since these practices have long been implemented before the MS4 permit was issued. Even many structural BMPs (erosion protection, energy dissipation devices, detention basins etc.) are standard engineering practice for many projects and are not implemented solely to comply with permit provisions. Therefore, the true cost resulting from MS4 permit requirements is some fraction of the cost to operate and maintain the highway system.

The California State University, Sacramento study found that only 38 percent of program costs are new costs fully attributable to MS4 permits. The remainder of program costs was either pre-existing or resulted from enhancement of pre-exiting programs (SWRCB, 2005). The County of Orange found that even lesser amounts of program costs are solely attributable to MS4 permit compliance, reporting that the amount attributable to implement its Drainage Area Management Plan is less than 20 percent of the total budget. The remaining 80 percent is attributable to pre-existing programs (County of Orange, 2007). Any increase in cost to the Department by the requirements of this Order will be incremental in nature.

Storm water management programs cannot be considered solely in terms of their costs. The programs must also be viewed in terms of their value to the public. For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by U.S. EPA to be $158-210 per household (U.S. EPA, 1999a). This estimate can be considered conservative, since it does not include important considerations such as marine waters benefits, wildlife benefits, or flood control benefits. The California State University, Sacramento study corroborates U.S. EPA's estimates, reporting annual

household willingness to pay for statewide clean water to be $180 (SWRCB, 2005). Though these costs may be assessed differently at the state level (for the Department) than at the municipal level, the results indicate that there is public support for storm water management programs and that costs incurred by the Department to implement its storm water management program remain reasonable.

It is also important to consider the cost of not implementing a storm water management program. Urban runoff in southern California has been found to cause illness in people bathing near storm drains (Haile et al.,1996). A study of south Huntington Beach and north Newport Beach found that an illness rate of about 0.8 percent among bathers at those beaches resulted in about $3 million annually in health-related expenses (Lin, 2005). Extrapolation of such numbers to the beaches and other water contact recreation areas in the state would increase these numbers significantly.

Storm water runoff and its impact on receiving waters also impacts the tourism industry. The California Travel and Tourism Commission (2009) estimated that in 2008 direct travel spending in California was $97.6 billion directly supporting 924,000 jobs, with earnings of $30.6 billion. Travel spending in 2008 generated $1.6 billion in local taxes and $2.8 billion in state taxes. Impacts on tourism from storm water runoff (e.g. beach closures) can have a significant impact on the economy. The experience of Huntington Beach provides an example of the potential economic impact of poor water quality. Approximately eight miles of Huntington Beach were closed for two months in the middle of summer of 1999, impacting beach visitation and the local economy.

Cost Considerations Relative to the Department
In written comments and before the Board, the Department has stated that the requirements of the first public drafts would impose prohibitive costs on the Department at a time of economic difficulty and limited resources. State Water Board staff has carefully considered the Department's comments and revised the draft Tentative Order to continue to address critical water quality problems in consideration of the cost of compliance.

State Water Board staff completed a Draft Tentative Order and submitted it to the Department, U.S. EPA, and the Natural Resources Defense Council for informal stakeholder review in the fall of 2010. Further review was provided by the Regional Water Boards. Staff revised the Draft Tentative Order to address the informal comments received and released it for public review on January 7, 2011 (Draft Tentative Order). Approximately 330 comments from 16 commenters were received on the Draft Tentative Order, and a public hearing was held on July 19, 2011. Staff further revised the Draft Tentative Order and released a Revised Draft Tentative Order on August 18, 2011 (Revised Draft Tentative Order). Approximately 220 comments from 33 commenters were received on the Revised Draft Tentative Order, and a State Water Board workshop was held on September 21, 2011. In each set of comments and before the Board, the Department expressed significant concerns with the cost of compliance with the Tentative Orders.

On October 6, 2011, the California Senate Select Committee on California Job Creation and Retention held a hearing on the economic impacts of the State Water Board's three general or statewide storm water permits that were under renewal: the Phase II Small MS4 permit, the Industrial General Permit, and the Department's MS4 permit. The Executive Director of the State Water Board testified at the hearing that the comments regarding cost of compliance with the permits were being considered carefully and that the three permits required substantial revision to address the comments. State Water Board staff held bi-weekly meetings with the Department in October through December 2011 to discuss their concerns. Revisions resulting from these meetings are contained in the Second Revised Draft Tentative Order which was released for public review on April 27, 2012 (Second Revised Draft Tentative Order).

This section is a general discussion of the cost of compliance with the Second Revised Draft Tentative Order and of current expenditures by the Department to comply with the existing permit (Order 99-06-DWQ) (Existing Permit). It also discusses the more significant changes between the Revised Draft and Second Revised Draft Tentative Orders.

It is very difficult to precisely determine the true cost of implementation of the Department's storm water management program as affected by this Order. Due to the extensive, distributed nature of the Department's MS4, permit requirements that involve an unknown level of implementation or that depend on environmental variables that are as yet undefined, and the difficulty in isolating program costs attributable to permit compliance, only general conclusions can be drawn from this information.

The Department has made a number of estimates of the cost of complying with the Draft and Revised Draft Tentative Orders. Generally, the Department's estimates are based on worst-case scenarios or the most restrictive interpretation of the Tentative Orders. In a presentation to a meeting of the American Association of State Highway and Transportation Officials (AASHTO) on June 22, 2011,[33] the Department's Chief Environmental Engineer, Scott McGowen estimated the annual cost of compliance at $281million. This estimate was based on the January 7, 2011 Draft Tentative Order. At the July 19, 2011 public hearing, the Department estimated the annual compliance cost at approximately $450 million, based on the same January 7, 2011 Draft Tentative Order. At the September 21, 2011 State Water Board workshop, the Department estimated an annual compliance cost of $904 million, based on the requirements of the August 18, 2011 Revised Draft Tentative Order. It should be noted that the August 18 draft removed or modified a number of provisions that were expected to reduce the cost of compliance.

Annual expenditures for the Department's storm water management program under the Existing Permit (DWQ 99-06) are provided in the Department's annual reports. For fiscal years 2007-08 through 2010-11, the Department reported annual personal services and

[33] Caltrans NPDES Tentative Order, Natural Systems and Ecological Communities Subcommittee at the National Planning and Environmental Practitioners Meeting. AASHTO, June 22, 2011.

operating expenses of $93.8 million, $93.6 million, $75.2 million, and $89.2 million. These figures do not include the cost of capital improvements needed to comply with the permit.

State Water Board staff estimated the capital expenditures for the Existing Permit in two ways. First, the Department provided the number of post-construction storm water treatment BMPs installed in 2009-10 and 2010-11 along with typical unit costs for each BMP. In 2007-08, the Department spent approximately $74.7 million for 396 treatment BMPs, $104.5 million in 2009-10 for 667 treatment BMPs, and $75.7 million in 2010-11 for 506 treatment BMPs. The Department indicated that anomalies in the data for 2008-09 make them unreliable and they are therefore not included. The Department also indicated that the unit cost factors do not include costs for design, ROW and other related elements. The estimates therefore can be considered on the low side.

Second, capital expenditures were estimated from budget appropriations from the Department's State Highway Operation and Protection Program (SHOPP) as reported in the 2008-09 annual report. The SHOPP account is the primary source of funding for storm water-related capital expenses. Storm water compliance costs are not consistently reported in the annual reports; however, the 2008-09 annual report contains sufficient information to make an estimate. The capital value of the SHOPP "storm water mitigation element" for fiscal years 2009-10 through 2012-13 is $640 million, including capital outlay support, or about $160 million per year.

Using average personal services and operating expenses for the last four years ($88 million) and average annual programmed SHOPP funding, the Department's expenditures to comply with the Existing Permit amount to approximately $248 million.

As stated above, the Department has estimated cost of compliance with the Draft Tentative and Revised Draft Tentative Orders variously at $281 to $904 million. These estimates are based on "worst case scenarios" and on the most restrictive interpretations of the Orders' requirements. In preparing the Second Revised Tentative Order, staff worked to provide greater clarity and certainty to the Department on the scope of permit obligations and to eliminate compliance costs that were not expected to yield significant water quality benefits. With the exception of a lowering of the post-construction treatment threshold for non-highway facility projects from 10,000 square feet of new impervious surface to 5,000 square feet[34], no requirements have been added to the Second Revised Draft Tentative Order that would materially increase the cost of compliance over the Revised Draft Tentative Order. In contrast, a number of substantive requirements have been removed, replaced or modified from the Revised Draft Tentative Order with the goal of focusing the Department's limited resources on the most significant water quality issues. These changes are expected to result in a lower cost of compliance with the Second Revised Draft Tentative Order as compared to the Revised Tentative Order. These include:

[34] The threshold was lowered for consistency with the draft statewide Phase II Small MS4 General Permit and with regional MS4 permits.

1. Water quality monitoring program.
   a. Replaced random compliance-driven monitoring approach with a tiered approach focusing on ASBS and TMDL watersheds, and deferring to the monitoring requirements specified in the ASBS Special Protections and TMDLs.
   b. Deleted sampling pool, water quality action levels, and response process flow chart.
   c. Removed 29 constituents from the monitoring constituent list.
   d. Limited the monitoring for new constituents to TMDL watersheds.
   e. For sites with existing monitoring data, limited BMP retrofits to 15 percent of the highest priority sites.
   f. Deleted the long-term monitoring program.
   g. Deleted maintenance facility compliance monitoring.

2. Project Planning and Design.
   a. Raised the treatment threshold for highway projects from 5,000 square feet of new impervious surface to one acre.
   b. Deleted the requirement for pilot Low Impact Development retrofits and effectiveness evaluations.

3. Hydromodification.
   a. Removed requirement for programmatic stream stability assessments and a retrofit implementation schedule.
   b. Raised the risk assessment threshold for non-highway facility projects from 10,000 square feet of new impervious surface to one acre.

4. Region Specific Requirements – removed, modified or scaled back requirements for the San Francisco Bay, Los Angeles, Central Valley, Lahontan, and San Diego Regional Water Boards with the goal of maximizing statewide consistency of requirements for the Department.

5. Construction Program – replaced requirement to inspect contractor operations outside the ROW with a requirement to include compliance language in its construction contracts.

6. TMDLs – Revised Attachment IV to more precisely identify the TMDLs applicable to the Department and shifted responsibility to prepare TMDL implementation plans from the Department to the Regional Water Boards.

7. ASBS – Added Attachment III to identify priority Department ASBS outfalls for installation of controls.

8. Maintenance Program.
   a. Deleted the requirement to report the amount of waste and debris removed from drainage inlets.
   b. Replaced the site-by-site characterization of waste management sites with a programmatic characterization.
   c. Deleted the requirement to prepare and implement a storm drain system survey plan.

d. Replaced quantitative measurements of trash and litter removal with estimated annual volumes.

9. Non-Storm Water.
   a. Deleted surveillance monitoring of agricultural return flows.
   b. Deleted characterization monitoring of slope lateral drains.

Though no firm conclusions or precise estimates can be drawn from this analysis, it is expected that the revisions to the Revised Draft Tentative Order will significantly reduce the cost of compliance.

ATTACHMENT I
Incident Report Form

Type of incident: ☐ **Field** ☐ **Administrative**	
Name of person completing this form:	Person's agency name and address:
_____	Person's phone and e-mail:

For Field incidents complete Sections 1 and 3. For Administrative incidents complete Section 2. See Non-Compliance Notification Schedule on Page 2.

SECTION 1: Field incidents

Date(s) and time(s) of incident:	1. Start date / time:
	2. End date / time:
Location of Incident:	3. Nearest city / town:
	4. Street address / nearest cross street:
	5. Latitude / Longitude:
County: _____	6. Additional location detail:
Materials involved in the incident: (use Comments Section below if necessary):	6. Name(s) of material(s) discharged:
	7. Approximate quantity discharged (specify units):
	8. Approximate concentration of material:
Discharge to surface water? ☐ **No** ☐ **Yes** If yes, answer questions 9-11	9. Name of waterbody:
	10. Apparent effects (if any) on waterbody:
	11. Estimated extent of impacts to waterbody:
Was CalEMA notified? ☐ **No** ☐ **Yes** If yes, answer questions12-14	12. Date and time of notification:
	13. Name of person making the notification:
	14. Phone number of person making the notification:
Was the Regional Water Board (RWB) notified? ☐ **No** ☐ **Yes** If yes, answer questions 15-17	15. Name of RWB contact:
	16. RWB contact's phone / e-mail:
	17. Name of person making the notification:
Were downgradient communities / people notified? ☐ **No** ☐ **Yes** If yes, answer questions 18 - 20	18. Date and time of notification:
	19. Name of person making the notification:
	20. Phone number of person making the notification:
	21. Name of downgradient community/ person:

Field Non-Compliance (check all that apply**)**	
	Lack of BMP(s), ineffective implementation of BMP(s), or failure of BMP(s) resulted in a discharge of pollutants to surface water.
	Monitoring data indicates an exceedance of a defined standard. Defined standards include TMDL Waste Load Allocations, and water quality standards in the Water Quality Control Plans and promulgated policies and regulations of the State and Regional Water Boards, including California Ocean Plan limitations and prohibitions.
	Discharge of prohibited non-storm water.
	Failure to comply with Facility Pollution Prevention Plan (FPPP) requirements.
	Failure to comply with inspection, monitoring, and reporting requirements and protocols.
	Other (describe - use Comments Section below if needed):

SECTION 2: Administrative Non-Compliance (check all that apply**)**

	Failure to submit reports or documents required by the Permit and/or SWMP, failure of timely submittal, and/or failure to submit required information.
	Failure to develop and/or maintain a site-specific FPPP or to implement any other procedural requirement of the Permit.
	Other (describe - use Comments Section below if needed):

SECTION 3: Description of Incident

Activities in the area prior to the incident (If any):
Initial assessment of any impact caused by the discharge (If any):
Samples collected and analyses requested (If any):
Steps taken to mitigate damage and prevent reoccurrence (If any):
Current Status:
Schedule for proposed mitigation/abatement (If any):
Other Comments:

Non-Compliance Notification Schedule

Type of Incident	Within 5 Working Days (Verbal)	Within 10 Working Days (Written)	Within 30 Calendar Days (Written)	In Annual Report
Emergency Incidents[1]	–	–	–	Chronological summary and status of all incidents
Field[2]	Notify RWB Executive Officer	To RWB Executive Officer and copies to Dept. HQ	–	Chronological summary and status of all incidents
Administrative[3]	Notify RWB Executive Officer or SWB Contact[3]	–	To RWB Executive Officer, SWB Executive Director, and copies to Dept. HQ.	Chronological summary and status of all incidents

[1] Sudden, unexpected, unpreventable incidents that threaten public health, public safety, property, or the environment that pose a clear and imminent danger requiring immediate action to prevent or mitigate the damage or threat, and that result in a discharge or potential discharge.

[2] Failure to meet any non-administrative requirement of the SWMP or Permit or to meet any applicable water quality standard. This includes failure to install required BMPs or conduct required monitoring or maintenance. It also includes discharges or prohibited non-storm water that do not meet the definition of emergency incidents. It does not include determinations by the Department or a Regional Water Board Executive Officer that a discharge is causing or contributing to an exceedance of an applicable WQS. See provision E.2.c.6)c).

[3] Failure to meet any administrative or procedural requirement of the SWMP or Permit including submission of required reports, notifications and certifications. The report of non-compliance shall be submitted to the same organization (State or Regional Water Board) to which the required report was originally due.

Certification – I certify that under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature of Contractor (if applicable)	Title	Telephone	Date:
Signature of Department Representative	Title	Telephone	Date:

ATTACHMENT II

Monitoring Constituent List
(Not Applicable to ASBS Discharges)

Constituent	Analytical Method	Reporting Limit[35]	Units
WATER COLUMN CHEMISTRY			
Conventional Pollutants			
Hardness as CaCO3	SM 2340 B or C	5	mg/L
pH	Calibrated Field Instrument		pH Units
Temperature	Calibrated Field Instrument		C +/-
Flow Rate	Calibrated Field Instrument		ft^3/s
Total Dissolved Solids	EPA 160.1	1	mg/L
Total Suspended Solids	EPA 160.2	1	mg/L
Hydrocarbons			
Oil & Grease	EPA 1664B	1.4	mg/L
Polycyclic Aromatic Hydrocarbons (Total)	EPA 8310	0.05	µg/L
Nutrients			
Total Kjeldahl Nitrogen (TKN)	EPA 351.3	100	µg/L
Nitrate as Nitrogen (NO_3-N)	EPA 300.0	100	µg/L
Phosphorous (Total)	EPA 365.2	30	µg/L
Metals			
Aluminum (Total)	EPA 200.8	25	µg/L
Chromium (Total)	EPA 200.8	1	µg/L
Copper (Total)	EPA 200.8	1	µg/L
Iron (Total)	EPA 200.8	1	µg/L
Lead (Total)	EPA 200.8	1	µg/L
Zinc (Total)	EPA 200.8	5	µg/L
Microbiological			
Fecal Coliform	SM 9221 C E	2	MPN/100 mL
Enterococcus[36]	EPA 1600	2	CFU/100 mL
WATER COLUMN TOXICITY			
Chronic[37]	EPA 821-R-02-013	Pass/Fail	

[35] Reporting limits should be sufficient enough to detect the presence of a constituent based on the applicable Regional Water Board Basin Plan. If no limit is specified in the Basin Plan, the reporting limit specified in this table will be used. If no limit is specified in this table, then the Regional Boards shall be consulted.
[36] Only applicable for direct discharges to marine waters. See definition of direct discharges and indirect discharges in Attachment VIII (glossary).
[37] To calculate either a Pass or Fail of the effluent concentration chronic toxicity test at the IWC, the instructions in Appendix A in the National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA/833-R-10-003) shall be used.

ATTACHMENT II

ASBS Monitoring

TABLE A
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Grease and Oil	mg/L
Suspended Solids	mg/L
Settleable Solids	mL/L
Turbidity	NTU
PH	

TABLE B
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Arsenic	µg/L
Cadmium	µg/L
Chromium	µg/L
Copper	µg/L
Lead	µg/L
Mercury	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Zinc	µg/L
Cyanide	µg/L
Total Chlorine Residual	µg/L
Ammonia (as N)	µg/L
Acute Toxicity	TUa
Chronic Toxicity	TUc
Phenolic Compounds (non-chlorinated)	µg/L
Chlorinated Phenolics	µg/L
Endosulfan	µg/L
Endrin	µg/L
HCH	µg/L

Analytical Chemistry Methods: All constituents shall be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

ATTACHMENT III

ASBS PRIORITY DISCHARGE LOCATIONS

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
SAU020A	1	Saunders Reef	-123.65273	38.85916
SAU019A	1	Saunders Reef	-123.6528	38.86067
SAU016A	1	Saunders Reef	-123.65237	38.85849
SAU015	1	Saunders Reef	-123.65178	38.85612
SAU013A	1	Saunders Reef	-123.6514	38.85451
SAU014	1	Saunders Reef	-123.6517	38.8551
SAU011A	1	Saunders Reef	-123.64853	38.8527
SAU008	1	Saunders Reef	-123.6478	38.8521
SAU006A	1	Saunders Reef	-123.64777	38.85186
SAU009A	1	Saunders Reef	-123.64809	38.85254
RED023	1	Redwoods National Park	-124.1017	41.60527
RED027	1	Redwoods National Park	-124.10126	41.59657
RED028	1	Redwoods National Park	-124.10101	41.59729
RED018A	1	Redwoods National Park	-124.1061	41.613
RED015	1	Redwoods National Park	-124.11257	41.62928
RED014	1	Redwoods National Park	-124.11296	41.63059
RED017A	1	Redwoods National Park	-124.10571	41.61195
FIT012	2	James V. Fitzgerald	-122.516861	37.531406
ANO030	3	Ano Nuevo	-122.30121	37.11334
ANO033	3	Ano Nuevo	-122.29881	37.11202
ANO001	3	Ano Nuevo	-122.306364	37.121672
ANO002	3	Ano Nuevo	-122.30534	37.11987
ANO035	3	Ano Nuevo	-122.29297	37.10714
ALT004	4	Laguna Point to Latigo Point	-119.059097	34.08609
MUG005	4	Laguna Point to Latigo Point	-119.03821	34.083896
ALT005	4	Laguna Point to Latigo Point	-119.054291	34.085415
ALT006	4	Laguna Point to Latigo Point	-119.048653	34.085361
MUG008	4	Laguna Point to Latigo Point	-119.036389	34.083644
MUG010	4	Laguna Point to Latigo Point	-119.014826	34.070804
MUG013	4	Laguna Point to Latigo Point	-118.993551	34.065445
MUG016	4	Laguna Point to Latigo Point	-118.987069	34.062852
ALT008	4	Laguna Point to Latigo Point	-118.985931	34.062325

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
MUG028	4	Laguna Point to Latigo Point	-118.974165	34.058928
ALT009	4	Laguna Point to Latigo Point	-118.975975	34.059978
MUG031	4	Laguna Point to Latigo Point	-118.968706	34.056265
MUG041	4	Laguna Point to Latigo Point	-118.964271	34.053461
MUG046	4	Laguna Point to Latigo Point	-118.960862	34.052112
MUG048	4	Laguna Point to Latigo Point	-118.9594833	34.05172
MUG049	4	Laguna Point to Latigo Point	-118.9594333	34.05165
MUG051	4	Laguna Point to Latigo Point	-118.957316	34.050937
ALT011	4	Laguna Point to Latigo Point	-118.939404	34.045355
MUG053	4	Laguna Point to Latigo Point	-118.95539	34.050248
MUG059	4	Laguna Point to Latigo Point	-118.9515	34.048835
MUG058	4	Laguna Point to Latigo Point	-118.95042	34.048355
ALT010	4	Laguna Point to Latigo Point	-118.948184	34.047873
MUG061	4	Laguna Point to Latigo Point	-118.94834	34.047675
MUG077	4	Laguna Point to Latigo Point	-118.9345833	34.04513
MUG078	4	Laguna Point to Latigo Point	-118.934358	34.045431
MUG070	4	Laguna Point to Latigo Point	-118.9320000	34.04600
MUG066	4	Laguna Point to Latigo Point	-118.924654	34.04714
MUG073	4	Laguna Point to Latigo Point	-118.922723	34.046418
MUG135	4	Laguna Point to Latigo Point	-118.897426	34.041983
MUG147	4	Laguna Point to Latigo Point	-118.894154	34.041553
MUG150	4	Laguna Point to Latigo Point	-118.889212	34.040872
MUG187	4	Laguna Point to Latigo Point	-118.869505	34.039285
SAD0950	4	Laguna Point to Latigo Point	-118.8385500	34.02699
SAD0960	4	Laguna Point to Latigo Point	-118.8375000	34.02619
SAD0970	4	Laguna Point to Latigo Point	-118.8364600	34.02535
SAD0980	4	Laguna Point to Latigo Point	-118.8348600	34.02435
MUG318	4	Laguna Point to Latigo Point	-118.834316	34.023879
SAD0990	4	Laguna Point to Latigo Point	-118.8326600	34.02302
SAD1000	4	Laguna Point to Latigo Point	-118.8303400	34.02123
MUG355	4	Laguna Point to Latigo Point	-118.829258	34.02122

Sample ID	Regional Board	ASBS Name	Longitude	Latitude
SAD1030	4	Laguna Point to Latigo Point	-118.827049	34.018711
SAD1040	4	Laguna Point to Latigo Point	-118.8256600	34.01748
SAD1050	4	Laguna Point to Latigo Point	-118.8249200	34.01700
SAD1060	4	Laguna Point to Latigo Point	-118.8225400	34.01559
ALT017	4	Laguna Point to Latigo Point	-118.777059	34.025805
MUG346	4	Laguna Point to Latigo Point	-118.783588	34.02508
MUG283	4	Laguna Point to Latigo Point	-118.765915	34.02589
IRV020	8	Irvine Coast	-117.840190	33.576001
IRV009	8	Irvine Coast	-117.830393	33.566251
IRV007	8	Irvine Coast	-117.828078	33.565343
IRV001	8	Irvine Coast	-117.81858	33.558
IRV002	8	Irvine Coast	-117.821484	33.560705
CAR007B	3	Carmel Bay	-121.923798	36.52499
CAR006	3	Carmel Bay	-121.92457	36.52469

Total Maximum Daily Load Requirements

Attachment IV prescribes the implementation requirements for the Total Maximum Daily Loads (TMDLs) in which the Department of Transportation (Department) has been identified as a responsible party. The TMDLs in this attachment have been (1) adopted by the Regional Water Quality Control Boards (Regional Water Boards) and approved by the State Water Resources Control Board (State Water Board) and the Office of Administrative Law or the United States Environmental Protection Agency (U.S. EPA), or (2) established by U.S. EPA.

Section I of this attachment provides directions and general guidance on development of a prioritized list of reaches for implementation actions. Section II identifies the applicable TMDLs and implementation requirements. Section II also contains TMDL-specific permit requirements for the Lake Tahoe Sediment/Nutrients TMDL, Napa River Sediment TMDL, Sonoma Creek Sediment TMDL, and the Lake Elsinore and Canyon Lake Nutrients TMDL. Section III prescribes the general implementation requirements applicable to all TMDLs, and the specific requirements applicable to each pollutant category.

The TMDLs addressed in this attachment were developed by numerous parties over many years, and vary widely in their implementation requirements. As explained in further detail in the Fact Sheet for this Order, Attachment IV establishes consistent implementation requirements among the TMDLs by separating them into one of eight categories by pollutant type, based upon the common treatment and control actions associated with each pollutant type. Each impaired waterbody will be prioritized for implementation by reach, with a fixed number of "compliance units" that must be achieved each year so that all TMDLs are addressed in 20 years. Effectiveness monitoring of the treatment and control actions is required to inform an adaptive management process.

The following eight TMDL pollutant categories have been established for TMDL implementation[38]:

1. Sediment/Nutrients/Mercury/Siltation/Turbidity
2. Metals/Toxics/Pesticides
3. Trash
4. Bacteria
5. Diazinon
6. Selenium
7. Temperature
8. Chloride

The Department shall comply with the requirements of Attachment IV. These requirements are directly enforceable through Order 2012-0011-DWQ (Order).

[38] Some TMDLs containing multiple pollutants have been separated according to the categories that best address the individual pollutants.

Section I. TMDL Prioritization and Implementation

A. Reach Prioritization for Pollutant Categories

The Department shall prioritize all TMDLs for implementation of source control measures and best management practices (BMPs). Prioritization shall be consistent with the final TMDL deadlines to the extent feasible. Prioritization shall be conducted separately for each pollutant category and shall be based on an evaluation of each reach of applicable receiving waters within the watershed with a TMDL. The Department shall conduct the prioritization using the following five steps:

1. Complete an inventory of reaches. If reaches are defined in a TMDL, the Department may use that delineation for developing the inventory. If no reaches are specified in the TMDL, the Department shall delineate the receiving water into reaches.

2. Segregate the inventory of reaches according to the pollutant categories listed below in Section III, B through I (Categorical Inventories of Reaches). Individual reaches may be present in multiple pollutant categories.

3. Rank the reaches in each TMDL category in accordance with a procedure similar to that presented in Table IV.1. below.

4. Submit the prioritized Categorical Inventories of Reaches to the State Water Board **by October 1, 2014**, for Regional Water Board and State Water Board consideration. The State Water Board will provide public notice of the submission and the submission will be subject to a 30-day public comment period.

5. The Department shall collaborate with the State Water Board and Regional Water Boards on a final prioritization for each of the Categorical Inventories of Reaches. Factors that may be considered in the final prioritization will include, but not be limited to:

    a. Opportunities for synergistic benefits with existing or anticipated projects or activities within the reach, e.g., cooperative efforts with other dischargers or projects within an ASBS,
    b. Multiple TMDLs that can be addressed by a single BMP or a suite of BMPs within a reach,
    c. TMDL deadlines specified in a Basin Plan,
    d. Regional Water Board and State Water Board priorities,
    e. Accessibility for construction and/or maintenance (e.g., safety considerations), and
    f. Multi-benefit projects that provide benefits in addition to water quality improvement, such as groundwater recharge or habitat enhancement.

B. Implementation

Following completion of the process described in Section I.A, the State Water Board Executive Director will approve, with any changes, the final prioritized Categorical Inventories of Reaches. The Department shall then select and begin implementation actions, as specified in Sections II and III, within the highest priority reaches to achieve at least the minimum number of compliance units as described below.

1. The Department shall include the following information regarding implementation of control measures in the selected reaches for the upcoming reporting period in the ***TMDL STATUS REVIEW REPORT***, as required in Section E.4.b. of the Order:
   a. Name of the waterbody,
   b. Associated TMDL(s),
   c. Proposed control measures,
   d. Proposed number of compliance units per control measure, and
   e. Projected schedule for installation of control measures with anticipated beginning and ending dates***.***

2. The Department shall also include in the ***TMDL STATUS REVIEW REPORT***[39] a discussion of previous years' activities including:
   a. The status of implementation activities,
   b. The location of the control measures,
   c. The size and type of BMPs that were installed,
   d. The effectiveness of the BMPs installed, including any pertinent monitoring data (e.g., influent vs. effluent data),
   e. A summary update of any cooperative implementation agreements (see Attachment IV, section II.B.1), including those that are solely for each TMDL,
   f. A summary update of activities and/or actions that have been completed for any cooperative implementation agreement for each TMDL,
   g. A summary update of projects initiated under the cooperative implementation grant program (see Attachment IV, section II.B.2),
   h. A summary update of activities and/or actions that have been completed for any projects under the cooperative implementation grant program,
   i. A summary of institutional control measures implemented to comply with Attachment IV,
   j. A summary of TMDLs adopted during the past year where the Department is assigned a WLA or the Department is identified as a responsible party in the implementation plan,
   k. A discussion, supported by data and analysis, of whether the Department considers work in the reach complete because it has met WLAs and other TMDL performance criteria, and

[39] Per section III.A.3.a of this attachment, by January 1, 2015, the Department shall submit the required information regarding planned implementation of control measures for the first upcoming reporting period (after permit amendment per Order WQ 2014-0077-DWQ) of January 1, 2015 – October 1, 2015.

l. Any other information requested by the State Water Board Executive Director or designee.

Control measures and implementation schedules proposed for the upcoming year are subject to the approval of the Executive Director of the State Water Board or designee.

3. Each year the Department shall select and begin implementation activities within the highest priority reaches to achieve a minimum of 1650 compliance units. A compliance unit is defined as one acre of the Department's Right-of-Way (ROW) from which the runoff is retained, treated, and/or otherwise controlled prior to discharge to the relevant reach. Compliance units may be credited to the Department for the following actions:

   - stand-alone BMP retrofits,
   - cooperative implementation,
   - monitoring program-related retrofits,
   - post-construction treatment beyond permit requirements, and
   - other pollution reduction practices necessary to comply with the TMDL.

   Compliance units, unless specifically stated below, are credited only when the Department begins implementation of an action listed above.[40] Once compliance units have been credited for a site, the Department may not receive credit for additional compliance units at that location for additional activities or corrective measures needed to bring the site into compliance. See Section III.A.2. Credit may be received, however, for new activities within the same reach that do not treat the runoff from a site that has already received treatment.

4. The Department may receive credit for compliance units by contributing funds to Cooperative Implementation Agreements and/or the Cooperative Implementation Grant Program (see Section II.B. below). The Department may receive credit for one compliance unit for each $88,000 that it contributes. For Cooperative Implementation Agreements, the credit will be received when the Department transfers the funds to a responsible party. For the Cooperative Implementation Grant Program, the credit will be received when the Department transfers the funds to the State Water Board.

5. No credit will be given to post-construction BMPs that only meet the minimum requirements of this Order (Section E.2.d.2)a)). Other projects within a TMDL watershed where treatment is provided above and beyond the post-construction requirements in this Order, may receive compliance units according to the following formula:

[40] For purposes of Section I.B of this attachment, implementation means that a project has entered the Project Initiation Document (PID) phase, the process used by the Department to explain the scope, funding commitment, and approval of a transportation project (http://www.dot.ca.gov/hq/oppd/pdpm/other/PDPM-Chapters.pdf).

$[(V_t-V_o)/p_{85}]*12$ = acres treated (compliance units calculated to the nearest 0.1)
Where, V_t = Planned volume of runoff to be treated (acre-ft.),
V_o = Volume of runoff from 85th percentile, 24-hour storm event (acre-ft.),
p_{85} = depth of the 85th percentile, 24-hour storm event (inches).

Table IV.1 – Reach Prioritization Scoring Matrix
The rating factors in this table are intended as guidance. Each pollutant category will be ranked separately.

Rating Factor	Criteria		
	High	**Medium**	**Low**
Impairment Status: Percent reduction needed	Over 75%	25% - 75%	Below 25%
Department's Drainage Area Contributing to the Reach	Over 5% of drainage area	Between 1% and 5% of drainage area	Less than 1% of drainage area
Proximity to Receiving Waters	Over 75% of ROW within 0.25 miles of reach	Between 25% and 75% of ROW within 0.25 miles of reach	Less than 25% of ROW within 0.25 miles of reach
Community Environmental Health Impact	Top 3 categories	Middle 4 categories	Lower 3 categories

Impairment Status
The degree of impairment of the waterbody, measured by the percent pollution reduction needed to achieve the WLA. Reaches with higher degrees of impairment will be given higher priority. Consider all sources of impairment when making this determination.

Department's Contributing Drainage Area
The contributing drainage area from the Department's ROW is relative to the watershed draining to the reach.

Proximity to Receiving Waters
This rating factor measures the relative proximity of the Department's ROW to the reach of the water that receives runoff from the Department's ROW. Sites discharging through conveyances within 0.25 miles of the pertinent reach are considered to have greater potential to contribute pollutants and receive a higher rating.

Community Environmental Health Impact
This rating factor requires use of the California Office of Health Hazard Assessment (OEHHA) evaluation tool "Enviroscreen" which can be found at http://oehha.ca.gov/ej/ces11.html. This tool should be used to assess environmental justice issues. Outcomes are segregated into 10 categories ranging from low to high environmental justice scores. Higher scores indicate that there is a higher potential for environmental justice issues to be present at a site.

Section II. Applicable TMDLs and Implementation Requirements

A. For each reach for which the Department has committed to begin implementation actions in accordance with Section I of this attachment, the Department shall do one of the following:

1. Implement the requirements in Table IV.2 applicable to that reach ensuring that all BMPs installed meet the minimum requirements specified in the following permit sections:
   - E.2.d.1) (Design Pollution Prevention Best Management Practices),
   - E.2.d.2)b) (Numeric Sizing Criteria for Storm Water Treatment Control BMPs),
   - E.2.e.1) (BMP Development and Implementation, Vector Control),
   - E.2.e.2) (BMP Development and Implementation , Storm Water Treatment BMPs),
   - E.2.e.3) (BMP Development and Implementation, Wildlife), and
   - E.2.e.4) (BMP Development and Implementation, Biodegradable Materials) of this Order.

In addition, the Department shall ensure that all BMPs installed do not cause a decrease in lateral (bank) or vertical (channel bed) stability in receiving stream channels.

2. Demonstrate that it has entered into or intends to enter into a Cooperative Implementation Agreement with other parties having responsibility for the TMDL, as specified below under Cooperative Implementation Agreements.

3. Identify cooperative implementation grants that have been awarded to other parties having responsibility for the TMDL, as specified below under Cooperative Implementation Grant Program.

B. Cooperative Implementation

1. Cooperative Implementation Agreements

a. The Department is encouraged to establish agreements for cooperative implementation efforts, such as joint implementation actions and/or special implementation studies with other parties that have responsibility for the TMDL, except where precluded by a TMDL or where specific implementation requirements are prescribed in Table IV.2. Cooperative agreements that only involve monitoring are not eligible for compliance units.

b. Where the Department has existing cooperative implementation agreements with other responsible parties, it shall fulfill the commitments and requirements of those agreements.

c. Where the Department has not yet committed to cooperative implementation efforts, but intends to do so, the Department must provide written notification,

including the anticipated date of commitment, to the State Water Board in its ***TMDL STATUS REVIEW REPORT***.

d. Cooperative agreements relative to the TMDL implementation activity are subject to approval by the applicable Regional Water Board Executive Officer. Cooperative agreements shall describe the terms of the mutually agreed activities to be performed, and at a minimum shall include:

   i. The date the cooperative agreement was approved by the Regional Water Board,
   ii. A map showing the location of work to be performed in the reach,
   iii. Any monitoring program parameters and responsibilities,
   iv. Any implementation responsibilities, including BMP Operation and Maintenance,
   v. Any funding commitments that correspond with the implementation responsibilities, and
   vi. A termination clause upon failure to comply with the terms and conditions of the agreement, as applicable.

e. The Department shall submit sufficient information to document the progress in achieving the requirements of the TMDL for each cooperative implementation agreement in its annual ***TMDL STATUS REVIEW REPORT***. (See Section I.B.2.)

f. If the Department is not participating or has not given notice of its intent to participate in cooperative implementation efforts, or the Department is not fulfilling its cooperative implementation responsibilities under an agreement, it shall immediately comply with applicable TMDL Control Requirements listed in Table IV-2 below and report the corresponding status in the ***TMDL STATUS REVIEW REPORT***.

2. **Cooperative Implementation Grant Program**

a. The Department may establish a cooperative implementation grant program to be administered by the State Water Board for TMDL watersheds.

b. If the Department elects to establish a grant program, the Department and State Water Board will prepare an agreement specifying the terms of the grant program and the commitments and responsibilities of the parties. The Department will be responsible for paying the State Water Boards' cost of administering the grant program.

c. Cooperative implementation grants will be used to fund capital projects undertaken by other responsible parties in impaired watersheds in which the Department has been assigned a WLA or otherwise has responsibility for implementation of the TMDL. Cooperative implementation grant applications that are consistent with the final prioritized Categorical Inventories of Reaches

(Section I.A.5) will be given a higher priority for funding. Cooperative implementation grants will not be awarded for projects that only involve monitoring, where precluded by a TMDL, or where specific implementation requirements are prescribed in Table IV.2.

C. Consideration for Factors Affecting Implementation

Implementation may require environmental approvals and permitting from local, State, and/or federal resource agencies (e.g., California Coastal Commission, California Department of Fish and Wildlife, U.S. Army Corps of Engineers, local Flood Control agencies, local County, etc.). Other factors such as safety concerns and technical infeasibility may affect project implementation. Delays or cancellations due to environmental or permitting factors beyond the Department's control must be reported in its annual ***TMDL STATUS REVIEW REPORT***.

The State Water Board will revoke compliance units for projects not completed within the implementation schedule approved under Section I.B.1 of this attachment, unless the delay in the implementation schedule is additionally approved by the Executive Director. Partial credit may be allowed if a portion of the project is completed and functioning.

The State Water Board will revoke compliance units for unrecovered grant funds for projects that are not completed under Section II.B.2 of this attachment. Partial credit may be allowed if a portion of the project is completed and functioning. If the grant program is discontinued, any unexpended funds will be returned to the Department and the corresponding compliance units will be revoked.

Compliance units revoked shall be added to the total number of the required compliance units in following years. For example, if a project which claimed 20 compliance units is cancelled, 1670 compliance units (1650 + 20) are required to be implemented in the following year. If the grant program is discontinued, additional time may be allowed for the Department to implement the corresponding compliance units.

Table IV.2. TMDL Summary Table and Control Requirements

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R1 - North Coast Regional Water Board			
Albion River	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Big River	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Lower Eel River	**Temperature and Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 18, 2007 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Middle Fork Eel River	**Temperature and Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 2003 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
South Fork Eel River	**Sediment and Temperature**	***U.S. EPA Established TMDL*** Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Upper Main Eel River and Tributaries (including Tomki Creek, Outlet Creek and Lake Pillsbury)	**Temperature and Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 29, 2004 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Garcia River	**Sediment**	Effective Date: March 16, 1998 BPA: 4-37.00 Action Plan for the Garcia River Watershed Resolution:	Implement Section III.A. and Section III.B.
Gualala River	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: November 29, 2004 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Klamath River in California	**Temperature, Dissolved Oxygen, Nutrients, and Microcystin**	Effective Date: December 28, 2010 BPA: Action Plan for Klamath River TMDLs Resolution: R1-2010-0026	Implement, Section III.A., Section III.B., Section III.H. In addition, the Department shall refer to the Section E.2.d.4) of this Order for locating, assessing, and remediating barriers to fish passage.
Lost River	**Nitrogen, Biochemical Oxygen Demand to address Dissolved Oxygen and pH Impairments**	Effective Date: December 30, 2008 BPA: Action Plan for Lost River TMDL Resolution: R1-2010-0026	Implement Section III.A. and Section III.B.
Mad River	**Sediment and Turbidity**	***U.S. EPA Established TMDL*** Effective Date: December 21, 2007 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Navarro River	**Sediment and Temperature**	***U.S. EPA Established TMDL*** Effective Date: December 27, 2000 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.H.
Noyo River	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Redwood Creek	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 30, 1998 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Scott River	**Sediment and Temperature**	Effective Date: August 11, 2006 BPA: Action Plan for Scott River. Resolutions: R1-2005-0113 &R-2010-0026	Implement Section III.A., Section III.B., and Section III.H.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Shasta River	**Dissolved Oxygen and Temperature**	Effective Date: January 26, 2007 BPA: Action Plan for the Shasta River Watershed Resolution: R1-2006-0052	Implement Section III.A., Section III.B., and Section III.H.
Ten Mile River	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 2000 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Trinity River	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 20, 2001 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
South Fork Trinity River and Hayfork Creek	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 1998 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Van Duzen River and Yager Creek	**Sediment**	***U.S. EPA Established TMDL*** Effective Date: December 16, 1999 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
R2 - San Francisco Bay Regional Water Board			
Napa River	**Sediment**	Effective Date: January 20, 2011 BPA: Chapter 7, Water Quality Attainment Strategies including TMDLs Resolution: R2-2009-0064	Implement Section III.A., Section III.B., and the following: • Conduct a survey of stream crossings associated with Department roadways, and develop a prioritized implementation plan and schedule for repair and/or replacement of high priority crossings/culverts. • Submit plan and schedule for conducting stream crossings surveys with

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
			TMDL STATUS REVIEW REPORT in accordance with Section I.B. above. • Submit implementation plan and schedule for repair and/or replacement of high priority crossings/culverts with ***TMDL STATUS REVIEW REPORT*** in accordance with Section I.B. above.
Richardson Bay	**Pathogens**	Effective Date: December 18, 2009 BPA: Pathogens in Richardson Bay Resolution: R2-2008-0061	Implement Section III.A. and Section III.E.
San Francisco Bay	**PCBs**	Effective Date: March 29, 2010 BPA: Exhibit A & TMDL & Implementation Plan for PCBs Resolution: R1-2008-0012	Implement Section III.A. and Section III.C.
San Francisco Bay	**Mercury**	Effective Date: February 12, 2008 BPA : Chapter 7, SF Bay Mercury TMDL Resolution: R2-2006-0052	Implement Section III.A, Section III.B., and the following: The Department shall work out an equitable mercury WLA scheme in consultation with the San Francisco Bay Area Urban Runoff Management Agencies.
San Pedro and Pacifica State Beach	**Bacteria**	Effective Date: August 1, 2013 BPA – Chapter 3, Section 3.3.1 Bacteria Resolution: R2-2012-0089	Implement Section III.A. and Section III.E.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Sonoma Creek	**Sediment**	Effective Date: September 8, 2010 BPA: Exhibit A & Implementation Plan Resolution: R2-2008-0103	Implement Section III.A., Section III.B, and the following: • Conduct a survey of stream crossings associated with Department roadways, and develop a prioritized implementation plan and schedule for repair and/or replacement of high priority crossings/culverts. • Submit plan and schedule for conducting stream crossings surveys with ***TMDL STATUS REVIEW REPORT*** in accordance with Section I.B. above. • Submit implementation plan and schedule for repair and/or replacement of high priority crossings/culverts with ***TMDL STATUS REVIEW REPORT*** in accordance with Section I.B. above.
San Francisco Bay Urban Creeks	**Diazinon & Pesticide-Related Toxicity**	Effective Date: May 16, 2007 BPA: Chapter 3, Toxicity Resolution: R2-2005-0063	Implement Section III.A., Section III.C., and Section III.F.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R3 - Central Coast Regional Water Board			
San Lorenzo River (includes Carbonera Lompico, and Shingle Mill Creeks)	**Sediment**	Effective Date: February 19, 2004 BPA: Attachment to R3-2002-0063 Resolution: R3-2002-0063	Implement Section III.A. and Section III.B.
Morro Bay (includes Chorro Creek, Los Osos Creek, and the Morro Bay Estuary)	**Sediment**	Effective Date: January 20, 2004 BPA: Attachment A to R3-2002-0051 Resolution: R3-2003-0051	Implement Section III.A. and Section III.B.
R4 - Los Angeles Regional Water Board			
Ballona Creek	**Metals (Ag, Cd, Cu, Pb, & Zn) and Selenium**	Effective Date: December 22, 2005 and reaffirmed on October 29, 2008 BPA: Attachment A, Chapter 7-12 Resolution: R2007-015	Implement Section III.A., Section III.C., and Section III.G.
Ballona Creek	**Trash**	Effective Date: August 1, 2002 & February 8, 2005 BPA: Attachment A, Chapter 7-3. Resolution: 2004-0023	Implement Section III.A. and Waste Load Allocation requirements and schedule as set forth in the Ballona Creek Trash TMDL.
Ballona Creek Estuary	**Toxic Pollutants (Ag, Cd, Cu, Pb, Zn, Chlordane, DDTs, Total PCBs, & Total PAHs)**	Effective Date: December 22, 2005 BPA: Attachment A, Chapter 7-14 Resolution: R4-2005-008	Implement Section III.A. and Section III.C.
Ballona Creek, Ballona Estuary, and Sepulveda Channel	**Bacteria**	Effective Date: March 26, 2007 and November 18, 2013 BPA: Attachment A, Chapter 7-21 Resolution: R4-2006-011	Implement Section III.A. and Section III.E.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Ballona Creek Wetlands	**Sediment and Invasive Exotic Vegetation**	***U.S. EPA Established*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Calleguas Creeks, its Tributaries and Mugu Lagoon	**Metals and Selenium**	Effective Date: March 26, 2007 BPA: Attachment A, Chapter 7-19 Resolution: R4-2006-012	Implement Section III.A., Section III.C., and Section III.G.
Calleguas Creeks its Tributaries and Mugu Lagoon	**Organochlorine Pesticides, Polychlorinated Biphenyls, and Siltation**	Effective Date: March 14, 2006 BPA: Attachment A, Chapter 7-17 Resolution: R4-2005-010	Implement Section III.A., Section III.B, and Section III.C.
Colorado Lagoon	**Organochlorine Pesticides, PCBs, Sediment Toxicity, PAHs, and Metals (Pb & Zn)**	Effective Date: June 14, 2011 BPA: Attachment K, Chapter 7-38 Resolution: R09-005	Implement Section III.A. and Section III.C.
Dominguez Channel & Greater Los Angeles & Long Beach Harbor Waters	**Toxic Pollutants: Metals (Cu, Pb, Zn), DDT, PAHs, and PCBs**	Effective Date: March 23, 2012 BPA: Attachment A, Chapter 7-40 Resolution: R11-008	Implement Section III.A. and Section III.C.
Legg Lake	**Trash**	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-27 Resolution: R4-2007-10	Implement Section III.A. and Section III.D.
Long Beach City Beaches and Los Angeles River Estuary	**Indicator Bacteria**	***U.S. EPA Established*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., and Section III.E.
Los Angeles Area (Echo Park Lake)	**Nitrogen, Phosphorus, Chlordane, Dieldrin, PCBs, & Trash**	***U.S. EPA Established*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., Section III.C., and Section III.D.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Los Angeles Area (Lake Sherwood)	**Mercury**	***U.S. EPA Established*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Los Angeles Area (North, Center, & Legg Lakes)	**Nitrogen & Phosphorus**	***U.S. EPA Established*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Los Angeles Area (Peck Road Park Lake)	**Nitrogen, Phosphorus, Chlordane, DDT, Dieldrin, PCBs, and Trash**	***U.S. EPA Established*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., Section III.C, and Section III.D.
Los Angeles Area (Puddingstone Reservoir)	**Nitrogen, Phosphorus, Chlordane, DDT, PCBs, Hg, and Dieldrin**	***U.S. EPA Established*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.C.
Los Angeles River and Tributaries	**Metals**	Effective Date: December 22, 2005, October 29, 2008, & Reopened and Modified on November 3, 2011 BPA: Attachment A, Chapter 7-13 to 7-13 and Attachment B Resolution: R2007-014 & R10-003	Implement Section III.A. and Section III.C.
Los Angeles River	**Trash**	Effective Date: December 24, 2008 BPA: Attachment A, Chapter 7-2 Resolution: R4-2007-012	Implement Section III.A. and Waste Load Allocation requirements and schedule as set forth in the Los Angeles River Watershed Trash TMDL.
Los Angeles River Watershed	**Bacteria**	Effective Date: March 23, 2012 BPA: Attachment A, Chapter 7-39 Resolution: R10- 007	Implement Section III.A and Section III.E.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Los Cerritos	**Metals**	***U.S. EPA Established*** Effective Date: March 17, 2010 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
Machado Lake	**Eutrophic, Algae, Ammonia, and Odors (Nutrients)**	Effective Date: March 11, 2009 BPA: Attachment A, to R09-006 Resolution: R08-006	Implement Section III.A. and Section III.B.
Machado Lake	**Pesticides and PCBs**	Effective Date: March 20, 2012 BPA: Attachment A, Chapter 7-38 Resolution: R10- 008	Implement Section III.A. and Section III.C.
Machado Lake	**Trash**	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-26 Resolution: R4-2007-06	Implement Section III.A. and Section III.D.
Malibu Creek Watershed	**Bacteria**	Effective Date: January 10, 2006, Revised on November 8, 2013 ** BPA: Attachment A, Chapter 7-10 Resolution: 2004-019R & R12-009	Implement Section III.A. and Section III.E.
Malibu Creek and Lagoon	**Sedimentation and Nutrients to address Benthic Community Impairments**	***U.S. EPA Established TMDL*** Effective Date: July 2, 2013 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.B.
Malibu Creek Watershed	**Trash**	Effective Date: June 26, 2009 BPA: Attachment A, Chapter 7-31 Resolution: R4-2008-007	Implement Section III.A. and Section III.D.
Marina del Rey Harbor	**Toxic Pollutants (Cu, Pb, Zn, Chlordane, and Total PCBs)**	Effective Date: March 16, 2006 BPA: Attachment A, Chapter 7-18 Resolution: R4-2005-012	Implement Section III.A. and Section III.C.
Marina del Rey Harbor Mothers' Beach and Back Basins	**Bacteria**	Effective Date: March 18, 2004, Revised on November 7, 2013 ** BPA: Attachment A, Chapter 7-5 Resolution: 2003-012, R12-007	Implement Section III.A. and Section III.E.

ATTACHMENT IV

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Revolon Slough and Beardsley Wash	**Trash**	Effective Date: August 1, 2002 & February 8, 2005 BPA: Attachment A, Chapter 7-3 Resolution: 2004-0023	Implement Section III.A. and Section III.D.
San Gabriel River	**Metals (Cu, Pb, Zn) and Selenium**	***U.S. EPA Established TMDL*** Effective Date: March 26, 2007 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.C., and Section III.G.
Santa Clara River Estuary and Reaches 3, 5, 6, and 7	**Coliform**	Effective Date: January 13, 2012 BPA: Attachment A, Chapter 7-36 Resolution: R10-006	Implement Section III.A. and Section III.E.
Santa Clara River Reach 3	**Chloride**	Effective Date: December 11, 2008 BPA: Attachment B to Resolution No. R4-2008-012 & R4-2008-012	Implement Section III.A. and Section III.I.
Santa Monica Bay Beaches	**Bacteria**	Effective Date: June 19, 2003, Revised November 7, 2013 ** BPA: Attachment A, Revised in Chapter 7-4 Resolution: 2003-012, R12-007	Implement Section III.A. and Section III.E.
Santa Monica Bay	**DDTs and PCBs**	***U.S. EPA Established TMDL*** Effective Date: March 26, 2012 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
Santa Monica Bay Nearshore & Offshore	**Debris (trash & plastic pellets)**	Effective Date: March 20, 2012 BPA: Attachment A, Chapter 7 Resolution:	Implement Section III.A. and Section III.D.
Upper Santa Clara River	**Chloride**	Effective Date: April 6, 2010 BPA: Attachment B. Chapter 7-6 Resolution: R4-2008-012	Implement Section III.A. and Section III.I.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Ventura River Estuary	**Trash**	Effective Date: February 27, 2008 BPA: Attachment A, Chapter 7-25 Resolution: R4-2007-008	Implement Section III.A. and Section III.D.
Ventura River and its Tributaries	**Algae, Eutrophic Conditions, and Nutrients**	Effective Date: June 28, 2013 BPA: Attachment A, Chapter 7-35 Resolution: R12-011	Implement Section III.A. and Section III.B.
R5 - Central Valley Regional Water Board			
Clear Lake	**Nutrients**	Effective Date: September 21, 2007 BPA: Attachment 1 to R5-2006-0060 Resolution No.: R5-2006-0060	Implement Section III.A. and Section III.B.
Cache Creek, Bear Creek, Sulphur Creek and Harley Gulch	**Mercury**	Effective Date: February 7, 2007 BPA: Attachment 1 to R5-2005-0146 Resolution: R5-2005-0146	Implement Section III.A. and Section III.B.
Sacramento-San Joaquín River Delta Estuary	**Methyl mercury**	Effective Date: October 20, 2011 BPA: Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento – San Joaquin River Delta Estuary Resolution: R5-2010-0043.	Implement Section III.A. and Section III.B.
R6 - Lahontan Regional Water Board			
Lake Tahoe Sediment and Nutrients TMDL Effective Date: August 16, 2011 BPA: WQ Amendment May 2008 Resolution: 2009-0028 **Lake Tahoe Sediment Requirements** A. Pollutant Load Reduction Requirements The Department must reduce fine sediment particle (FSP), total phosphorus (TP), and total nitrogen (TN) loads by 10%, 7%, and 8%, respectively, by September 30, 2016.			

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements

Pollutant load reductions shall be measured in accordance with the processes outlined in the most recent version of Lake Clarity Crediting Program Handbook. To demonstrate compliance with the average annual fine sediment particle pollutant load reduction requirements, the Department must earn and maintain 298 Lake Clarity Credits for the water year October 1, 2015 to September 30, 2016, and for subsequent water years.

B. Pollutant Load Reduction Plans

The Department shall prepare a Pollutant Load Reduction Plan (PLRP) describing how it expects to meet the pollutant load reduction requirements described in Section A above. The Department shall submit a plan no later than July 15, 2014 that shall include, at a minimum, the following elements:

1. *Catchment registration schedule*
   The PLRP shall include a list of catchments that the Department plans to register pursuant to the approved Lake Clarity Crediting Program to meet load reduction requirements. The list shall include catchments where capital improvement projects have been constructed since May 1, 2004 that the Department expects to claim credit for, and catchments where projects will be constructed and other load reduction activities (capital improvements, institutional controls, and other measures/practices implement) taken during the term of this Order.

2. *Proposed pollutant control measures*
   The PLRP shall generally describe storm water program activities to reduce fine sediment particle, total phosphorus, and total nitrogen loading that the Department will implement in identified catchments.

3. *Pollutant load reduction estimates*
   The Department shall conduct pollutant load reduction analyses on a representative catchment subset to demonstrate that proposed implementation actions are expected to achieve the pollutant load reduction requirements specified in Section A. above. For representative catchments, the analysis shall include detailed estimates of both baseline pollutant loading and expected pollutant loading resulting from implementation actions and provide justification why the conducted load reduction analysis is adequate for extrapolation to other catchments.

   The pollutant loading estimates shall differentiate between estimates of pollutant load reductions achieved since May 1, 2004 and pollutant load reductions from actions not yet taken.

4. *Load reduction schedule*
   The PLRP shall describe a schedule for achieving the pollutant load reduction requirements described in the

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
Lake Tahoe Sediment TMDL Section A above. The schedule shall include an estimate of expected pollutant load reductions for each year of this Permit term based on preliminary numeric modeling results. The schedule shall also describe which catchments the Department anticipates it will register for each year of this Permit term. 5. *Annual adaptive management* The PLRP shall include a description of the processes and procedures to annually assess storm water management activities and associated load reduction progress. The plan shall describe how the Department will use information from the monitoring and implementation or other efforts to improve operational effectiveness and for achieving the pollutant load reduction requirements specified in Section A. 6. *Pollutant Load Reduction Plan Update* By March 15, 2017, the Department shall update its Pollutant Load Reduction Plan to describe how it will achieve the pollutant load reduction requirements for the second five-year TMDL implementation period, defined as the ten-year load reduction milestone in the Lake Tahoe TMDL. Specifically, the updated Pollutant Load Reduction Plan shall demonstrate how the Department will reduce baseline fine sediment particle, total nitrogen, and total phosphorus loads by 21 percent, 14 percent, and 14 percent, respectively, by water year 2021. C. Pollutant Load Reduction Progress To demonstrate pollutant load reduction progress, the Department shall submit a Progress Report by July 15, 2014 documenting pollutant load reductions accomplished between May 1, 2004 (baseline year) and October 15, 2011. D. Pollutant Load Reduction Monitoring and Water Quality Monitoring Requirements The Department shall prepare and submit a Storm water Monitoring Plan for review and approval by the Regional Water Board by July 15, 2013 and implement the approved plan.			
Truckee River	**Sediment**	Effective Date: September 16, 2009 BPA: WQ Amendment May 2008 Resolution: 2009-0028	Implement Sections III.A. and Section III.B.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R7 - Colorado River Regional Water Board			
Coachella Valley Storm Water Channel	**Bacterial Indicators**	Effective Date: April 27, 2012 BPA: Attachment 1: Final CVSC Bacteria TMDL Resolution: R7-2010-0028	Implement Section III.A. and Section III.E.
R8 - Santa Ana Regional Water Board			
Big Bear Lake	**Nutrients for Dry Hydrological Conditions**	Effective Date: September 25, 2007 BPA: Attachment to R8-2006-0023 Resolutions: R8-2006-0023, and R8-2008-0070	Implement Section III.A. and Section III.B.

Lake Elsinore and Canyon Lake Nutrients TMDL
Effective Date: September 30, 2005
BPA: Attachment to R8-2004-0037 &
R8-2006- 0031
Resolution: R8-2007-0083
Implement Section III.A., Section III.B., and the following:

Lake Elsinore/Canyon Lake Nutrient TMDL Joint Responsibility Options

a. The Department has already committed to cooperative implementation actions, monitoring actions, special studies and implementation actions jointly with other responsible agencies as an active paying member of the Lake Elsinore/Canyon Lake TMDL Task Force. The Department shall continue with those actions and remain an active paying Task Force member.

b. If the State Water Board is notified that the Department is not fulfilling its Lake Elsinore/Canyon Lake Task Force obligations or if Department chooses to opt out of the cooperative approach with the TMDL Task Force for implementation actions, monitoring actions, and/or special studies the Department shall make a formal decision six months after the adoption of the Permit Amendment. These decisions must be approved/adopted by the State Board. The Department will then be required to conduct the following activities:
   1) Within 30 days of such notification, implement a Lake Elsinore and Canyon Lake in-lake monitoring consistent with the TMDL Task Force monitoring program.
   2) Within 30 days of such notification, submit a proposed Department facilities monitoring program to evaluate nutrient discharges from the Department's facilities in the Lake Elsinore/Canyon Lake watershed.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
3) Within 30 days of notification, develop and implement a Lake Elsinore in-lake sediment nutrient reduction program to mitigate Department facilities in-lake nutrient sediment load. Develop and implement a monitoring program to evaluate the success of in-lake sediment reduction strategies that will be implemented. 4) Within 60 days of notification, develop and implement a Canyon Lake in-lake sediment nutrient reduction program to mitigate Department facilities in-lake nutrient sediment load. Develop and implement a monitoring program to evaluate the success of in-lake sediment reduction strategies that will be implemented. 5) Within 60 days of notification, submit an annual monitoring report by August 15th of each year. 6) Submit an annual in-lake nutrient reduction program status report by August 15th of each year			
Rhine Channel Area of Lower Newport Bay	**Chromium and Mercury**	***U.S. EPA Established TMDL*** Effective Date: June 14, 2002 BPA: N/A Resolution: N/A	Implement Section III.A., Section III.B., and Section III.C.
San Diego Creek and Newport Bay, including Rhine Channel	**Metals (Copper, Lead, & Zinc)**	***U.S. EPA Established TMDL*** Effective Date: June 14, 2002 BPA: N/A Resolution: N/A	Implement Section III.A. and Section III.C.
San Diego Creek and Upper Newport Bay	**Cadmium**	***U.S. EPA Established TMDL*** Effective Date: June 14, 2002 BPA: N/A	Implement Section III.A. and Section III.C
San Diego Creek Watershed	**Organochlorine Compounds (DDT, Chlordane, PCBs, & Toxaphene)**	Effective Date: November 12, 2013 BPA: Attachment 2 Resolution: R8-2011-0037	Implement Section III.A. and Section III.C.
Upper & Lower Newport Bay	**Organochlorine Compounds (DDT, Chlordane & PCBs)**	Effective Date: November 12, 2013 BPA: Attachment 2 Resolution: R8-2011-0037	Implement Section III.A. and Section III.C.

Impaired Waterbody	Pollutant(s)	Approved or U.S. EPA Established TMDLs Effective Date Basin Plan Amendment Resolution No.	Implementation Requirements
R9 - San Diego Regional Water Board			
Chollas Creek	**Diazinon**	Effective Date: November 3, 2003 BPA: Attachment A to Resolution: R9-2002-0123	Implement Section III.A. and Section III.F.
Chollas Creek	**Dissolved Copper, Lead and Zinc**	Effective Date: December 18, 2008 BPA: Attachment A Resolution: R9-2007-0043	Implement Section III.A and Section III.C.
Rainbow Creek	**Total Nitrogen and Total Phosphorus**	Effective Date: March 22, 2006 BPA: Attachment A Resolution: R9-2005-0036	Implement Section III.A. and Section III.B.
Project 1- Revised Twenty Beaches & Creeks in the San Diego Region (including Tecolote Creek)	**Indicator Bacteria**	Effective Date: June 22, 2011 BPA: Attachment A Resolution: R9-2010-001	Implement Section III.A. and Section III.E.
** OAL Approved, U.S. EPA Approval Pending			

Section III. General and Categorical Requirements

A. General Requirements for All TMDLs:

1. **Comprehensive TMDL Monitoring Plan**

   a. The Department shall continue to implement existing TMDL water quality monitoring plans, including cooperative water quality monitoring plans that the Department is party to that have already received approval from the Regional Water Board Executive Officer.

   b. The Department shall develop and implement a comprehensive TMDL monitoring plan to be submitted to the State Water Board by January 1, 2015. The comprehensive TMDL monitoring plan shall include existing approved water quality monitoring plans as described in Section III.A.1.a. above, and shall also include monitoring for all TMDLs that do not have existing approved

water quality monitoring plans. The proposed comprehensive TMDL monitoring plan shall be designed to inform selection of BMPs, to inform future reach prioritization submittals, and to assess the effectiveness of BMP implementation. The Department may propose monitoring by pollutant category and may rely on representative monitoring for BMP effectiveness assessment. The comprehensive TMDL monitoring plan shall include a time-schedule for the implementation of the monitoring plan. The comprehensive TMDL monitoring plan is subject to approval by the Executive Director of the State Water Board.

2**. Adaptive Management**

The Department shall use monitoring data to conduct an on-going assessment of the performance and effectiveness of BMPs. The assessment shall include necessary modifications to control measures to achieve WLAs and other applicable performance standards. Where an assessment indicates that control measures are inadequate to achieve WLAs and other performance standards in a reach, the Department must implement improved control measures/BMPs.

3. **Reporting**

a. By January 1, 2015, the Department shall submit the required information in section I.B. of this attachment regarding planned implementation of control measures for the upcoming reporting period (January 1, 2015 – October 1, 2015).

b. The Department shall summarize the previous year's TMDL monitoring results, deliverables and other actions as specified in its annual ***TMDL STATUS REVIEW REPORT***.

c. The Department shall prepare and submit a ***TMDL PROGRESS REPORT*** by January 1, 2018, to the State Water Board as part of its report of waste discharge under Provision E.13.c. The ***TMDL PROGRESS REPORT*** shall be presented to the State Water Board as an informational item and include the following information:

i. A summary of the effectiveness of the control measures installed for each reach that has been addressed, as a result of the BMP effectiveness assessment,

ii. A determination as to whether the control measures have been or will be sufficient to achieve WLAs and other performance standards by the final compliance deadlines,

iii. Where the control measures are determined not to be sufficient to achieve WLAs or other performance standards by the final compliance deadlines, a proposal for improved control measures to address the relevant pollutants,

iv. A summary of the estimated quantified amount of pollutants prevented from entering into the receiving waters as a result of BMPs, cooperative agreements, or other source control measures taken, and

v. An analysis demonstrating that the level of effort (1650 compliance units/year) during the present permit cycle will be sufficient to achieve WLAs and other performance standards for all TMDLs listed in Table IV.2 by 2034. The analysis must utilize monitoring data if available, pertinent analytical tools, including modeling where appropriate, and provide a reasonable assurance that applicable WLAs and performance criteria will be met.

The ***TMDL PROGRESS REPORT*** will be subject to public review and comment and will be used in the development of the reissued permit.

B. Sediment/Nutrients/Mercury/Siltation/Turbidity TMDL Control Requirements

Sediment, nutrient and mercury TMDLs identify sediment from roads as a significant or primary source of these pollutants. Measures that control the discharge of sediment can be effective in controlling releases of nutrients and mercury. Therefore, the Department shall implement control measures to prevent or minimize erosion and sediment discharge. This can be achieved by protecting hillsides, intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying natural runoff flow patterns.

C. Metals/Toxics/Pesticides TMDL Control Requirements

1. **Fine Particulates**

Toxic pollutants and/or heavy metals have a high affinity for adherence to fine sediment, such as particles from tires, brake parts, and the road surfaces. Therefore, the appropriate control measures for metals and toxics are to control erosion and prevent or minimize the discharge of fine sediment. The Department shall implement control measures to prevent the discharge of fine sediment. This can be achieved by intercepting and filtering runoff, avoiding concentrated flows in natural channels and drains, and not modifying runoff flow patterns.

2. **Dissolved Fraction Metals**

The fraction of metals that are not bound to particulates exists in a dissolved state as free metal ions, as inorganic complexes, or bound to dissolved organic chemicals. Although fine particulate removal also reduces dissolved fraction metals, additional control measures may be necessary for the control of dissolved metals. Typically, treatment for dissolved fraction metals requires physical structures that prevent contaminated runoff from reaching receiving waters, such as infiltration systems that allow runoff water to percolate into soil.

The Department shall propose and implement appropriate control measures to reduce the discharge of dissolved fraction metals to comply with this Order.

3**. Pesticides**

The Department shall comply with Provision E.2.h.3)b) of this Order which specifies practices for the safe handling and use of pesticides, including

compliance with federal, State and local regulations, and label directions. This provision also requires site assessments, applicator training, and implementation of integrated pest and vegetation management practices in its vegetation control program.

D. Trash TMDL Control Requirements

Trash in waterbodies reduces habitat for aquatic life, directly impacts wildlife from ingestion or entanglement, impacts human health from pathogens, and impacts the aesthetics of waterbodies.

1. The discharge of trash to receiving waters is prohibited. The Department shall comply with this prohibition in all significant trash generating areas in the watersheds subject to trash TMDL controls, identified as the following:
   a. Highway on-ramps and off-ramps in high density residential, commercial, and industrial land use areas.
   b. Rest area and park-and-ride facilities.
   c. State highways in commercial and industrial land use areas.
   d. Mainline highway segments identified through pilot studies and/or surveys.

2. The Department shall comply with the discharge prohibition of trash through one of the following control measures:
   a. Install, operate, and maintain a full capture system, treatment controls, and/or institutional controls for storm drains that service the significant trash generating areas; or
   b. Coordinate with neighboring municipalities that have jurisdiction over significant trash generating areas and/or priority land use areas (high density residential, industrial, commercial, mixed urban, and public transportation stations) to implement Section III.D.2.a above.

3. The Department shall submit as part of its ***TMDL STATUS REVIEW REPORT*** a determination of the highway characteristics that may qualify as significant trash generating areas by October 1, 2015, and

4. The Department shall submit as part of its ***TMDL STATUS REVIEW REPORT*** the status of each of the applicable control measures specified in Section III.D.2 above.

   The constituents of Attachment II are not applicable for this pollutant category; therefore the Department is exempted from monitoring for the constituents listed in Attachment II for the waterbodies listed only for trash impairments.

E. Bacteria TMDL Control Requirements

The constituents of Attachment II are not applicable for this pollutant category; therefore the Department is exempted from monitoring for the constituents listed in Attachment II for the waterbodies listed only for bacteria impairments.

1. Dry-Weather Flows

Dry weather non-storm water discharges may significantly increase bacteria loading to receiving waters. Therefore, the Department shall implement control measures to ensure that the effective prohibition of non-storm water discharges (Provision B.2. of this Order) is implemented according to the prioritized work schedule specified in Section I of this attachment. The prohibition of non-storm water discharges can be achieved through infiltration, diversion, or other methods.

2. Wet-Weather Flows
   Wet weather storm water discharges also contribute significant bacteria loads to receiving waters. The principal impact is to the water contact recreation beneficial use (REC-1). The Department shall implement control measures/BMPs to prevent or eliminate the discharge of bacteria from its ROW. Source control and preemptive activities such as street sweeping, clean-up of illegal dumping, public education on littering; and BMPs such as retention/detention, infiltration, diversion of storm water prevent or eliminate the discharge of bacteria to receiving waters.

F. Diazinon TMDL Control Requirements

Diazinon is an organophosphate pesticide used in agriculture. It is no longer registered by the California Department of Pesticide Regulation for non-agricultural uses. The Department does not use diazinon on its ROW. The discharge of diazinon is prohibited.

G. Selenium TMDL Control Requirements

Selenium is naturally occurring in geologic formations, soils and aquatic sediments. Storm water runoff, dewatering, ground water seepage, irrigation of high selenium content soils, and oil refineries are identified as significant sources of selenium. The Department shall implement control measures to control the discharge of selenium, unless the Department can demonstrate one of the following:

1. There is no exceedance of an applicable receiving water limitation for selenium in the receiving water(s) at, or immediately downstream of, the Department's outfall(s), or
2. There is no direct or indirect discharge from the Department's outfall(s) to the receiving water during the time period subject to the WLA.

The Department does not have to comply with the monitoring requirements of Attachment II in demonstrating non-exceedance or no discharge of selenium.

H. Temperature TMDL Control Requirements

Maintenance activities may increase receiving water temperatures as a result of vegetation removal and/or erosion and sedimentation. Sedimentation and erosion control measures for temperature impairments are being required in accordance with Section III.B. Therefore, the Department shall:

1. Preserve existing riparian biotic conditions immediately adjacent to receiving waters susceptible to temperature increases,

2. Provide effective shade near receiving waters susceptible to temperature increases, and
3. Maintain site potential effective shade near receiving waters susceptible to temperature increases.

Alteration of riparian biotic conditions that may increase sedimentation or reduce effective shade shall receive prior written authorization by the applicable Regional Water Board Executive Officer or designee.

Site-specific Potential Effective Shade is defined as the shade equivalent to that provided by topography and potential vegetation conditions at a site. Effective shade is the percentage of direct beam solar radiation that attenuated and scattered before reaching the ground or stream surface from topographic and vegetation conditions. The term “site-specific potential” is defined as the vegetation conditions possible at a location, considering the vegetation species present, and any natural factors that limit vegetation size and density.

I. Chloride TMDL Control Requirements

Elevated levels of chloride in receiving waters affect their beneficial use for agricultural irrigation. Chloride in the Santa Clara River watershed is principally due to increased salt loadings from imported water and the use of self-regenerating water softeners. The Department does not discharge significant amounts of chloride and any minimal discharges are expected to be addressed under the requirements of this Order. No additional TMDL implementation actions for control of chloride are required in this attachment.

REGIONAL WATER BOARD SPECIFIC REQUIREMENTS

PART 1
NORTH COAST REGION

1. North Coast Regional Water Board Resolution R1-2004-0087 directs its staff to utilize existing regulatory programs to address sources of sediment within sediment impaired watersheds. The Department owns road right-of-way and other property within watersheds that are listed as impaired for sediment. Some of these facilities have sources of sediment (eroding shoulders, failed culverts, unstabilized cut and fill slopes, etc) that discharge into sediment impaired waterbodies. Consistent with Resolution R1-2004-0087 and the Water Quality Control Plan for the North Coast Region, the Department shall take the following steps in watersheds listed for sediment to identify, prioritize and control sources of sediment that discharge anthropogenic amounts of sediment into impaired waters. These requirements are in addition to any watershed-specific TMDL implementation requirements listed in Attachment IV of this Order. Steps to be taken include:

    a. Inventory: Identify sources of excess sediment or threatened discharge, and quantify the discharge or threatened discharges from the source(s).

    b. Prioritize: Prioritize efforts to control discharge of excess sediment based on, but not limited to, severity of threat to water quality and beneficial uses, the feasibility of source control, and source site accessibility. The inventory and prioritized steps shall be completed within two (2) years of the adoption of this Order and updated annually. This step is not required if the Department is implementing the requirements of Attachment IV for sediment TMDLs as the given reaches have already been prioritized within the context of statewide implementation.

    c. Implement: Develop and implement feasible sediment control practices to prevent, minimize, and control the discharge.

    d. Monitor and Adapt: Use monitoring results to direct adaptive management measures in order to refine and adjust erosion control practices and implementation schedules, until sediment discharge is reduced and no longer causes a violation of any sediment related narrative or numeric objective.

    Each District within the North Coast Region shall include a time schedule for the above-referenced activities within the District Workplan for Regional Water Board approval. The time schedule shall implement the required activities as quickly as feasible. An annual update on activities and compliance with the projected time schedule shall be included in each subsequent annual report.

2. Removal of riparian vegetation may result in a threatened discharge or an exceedance of a water quality objective. The North Coast Region has many

watersheds that are impaired for excess sediment and temperature. Riparian vegetation shall be protected and restored to the greatest extent feasible and removal may require permitting by the Regional Water Board.

PART 2
SAN FRANCISCO BAY REGION

1. High Trash Generation Areas

The Department shall demonstrate compliance with Discharge Prohibition 7, Table 4-1 of the San Francisco Bay Regional Water Board Basin Plan through the timely implementation of control measures in all high trash generating areas in the San Francisco Bay Region, identified as the following:

a. Freeway on- and off-ramps in high density residential, commercial and industrial land uses.
b. Rest areas and park-and-rides.
c. State highways in commercial and industrial land use areas.
d. Other freeway segments as identified by maintenance staff and/or trash surveys.

2. Control Measures

The Department shall comply with the prohibition of discharge for trash through implementation of the following control measures:

a. Install, operate, and maintain full trash capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchments that service the significant trash generating areas.
b. Coordinate with neighboring MS4 permittees to construct, operate, and maintain full trash capture systems, treatment controls, and/or enhanced maintenance controls in high trash generating areas and/or priority land use areas (high density residential, industrial, commercial, and public transportation stations).

All installed devices that meet the full trash capture definition (See “Full Capture System”, Attachment VIII) may be counted toward this requirement regardless of date of installation.

3. Coordination with Local Entities

The Department may choose to establish a municipal coordination plan to design, build, operate, and/or maintain controls in conjunction with other watershed stakeholders. The Minimum Full Trash Capture requirement may be met with the Department specific activities and devices, or from load reduction resulting from municipal coordination implementation, or any combination thereof, so long as the municipal coordination activities meet the full trash capture standard.

4. Assessment

The Department shall assess the effectiveness of enhanced maintenance controls implemented in high trash generation areas. This assessment will include controls implemented in coordination with local municipalities.

5. Additional

a. Abate trash from construction and reconstruction projects.
b. Include trash capture devices on the outlets of treatment systems for new and redeveloped highway projects to achieve the full trash capture standard.

6. Reporting

In each Annual Report, as part of the ***TMDL STATUS REVIEW REPORT,*** the Department shall provide a per District summary of the following:

a. Trash load reduction actions.
b. Full trash capture installation and maintenance.
c. Implementation of enhanced maintenance controls.
d. A map and list of high trash generation areas and the installed controls addressing each area.
e. The reporting of trash load shall be in a manner approved by the Executive Officer.
f. Municipal coordination implementation.

7. **Storm Water Pump Stations**

The Department shall comply with the following implementation measures to reduce polluted water discharges from its pump stations:

a. Complete an inventory of pump stations within the Department's jurisdiction in the San Francisco Bay Region, including locations and key characteristics[41] and submit to the Regional Water Board by October 1, 2015.

b. Inspect and collect dissolved oxygen (DO) data from 20 percent of the pump stations once a year (100 percent in five years) after a minimum of a two week antecedent period with no precipitation. DO monitoring is exempted where all discharge from a pump station remains in the storm water collection system or infiltrates into a dry creek immediately downstream.
c. If DO levels are at or below three milligrams per liter (3 mg/L), apply corrective actions, such as continuous pumping at a low flow rate, aeration, or other appropriate methods to maintain DO concentrations of the discharge above 3 mg/L.

d. Report inspection and monitoring results in the Annual Report.

[41] Characteristics include name of pump station, latitude and longitude in NAD83, number of pumps, drainage area in acres, dominant land use(s), first receiving water body, maximum pumping capacity of station in gallons per minute (gpm), flow measurement capability (Y or N), flow measurement method, average wet season discharge rate in gpm, dry season discharge (Y, N, or unknown), nearest municipal wastewater treatment plant, wet well storage capacity in gallons, trash control (Y or N), trash control measure, and date built or last updated.

PART 3
LAHONTAN REGION

The Water Quality Control Plan for the Lahontan Region (Basin Plan) has additional requirements which have been historically applied to the Department's permits and which apply to this NPDES Permit in the Lahontan Region. These requirements include:

1. For projects meeting the criteria specified in Provision E.2.d.of the permit (Project Planning and Design), the following numeric sizing criteria for storm water treatment control BMPs apply:

   Where storm water runoff is determined to have connectivity to surface waters and/or is not adequately infiltrated or treated by the natural environment, storm water/urban runoff collection, treatment, and/or infiltration disposal facilities shall be designed, installed, and maintained for the discharge of storm water runoff from all impervious surfaces generated by the 20-year, one-hour design storm (1) within the Truckee River Hydrologic Unit (3/4- inch of rain), (2) within the East Fork Carson River and West Fork Carson River Hydrologic Units (one inch of rain), and (3) within the Mammoth Creek Hydrologic Unit above 7,000-foot elevation (one inch of rain). Hydrologic evaluations may be required or may be conducted consistent with the NEAT study described in item No. 2 below to help determine areas where infiltration of the 20-year, one-hour storm is required.

2. In 2009, the Department completed the Natural Environment as Treatment (NEAT) study and report for 38 miles of roadway within the Lake Tahoe Hydrologic Unit. The NEAT approach is consistent with the strategic approach required by this permit. Projects developed within the NEAT study area shall be designed and constructed based on the priority areas identified by the study.

3. Unless granted a variance by the Lahontan Regional Water Board Executive Officer, there shall be neither removal of vegetation nor disturbance of existing ground surface conditions between October 15 of any year and May 1 of the following year, except when there is an emergency situation that threatens the public health or welfare. This prohibition period applies to the Lake Tahoe, Truckee River, East Fork Carson River, and West Fork Carson River Hydrologic Units and above the 5,000-foot elevation in the portions of Mono and Inyo Counties within the Lahontan Region.

4. Project Review Requirements
   a. The Department shall participate in early project design consultation for all projects within the Lake Tahoe, Truckee River, East and West Forks Carson River and Mammoth Creek Hydrologic Units.

   b. The Department must solicit Lahontan Regional Water Board staff review when project development/design is at the 20 to 30 percent design level (prior to Project "Approval" and Environmental Document), 60 percent design level, and 90 percent design level (Plans, "Specifications" and Estimates).

ATTACHMENT VI — STANDARD PROVISIONS

1. **Duty to Comply.** The Department shall comply with all of the conditions of this Order. Any permit noncompliance constitutes a violation of the CWA and the Porter-Cologne Water Quality Control Act, which may be grounds for enforcement action or denial of permit coverage. [40 C.F.R. § 122.41(a)]

   The Department shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. [40 C.F.R. § 122.41(a)(1)]

2. **Modification, Revocation and Reissuance, or Termination.** This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Department for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any General Permit condition.

3. **Enforcement**
   a. The provision contained in this enforcement section shall not act as a limitation on the statutory or regulatory authority of the State and Regional Water Board.

   b. Any violation of the Order constitutes violation of the California Water Code and regulations adopted hereunder and the provisions of the Clean Water Act, and is the basis for enforcement action, permit termination, permit revocation and reissuance, denial of an application for permit reissuance; or a combination thereof.

   c. The State and Regional Water Boards may impose administrative civil liability may refer a discharger to the State Attorney General to seek civil monetary penalties, may seek injunctive relief or take other appropriate enforcement action as provided in the California Water Code or federal law.

   d. All applications, reports, or information submitted to the State Water Board or Regional Water Boards shall be signed and certified. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this Order including monitoring reports or reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both. [40 C.F.R. § 122.41(k)]

4. **Need to Halt or Reduce Activity not a Defense.** It shall not be a defense for the Department in an enforcement action that it would have been necessary to halt or

reduce the permitted activity in order to maintain compliance with the conditions of this Order. [40 C.F.R. § 122.41(c)]

5. **Duty to Mitigate.** The Department shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. [40 C.F.R. § 122.41(d)]

6. **Proper Operation and Maintenance.** The Department at all times shall properly operate and maintain any facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Department to achieve compliance with the conditions of this Order. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems installed by the Department only when necessary to achieve compliance with the conditions of this Order. [40 C.F.R. § 122.41(e)]

7. **Property Rights.** This Order does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, State, or local laws or regulations. [40 C.F.R. § 122.41(g)]

8. **Duty to Provide Information.** Within a reasonable time specified by the State Water Board, Regional Water Boards, or U.S. EPA, the Department shall furnish records, reports, or information required to be kept by this Order, and shall furnish any information requested to determine whether cause exists for modifying, revoking, and reissuing, or terminating this Order or to determine compliance with this Order. [40 C.F.R. § 122.41(h)]

9. **Inspection and Entry.** [40 C.F.R. § 122.41(i)] Upon the presentation of credentials and other documents as may be required by law, the Department shall allow the State and Regional Water Boards, or U.S. EPA to:

    a. Enter upon the Department's premises where a regulated facility or activity is located or conducted or where records are required to be kept under the conditions of this Order;

    b. Have access to and copy at reasonable times any records that must be kept under the conditions of this Order;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and

    d. Sample or monitor at reasonable times for the purposes of assuring ensuring permit compliance, or as otherwise authorized by the Clean Water Act.

10. **Monitoring and Records.** [40 C.F.R. § 122.41(j)]
    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

    b. The Department shall retain records of all monitoring information for a period of at least 3 years from the date of the sample, measurement, report or application. This period may be extended by request of the State Water Board's Executive Director or Regional Water Board's Executive Officer at any time.

    c. Records of monitoring information shall include:

        i. The date, exact place, and time of sampling or measurements;
        ii. The individual(s) who performed the sampling or measurements;
        iii. The date(s) analyses were performed;
        iv. The individual(s) who performed the analyses;
        v. The analytical techniques or methods used; and
        vi. The results of such analyses.

    d. Monitoring must be conducted according to test procedures approved under 40 C.F.R. § 136 unless another method is required under 40 C.F.R. subchapters N or O.

    e. The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both.

11. **Signatory Requirements.** All reports, certifications, and records required by this Order or requested by the State Water Board and Regional Water Boards or U.S. EPA shall be signed by either a principal executive officer or by a duly authorized representative. A person is a duly authorized representative only if [40 C.F.R. §§ 122.22 & 122.41(k)]:

    a. The authorization is made in writing by the principal executive officer; and

    b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the Department. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, the Department shall provide a new authorization prior to submittal of any reports, certifications, or records signed by the newly authorized representative.

12. **Certification.** Any person signing documents under Provision 11 above shall make the following certification [40 C.F.R. § 122.22(d)]:

    "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

13. **Reporting Requirements.**

    a. *Planned changes*. The Department shall give advance notice to the State Water Board and the appropriate Regional Water Board of any planned physical alteration or additions to the permitted facility. Notice is required under this provision only when the alteration or addition could significantly change the nature or increase the quantity of pollutants discharged; [40 C.F.R. § 122.41(l)(1)]

    b. *Anticipated noncompliance*. The Department shall give advance notice to the appropriate Regional Water Board of any planned changes at the permitted facility or activity which may result in noncompliance with Permit requirements; [40 C.F.R. § 122.41(l)(2)]

    c. *Compliance Schedules*. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than 14 days following each scheduled date; [40 C.F.R. § 122.41(l)(5)]

    d. *Other Information*. Where the Department becomes aware that it failed to submit any relevant facts, or submitted incorrect information in a permit application or in any required report, it shall promptly submit such facts or information [40 C.F.R. § 122.41(l)(8)].

    e. The Department shall submit, except for the Annual Report, one copy of each report required by the permit to the State Water Board. The Department shall also submit one copy to each of the appropriate Regional Water Boards. The Department may choose to submit its properly signed reports electronically

into SMARTS in the Portable Document Format (PDF) and submit hard copies only upon request of the State or Regional Water Board staff.

14. **Oil and Hazardous Substance Liability.** Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Department from any responsibilities, liabilities, or penalties to which the Department is or may be subject to under Section 311 of the CWA.

15. **Severability.** The provisions of this Order are severable; and if any provision of this Order or the application of any provision of this Order to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.

16. **Availability.** A copy of this Order shall be maintained at the facility and be available at all times to the appropriate facility personnel and to representatives of the Regional Water Boards, State Water Board, or U.S. EPA.

17. **Education.** The Department shall ensure that all personnel whose decisions or activities could affect storm water quality are familiar with the requirements of this NPDES Permit.

ATTACHMENT VII — LIST OF ACRONYMS & ABBREVIATIONS

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
Basin Plans	Regional Water Quality Control Plans
BCT	Best Conventional Pollutant Control Technology
BMPs	Best Management Practices
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CGP	Construction General Permit - NPDES General Permit for Storm Water Discharges Associated with Construction Activities
CTR	California Toxics Rule
CWA	Clean Water Act
CWC	California Water Code
Department	California Department of Transportation (Caltrans)
EC	Electrical Conductivity
EMA	Emergency Management Agency
ESA	Environmentally Sensitive Area
FPPP	Facility Pollution Prevention Plan
GPS	Global Positioning System
Hydromodification	Hydrograph Modification
IC/ID	Illegal Connection/ Illicit Discharge
IGP	Industrial General Permit - NPDES General Permit for Discharges Associated with Industrial Activities Excluding Construction Activities
LA	Load Allocation
LID	Low Impact Development
MEP	Maximum Extent Practicable
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NCIR	Non-Compliance Incident Report
NOI	Notice of Intent
NPDES	National Polluant Discharge Elimination System
Ocean Plan	California Ocean Plan
PAHs	Polycyclic Aromatic Hydrocarbons
POTW	Publicly Owned Treatment Works
Regional Water Board	Regional Water Quality Control Board
ROW	Department Right-of-Way
State Water Board	State Water Resources Control Board
SUSMP	Standard Urban Storm Water Mitigation Plan
SWAMP	Surface Water Ambient Monitoring Program
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TCGP	Tahoe Construction General Permit
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TPH	Total Petroleum Hydrocarbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
WDRs	Waste Discharge Requirements
WLA	Waste Load Allocation
WQBEL	Water Quality-Based Effluent Limitation
WQO	Water Quality Objective
WQS	Water Quality Standard
Workplans	District Workplans

ATTACHMENT VIII - GLOSSARY

Acute Toxicity. A chemical stimulus severe enough to rapidly induce an effect; in aquatic toxicity tests, an effect observed within 96 hours or less is considered acute. When expressed as toxic units acute (TUa), TUa=100/96-hour LC 50 percent. Acute toxicity can also be expressed as lethal concentration 50 percent (LC 50).

Administrative Noncompliance. Failure to comply with the procedural requirements of this Order. Examples include but are not limited to: failure to submit required reports or documents required by the Permit and/or SWMP, missed deadlines or late submittal, and/or failure to submit required information, failure to develop and/or maintain site-specific FPPP or to implement any other procedural requirement of the Permit.

Areas of Special Biological Significance (ASBS). Ocean or estuarine areas designated by the State Water Board that require special protection of species or biological communities to the extent where alteration of natural water quality is undesirable. The California Ocean Plan describes ASBSs as “those areas containing biological communities of such extraordinary value that no risk of change in their environment as the result of man's activities can be entertained". ASBSs are a subset of State Water Quality Protection Areas.

Basin Plans. Basin Plans (regional water quality control plans) are the principal regulatory mechanisms for protection of water quality in California. Basin plans describe the beneficial uses that each water body supports, e.g. drinking, swimming, fishing, and agricultural irrigation; the water quality objectives necessary to protect those uses; and the program implementation needed to achieve the objectives, such as waste discharge permits and enforcement actions.

Batch Plant. A processing plant where concrete or asphalt is mixed before transport to a construction site. Batch plants are considered to be industrial activities as defined in 40 CFR 122.26(b)(14) (iii) and are regulated under the Industrial General Permit.

Beneficial Uses. The uses of the water protected against degradation including, but not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT). Technology-based compliance standard established by the Clean Water Act. BAT is based on consideration of the age of the equipment and facilities involved, the processes employed, the engineering aspects of the application of various types of control techniques, process changes, non-water quality environmental impact (including energy requirements) and other factors as deemed appropriate. BAT effluent

limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT). Technology-based compliance standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, oil and grease. BCT is established by a two-part "cost reasonableness" test, which compares the cost for an industry to reduce its pollutant discharge with the cost to a POTW for similar levels of reduction of a pollutant loading. The second test examines the cost-effectiveness of additional industrial treatment beyond BCT. Limits must be reasonable under both tests.

Best Management Practices (BMPs). Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of "waters of the United States." BMPs include structural and nonstructural controls, treatment requirements, operation and maintenance procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Non-Approved BMP. Any BMP for maintenance, construction, design pollution prevention, and treatment that are not in the Department's SWMP (CTSW-RT-02-008) or Statewide Storm Water Quality Practice Guidelines (CTSW-RT-02-009) approved for statewide use.

Post-Construction BMPs. Any structural or non-structural controls that detain, retain, or filter storm water to prevent the release of pollutants to receiving waters after final site stabilization is attained.

Structural BMPs. Any structural facility designed and constructed to mitigate the adverse impacts of storm water runoff (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

Source Control BMPs. Any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source. Examples include treatment techniques that use natural measures to reduce pollution levels, do not require extensive construction efforts, and/or promote pollutant reduction by controlling the pollutant source.

Treatment Control BMPs. Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

California Ocean Plan (Ocean Plan). The water quality control plan for California near-coastal waters, first adopted by the State Water Resources Control Board in 1972.

The purpose of the Ocean Plan is to protect the beneficial uses of the State's ocean waters by identifying water quality objectives, setting general waste discharge requirements, and listing discharge prohibitions. In addition, the Ocean Plan is used to develop and update statewide water quality control plans, policies, and standards involving marine waters.

California Toxics Rule. The Federal regulation, found at 40 CFR § 131.38. Establishes water quality criteria (limits) for heavy metals and other toxic compounds for the protection of beneficial uses of surface waters in California.

Catch Basins. A storm drain inlet having a sump below the outlet to capture settled solids, debris, sediment, and prevent clogging.

Chronic Toxicity. The ability of a substance or a mixture of substances to cause harmful effects over an extended period of time. Expressed as toxic units chronic (TUc), TUc=100/NOEL, where NOEL is the No Observed Effect Level.

Construction Activity. Any construction or demolition activity, clearing, grading, grubbing, or excavation or any other activity that results in a land disturbance. Construction does not include emergency construction activities required to immediately protect public health and safety or routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility.

Cut and Fill. The process of moving earth by excavating part of an area and using the excavated material for adjacent embankment of fill areas.

Department Airspaces. Any area within the Department's operating right-of-way that can safely accommodate a privately managed use such as: parking lots, self storage units, commercial businesses, light industry, and cellular telephone towers. The Department executes airspace leases with third parties for these uses.

Department Facility. A Maintenance Facility, Non-maintenance Facility, Highway Facility, Industrial Facility, or Vehicle Maintenance.

Maintenance Facility. A facility under Department ownership or control that contains fueling areas, maintenance stations/yards, waste storage or disposal facilities, wash racks, equipment or vehicle storage and materials storage areas.

***Non-maintenance Facility*.** Laboratories or office buildings used exclusively for administrative functions.

Highway Facility. Highways are linear facilities designed to carry vehicular and pedestrian traffic. These include freeways, highways, and expressways as designated by the California Streets and Highway Code and the California legislature. These facilities also include all support infrastructure associated with these freeways, including bridges, toll plazas, inspection and weigh stations, sound walls, retaining

walls, culverts, vegetated slopes, shoulders, intersections, off ramps, on ramps, over passes, lights, signal lights, gutter, guard rail, and other support

facilities. The support infrastructure is considered a Highway Facility only when accompanied by an increase in highway impervious surface. Otherwise, it is considered a non-highway .

***Industrial Facility*.** A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Non-Highway Facility. For purposes of this permit, a Non-Highway Facility is any facility not meeting the definition of a Highway Facility, including but not limited to rest stops, park and ride facilities, maintenance stations, vista points, warehouses, laboratories, and office buildings.

Discharge*.* When used without qualification means the discharge of a pollutant.

Direct Discharge. Any discharge from the MS4 that does not meet the definition of an indirect discharge.

Indirect Discharge. Any discharge from the MS4 that is conveyed to the receiving water through 300 feet or more of an unlined ditch or channel as measured between the discharge point from the MS4 and the receiving water.

Discharge of a Pollutant. The addition of any pollutant or combination of pollutants to waters of the United States from any point source, or any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term includes additions of pollutants to waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

District Workplans (DWPs). Annual workplans prepared by each District containing descriptions of all activities and projects to be undertaken in the District that are necessary to implement the SWMP and comply with the requirements of this Order. DWPs are submitted annually with the Annual Report. Formerly known as the Regional Work Plans.

Drainage Inlet. A location where water runoff enters a storm water drainage system that includes streets, gutters, conduits, natural or artificial drains, channels and watercourses, or other facilities that are owned, operated, maintained and used for the purpose of collecting, storing, transporting or disposing of storm water

Effluent. Any discharge from the MS4.

Emergency. Any sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. "Emergency" includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

Erosion. The diminishing or wearing away of land due to wind, or water. Often the eroded material (silt or sediment) becomes a pollutant via stormwater runoff.

Erosion occurs naturally, but can be intensified by land disturbing and grading activities such as farming, development, road building, and timber harvesting.

Facility Pollution Prevention Plan (**FPPP**)**.** A plan that identifies the functional activities specific to the maintenance facility and the applicable BMPs and other procedures utilized by facility personnel to control the discharge of pollutants in storm water. Facilities subject to FPPPs include: maintenance yards/stations; material storage facilities/permanent stockpile locations (if not totally enclosed); equipment storage and repair facilities, roadside rest areas, agricultural and highway patrol weigh stations, decant storage or disposal locations, and permanent and temporary solid and liquid waste management sites.

FPPPs are not required for temporary stockpile locations (in continuous use for less than one year). All temporary stockpile locations shall implement the applicable best management practices defined in the Caltrans Stormwater Quality Handbook Maintenance Staff guide. Any stockpile location in continuous use for more than one year is deemed permanent and requires a Facility Pollution Prevention Plan.

Full Capture System. A full capture system is any single device or series of devices that traps all particles retained by a five (5) mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour, storm in the subdrainage area.

Rational equation is used to compute the peak flow rate: $Q = C \times I \times A$
Where Q = design flow rate (cubic feet per second, cfs);
C = runoff coefficient (dimensionless);
I = design rainfall intensity (inches per hour, as determined per a rainfall isohyetal map), and
A= subdrainage area (acres).

Hydrograph Modification (Hydromodification). The alteration of the hydrologic characteristics of surface waters through watershed development. Under past practices, new and re-development construction activities resulted in urbanization, which in turn modified natural watershed and stream processes. The impacts of hydromodification include, but are not limited to, increased bed and bank erosion,

loss of habitat, increased sediment transport and deposition, and increased flooding. Urbanization does this by altering the terrain, modifying the vegetation and soil characteristics, introducing impervious surfaces such as pavement and buildings, and altering the condition of stream channels through straightening, deepening, and armoring. These changes affect hydrologic characteristics in the watershed and affect the supply and transport of sediment in the stream system.

Hydromodification Management Plan. A plan to control and reduce the impacts of hydrograph modification from development activities in a watershed.

Illegal Connection/Illicit Discharge (IC/ID).

Illegal Connection. An engineered conveyance that is connected to an MS4 without authorization by local, state, or federal statutes, ordinances, codes, or regulations.

Illicit Discharge. Any discharge to an MS4 that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. It includes all non-storm water discharges except conditionally exempt non-storm water discharges.

Illegal Dumping**.** Discarding or disposal within the Department's right-of-way, properties or facilities, either intentionally or unintentionally, of trash and other wastes in non-designated areas that may contribute to storm water pollution.

Impervious Cover. Any surface in the landscape that cannot effectively absorb or infiltrate rainfall; for example, sidewalks, rooftops, roads, and parking lots.

Incidental Runoff. Unintended small amounts (volume) of runoff from landscape irrigation, such as minimal over-spray from sprinklers that escapes the irrigated area. Water leaving an irrigated area is not considered incidental if it is due to improper (e.g. during a precipitation event) or excessive application, if it is due to intentional overflow or application, or if it is due to negligence. Leaks and other discharges (e.g. broken sprinkler heads) are not considered incidental if not corrected within 72 hours of learning of the discharge or if the discharge exceeds 1000 gallons.

Land Use. How land is managed or used by humans (e.g., residential and industrial development, roads, mining, timber harvesting, agriculture, grazing, etc.). Land use is generally regulated at the local level in the U.S. based on zoning and other regulations. Land use mapping differs from land cover mapping in that it is not always obvious what the land use is from visual inspection.

Load Allocation. The portion of a receiving water's loading capacity that is attributed either to one of its existing or future nonpoint sources of pollution or to natural background sources. Load allocations are best estimates of the loading, which can range from reasonably accurate estimates to gross allotments, depending on the availability of data and appropriate techniques for predicting the loading (40 CFR 130.2(g)).

Low Impact Development (LID). An approach to land development with the goal of mimicking or replicating the pre-project hydrologic regime through the use of design techniques to create a functionally equivalent hydrologic site design. Hydrologic functions of storage, infiltration and ground water recharge, as well as the volume and frequency of discharges are maintained through the use of integrated and distributed micro-scale storm water retention and detention areas, reduction of impervious surfaces, and the lengthening of runoff flow paths and flow time. Other strategies include the preservation/protection of environmentally sensitive site features such as riparian buffers, wetlands, steep slopes, mature trees, flood plains, woodlands, and highly permeable soils.

Maximum Extent Practicable (MEP). The minimum required performance standard for implementation of municipal storm water management programs to reduce pollutants in storm water. Clean Water Act § 402(p)(3)(B)(iii) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." MEP is the cumulative effect of implementing, evaluating, and making corresponding changes to a variety of technically appropriate and economically feasible BMPs, ensuring that the most appropriate controls are implemented in the most effective manner. To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible and are not cost-prohibitive. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the costs would be prohibitive. A final determination of whether a municipality has reduced pollutants to the MEP can only be made by the State or Regional Water Boards.

Municipal Separate Storm Sewer System (MS4). A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is: (1) Owned or operated by a state, city, town, village, or other public entity that discharges to waters of the U.S.; (2) Designed or used to collect or convey storm water; (3) Not a combined sewer; and (4) Not part of a Publicly Owned Treatment Works.

Natural Ocean Water Quality. The water quality (based on selected physical, chemical and biological characteristics) that is required to sustain marine ecosystems, and which is without apparent human influence, i.e., an absence of significant amounts of: (a) man-made constituents (e.g., DDT); (b) other chemical (e.g., trace metals), physical (temperature/thermal pollution, sediment burial), and biological (e.g., bacteria) constituents at concentrations that have been elevated due to man's activities above those resulting from the naturally occurring processes that affect the area in question; and (c) non-indigenous biota (e.g., invasive algal bloom species) that have been introduced either deliberately or accidentally by man. Discharges "shall not alter natural ocean water quality" as determined by a comparison to the range of constituent concentrations in reference areas agreed upon via the regional

monitoring program(s). If monitoring information indicates that natural ocean water quality is not maintained, but there is sufficient evidence that a discharge is not contributing to the alteration of natural water quality, then the Regional Water Board may make that determination. In this case, sufficient information must include runoff sample data that has equal or lower concentrations for the range of constituents at the applicable reference area(s).

New Development. Any newly constructed facility, street, road, highway or contiguous road surface installed as part of a street, road or highway project within the Department's right-of-way.

Non-Department Activities. Third party activities that are primarily controlled by encroachment permits, leases, and rental agreements. They include both construction activities and non-construction activities.

Non-Department Projects. Same as Non-Department Activities.

Non-storm Water. Discharges that are not induced by precipitation events and are not composed entirely of storm water. These discharges include, but are not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, concrete washout water, paint wash water, irrigation water, pipe testing water, lawn watering overspray, hydrant flushing, and fire fighting activities.

Nonpoint Source. Pollution that is not released through a discrete conveyance but rather originates from multiple sources over a relatively large area. Nonpoint sources can be divided into source activities related to either land or water use, including failing septic tanks, animal agriculture, forest practices, and urban and rural runoff.

Nuisance. Anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal; (3) occurs during, or as a result of, the treatment or disposal of wastes.

Perennial Stream. Any stream shown as a solid blue line on the latest version of the U.S. Geological Survey (USGS) 7.5 minute series quadrangle map (sometimes referred to as a blue-line stream). Where 7.5 minute series maps have not been prepared by USGS, 15 minute series maps are used.

Pesticide. Substances intended to repel, kill, or control any species designated a "pest" including weeds, insects, rodents, fungi, bacteria, or other organisms. The family of pesticides includes herbicides, insecticides, rodenticides, fungicides, algicides, and bactericides.

Algicide. A pesticide that controls algae in swimming pools and water tanks.

***Herbicide*.** A pesticide designed to control or kill plants, weeds, or grasses.

***Insecticide*.** A pesticide compound specifically used to kill or prevent the growth of insects.

Rodenticide. A pesticide or other agent used to kill rats and other rodents or to prevent them from damaging food, crops, or forage.

Fungicide. A pesticide used to control or destroy fungi on food or grain crops.

***Bactericide*.** A pesticide used to control or destroy bacteria, typically in the home, schools, or on hospital equipment.

pH. A measure of the degree of acidity or alkalinity in a water sample. The pH of natural waters tends to range between six (6) and nine (9), with neutral being seven (7). Extremes of pH can have deleterious effects on aquatic systems.

Point source. Any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged.

Pollutant. Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 *et seq.*)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water.

Pollutants of Concern. Pollutants in a discharge with potential to cause a condition of pollution or nuisance due to the discharge of excessive amounts, proximity to receiving waters, or the properties of the pollutant. Pollutants that impair waterbodies listed under CWA section 303(d) are also Pollutants of Concern. Pollutants in the Department's discharge that may be Pollutants of Concern include, but are not limited to, total suspended solids; sediment; pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc, and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (e.g., decaying vegetation and animal waste), and litter and trash.

Pollution. An alteration of the quality of the waters of the state by waste to a degree which unreasonably affects the beneficial uses of the water or facilities which serve those beneficial uses (Porter-Cologne Water Quality Control Act, section 13050(l)(1)).

Redevelopment. The creation, addition, and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that removes impervious materials and exposes the underlying soil or pervious subgrade. Redevelopment does not include trenching and resurfacing associated with utility work; pavement grinding and resurfacing of existing roadways; construction of new sidewalks, pedestrian ramps, or bike lanes on existing roadways; or routine replacement of damaged pavement such as pothole repair or replacement of short, non-contiguous sections of roadway. Redevelopment does include replacement of existing roadway surfaces where the underlying soil or pervious subgrade is exposed during construction. Replaced impervious surfaces of this type shall be considered "new impervious surfaces" for purposes of determining the applicability of post-construction treatment controls as provided in provision E.2.d.2).

Roadway. Any road within the Department's right-of-way.

Routine Maintenance. Activities intended to maintain the original line and grade, hydraulic capacity, or original purpose of a facility. Routine maintenance does not include replacement of existing roadway surfaces where the underlying soil or pervious subgrade is exposed.

Right-of-Way (ROW). Real property that is either owned or controlled by the Department or subject to a property right of the Department. Right-of-way that is in current use is referred to as operating ROW.

Sediment. Soil, sand, and minerals washed from land into water, usually after rain.

Slope Lateral Drainage. Horizontal drains placed in hillside embankments to intercept groundwater and direct it away from slopes to provide stability.

Spill. The sudden release of a potential pollutant to the environment.

Storm Water. Storm water runoff, snowmelt runoff, and surface runoff and drainage, as defined in 40 CFR 122.26 (b)(13).

Storm Water Runoff. The portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, channels or pipes.

Standard Urban Storm Water Mitigation Plan (SUSMP). Plans designating the Best Management Practices that must be used in specified categories of development and redevelopment. The State Water Board adopted a precedential decision (Order WQ 2000-11) upholding a SUSMP requirement imposed under a Phase I MS4 permit and requiring SUSMPs in all MS4 permits.

Storm Water Management Plan (SWMP). Description of the procedures and practices used to reduce or eliminate the discharge of pollutants to storm drain systems and receiving waters.

Surface Water Ambient Monitoring Program (SWAMP). The State Water Board's monitoring, assessment, and reporting program for ambient surface water.

Threshold Drainage Area (TDA). The area draining to a location 20 channel widths downstream (representative reach) of a stream crossing (pipe, swale, culvert, or bridge) within Project Limits.

Threatened Non-compliance. Any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

Total Dissolved Solids (TDS). A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution and used to evaluate the quality of freshwater systems.

Total Kjeldahl Nitrogen (TKN). The sum of organic nitrogen and total ammonia nitrogen.

Total Maximum Daily Load (TMDL). The sum of the individual WLAs for point sources and LAs for nonpoint sources and natural background. If a receiving water has only one point source discharger, the TMDL is the sum of that point source WLA plus the LAs for any nonpoint sources of pollution and natural background sources, tributaries, or adjacent segments. TMDLs can be expressed in terms of either mass per time, toxicity, or other appropriate measure. If Best Management Practices (BMPs) or other nonpoint source pollution controls make more stringent load allocations practicable, then wasteload allocations can be made less stringent. Thus, the TMDL process provides for nonpoint source control tradeoffs (40 CFR 130.2(i)).

Total Petroleum Hydrocarbon (TPH). A measure of the concentration or mass of petroleum hydrocarbons in a given amount of soil or water. TPH is a mixture of different compounds from different sources.

Total Suspended Solids (TSS). Suspended particulate matter: Fine material or soil particles that remain suspended by the water column. They create turbidity and, when deposited, can smother fish eggs or alevins.

Toxicity. The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies.

Trash. All improperly discarded waste material associated with human habitation, of human origin; or from any producing, manufacturing, or processing operation including, but not limited to, product packaging or containers constructed of steel,

aluminum, glass, paper, plastic, and other natural and synthetic materials that are thrown or deposited in waters or where it could be transported, as floating, suspended, and/or settleable materials, to waters of the State, including watersheds. (SWRCB Trash Policy).

Turbidity. Murkiness or cloudiness of water, indicating the presence of suspended solids.

United States Environmental Protection Agency (U.S. EPA). U.S. EPA works to develop and enforce regulations that implement environmental laws enacted by the United States Congress. U.S. EPA is responsible for researching and setting national standards for the Storm Water Program.

Waste. Includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.

Wasteload Allocation (WLA). The portion of a receiving water's total maximum daily load that is allocated to one of its existing or future point sources of pollution. Waste load allocations constitute a type of water quality-based effluent limitation.

Water Quality Objectives (WQO). The limits or levels of water quality elements or biological characteristics established to reasonably protect the beneficial uses of water or to prevent nuisance within a specific area. Water quality objectives may be numeric or narrative.

Water Quality Standards (WQS). State-adopted and U.S. EPA-approved water quality standards for surface water bodies. The standards prescribe the beneficial uses (swimmable, fishable, drinkable, etc.) of the water body and establish the WQOs that must be met to protect designated uses.

Waters of the State. Any surface water or groundwater, including saline waters, within boundaries of the state, as defined in CWC 13050(e). This Order contains requirements to protect the beneficial uses of waters of the State.

Waters of the United States. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide. Waters of the United States [as defined in 40 CFR 230.3(s)] include all interstate waters and intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use of which would affect or could affect interstate or foreign commerce. The definition also applies to tributaries of the aforementioned waters. See 40 CFR 122.2 for the complete definition, which is hereby incorporated by reference.

Watershed. A drainage area or basin in which all water drains or flows toward a central collector such as a stream, river, or lake at a lower elevation.

Wetlands. Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

Workplans. See District Workplans.

Attachment IX: Reporting Requirements

Reporting Requirement	Permit Section	Due Date	Frequency
Annual Report	E.3.	October 1, 2013	Annually
Draft ASBS Compliance Plan	E.5.c.2)	September 20, 2013	18 months after the General Exception effective date
Final ASBS Compliance Plan	E.5.c.2)	September 20, 2015	30 months after the General Exception effective date
Budget Analysis	E.2.b.3)c)	October 1, 2017	Year 4 of Permit Cycle
Certification of the Adequacy of Legal Authority	E.2.b.2)b)	October 1, 2013	Annually as part of the Annual Report
District Workplans	E.3.b.	October 1, 2013	Annually as part of the Annual Report
Facility Pollution Prevention Plan (FPPP)	E.2.h.2)	October 1, 2013	Annually as part of the Annual Report and as required by the Regional Water Board
Fiscal Analysis	E.2.b.3)b)	October 1, 2013	Annually as part of the Annual Report
IC/ID & Illegal Dumping Response Plan	E.2.h.4)b)ii)	December 31, 2013	Update as needed annually
Incident Report Form	E.2.b.6)and Attachment I	October 1, 2013	As Needed
Landslide Management Plan	E.2.h.3)d)	October 1, 2013	Year 1 Annual Report
Monitoring Results Report (MRR)	E.2.c.5)	October 1, 2013	Annually
Monitoring Site Prioritization (Tier 2)	E.2.c.1)	March 1, 2014	Within 8 months of the effective date
Municipal Coordination Plan	E.2.b.1)b)	October 1, 2013	To be Included in the SWMP and Progress Report as part of the Annual Report
Overall Program Effectiveness Evaluation	E.2.m.3)	October 1, 2013	Annually as part of the Annual Report
Public Education Program Progress Report	E.2.l.2)	October 1, 2013	Annually as part of the Annual Report
Self-Audit - (includes construction activities)	E.2.m.2)	October 1, 2013	Annually as part of the Annual Report
Stormwater Monitoring & BMP Development Status Report	E.2.e.	October 1, 2013	Annually as part of the Annual Report
Stormwater Treatment BMP Technology Report	E.2.e.	October 1, 2013	Annually as part of the Annual Report
TMDL Status Review Report	E.4.b.	October 1, 2015	Annually as part of the Annual Report
Updated Stormwater Management Plan (SWMP)	E.1.a.	October 1, 2013	Revisions as part of the Annual Report
Waste Management Plan	E.2.h.3)c)iii)	July 1, 2014	Within 1 year of the Effective Date

Note: This table is a partial list of reporting requirements. The Department shall submit all required reports as provided in the Order. Any discrepancy between the text of the NPDES Permit and this table will be resolved in favor of the Permit.

Effective Date of this Order is July 1, 2013
Effective Date of the ASBS Special Protections (General Exception) is March 20, 2012

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ATTACHMENT
24

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

GENERAL PERMIT FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES

ORDER
NPDES NO. CAS000001

This Order was adopted by the State Water Resources Control Board on:	**April 1, 2014**
This Order shall become effective on:	**July 1, 2015**
This Order shall expire on:	**June 30, 2020**

IT IS HEREBY ORDERED that as of July 1, 2015 this Order supersedes Order 97-03-DWQ except for Order 97-03-DWQ's requirement to submit annual reports by July 1, 2015 and except for enforcement purposes. As of July 1, 2015, a Discharger shall comply with the requirements in this Order to meet the provisions contained in Division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder.

CERTIFICATION

I, Jeanine Townsend, Clerk to the Board, do hereby certify that this Order, including its fact sheet, attachments, and appendices is a full, true, and correct copy of an Order adopted by the State Water Resources Control Board, on April 1, 2014.

AYE:	Chair Felicia Marcus Vice Chair Frances Spivy-Weber Board Member Tam M. Doduc Board Member Steven Moore
NAY:	None
ABSENT:	Board Member Dorene D'Adamo
ABSTAIN:	None

Jeanine Townsend
Clerk to the Board

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I. FINDINGS

A. General Findings

The State Water Resources Control Board (State Water Board) finds that:

1. The Federal Clean Water Act (Clean Water Act) prohibits certain discharges of storm water containing pollutants except in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (33 U.S.C. §§ 1311, 1342 (also referred to as Clean Water Act §§ 301, 402).) The United States Environmental Protection Agency (U.S. EPA) promulgates federal regulations to implement the Clean Water Act's mandate to control pollutants in storm water discharges. (40 C.F.R. § 122, et seq.) The NPDES permit must require implementation of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges (NSWDs). The NPDES permit must also include additional requirements necessary to implement applicable water quality objectives or water quality standards (water quality standards, collectively).

2. On November 16, 1990, U.S. EPA promulgated Phase I storm water regulations in compliance with section 402(p) of the Clean Water Act. (55 Fed. Reg. 47990, codified at 40 C.F.R. § 122.26.) These regulations require operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges), to obtain an NPDES permit. Section 402(p)(3)(A) of the Clean Water Act also requires that permits for discharges associated with industrial activity include requirements necessary to meet water quality standards.

3. Phase II storm water regulations[1] require permitting for storm water discharges from facilities owned and operated by a municipality with a population of less than 100,000. The previous exemption from the Phase I permitting requirements under section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 was eliminated.

4. This Order (General Permit) is an NPDES General Permit issued in compliance with section 402 of the Clean Water Act and shall take effect on July 1, 2015, provided that the Regional Administrator of U.S. EPA has no objection. If the U.S. EPA Regional Administrator has an objection, this General Permit will not become effective until the objection is withdrawn.

5. This action to adopt an NPDES General Permit is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000, et seq.) in accordance with section 13389 of the Water Code. (See *County of*

[1] U.S. EPA. Final NPDES Phase II Rule. <http://cfpub.epa.gov/npdes/stormwater/swfinal.cfm>. [as of February 4, 2014]

Los Angeles v. California State Water Resources Control Bd. (2006) 143 Cal.App.4th 985.)

6. State Water Board Order 97-03-DWQ is rescinded as of the effective date of this General Permit (July 1, 2015) except for Order 97-03-DWQ's requirement that annual reports be submitted by July1, 2015 and except for enforcement purposes.

7. Effective July 1, 2015, the State Water Board and the Regional Water Quality Control Boards (Regional Water Boards) (Water Boards, collectively) will enforce the provisions herein.

8. This General Permit authorizes discharges of industrial storm water to waters of the United States, so long as those discharges comply with all requirements, provisions, limitations, and prohibitions in this General Permit.

9. Industrial activities covered under this General Permit are described in Attachment A.

10. The Fact Sheet for this Order is incorporated as findings of this General Permit.

11. Acronyms are defined in Attachment B and terms used in this General Permit are defined in Attachment C.

12. This General Permit regulates industrial storm water discharges and authorized NSWDs from specific categories of industrial facilities identified in Attachment A hereto, and industrial storm water discharges and authorized NSWDs from facilities designated by the Regional Water Boards to obtain coverage under this General Permit. This General Permit does not apply to industrial storm water discharges and NSWDs that are regulated by other individual or general NPDES permits

13. This General Permit does not preempt or supersede the authority of municipal agencies to prohibit, restrict, or control industrial storm water discharges and authorized NSWDs that may discharge to storm water conveyance systems or other watercourses within their jurisdictions as allowed by state and federal law.

14. All terms defined in the Clean Water Act, U.S. EPA regulations, and the Porter-Cologne Water Quality Control Act (Wat. Code, § 13000, et seq.) will have the same definition in this General Permit unless otherwise stated.

15. Pursuant to 40 Code of Federal Regulations section 131.12 and State Water Board Resolution 68-16, which incorporates the requirements of 40 Code of Federal Regulations section 131.12 where applicable, the State Water Board finds that discharges in compliance with this General Permit will not result in the lowering of water quality to a level that does not achieve water quality objectives and protect beneficial uses. Any degradation of water quality from existing high quality water to a level that achieves water quality objectives and

protects beneficial uses is appropriate to support economic development. This General Permit's requirements constitute best practicable treatment or control for discharges of industrial storm water and authorized non-storm water discharges, and are therefore consistent with those provisions.

16. Compliance with any specific limits or requirements contained in this General Permit does not constitute compliance with any other applicable permits.

17. This General Permit requires that the Discharger certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) and No Exposure Certification (NEC) coverage via the State Water Board's Storm Water Multiple Application and Report Tracking System (SMARTS) website. (See Attachment D for an example of the information required to be submitted in the PRDs via SMARTS.) All other documents required by this General Permit to be electronically certified and submitted via SMARTS can be submitted by the Discharger or by a designated Duly Authorized Representative on behalf of the Discharger. Electronic reporting is required to reduce the state's reliance on paper, to improve efficiency, and to make such General Permit documents more easily accessible to the public and the Water Boards.

18. All information provided to the Water Boards shall comply with the Homeland Security Act and all other federal law that concerns security in the United States, as applicable.

B. Industrial Activities Not Covered Under this General Permit

19. Discharges of storm water from areas on tribal lands are not covered under this General Permit. Storm water discharges from industrial facilities on tribal lands are regulated by a separate NPDES permit issued by U.S. EPA.

20. Discharges of storm water regulated under another individual or general NPDES permit adopted by the State Water Board or Regional Water Board are not covered under this General Permit, including the State Water Board NPDES General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities.

21. Storm water discharges to combined sewer systems are not covered under this General Permit. These discharges must be covered by an individual permit. (40 C.F.R. § 122.26(a)(7).)

22. Conveyances that discharge storm water runoff combined with municipal sewage are not covered under this General Permit.

23. Discharges of storm water identified in Clean Water Act section 402(l) (33 U.S.C. § 1342(l)) are not covered under this General Permit.

24. Facilities otherwise subject to this General Permit but for which a valid Notice of Non-Applicability (NONA) has been certified and submitted via SMARTS, by the Entity are not covered under this General Permit. Entities (See Section XX.C.1 of this General Permit) who are claiming "No Discharge"

through the NONA shall meet the eligibility requirements and provide a No Discharge Technical Report in accordance with Section XX.C.

25. This General Permit does not authorize discharges of dredged or fill material regulated by the US Army Corps of Engineers under section 404 of the Clean Water Act and does not constitute a water quality certification under section 401 of the Clean Water Act.

C. Discharge Prohibitions

26. Pursuant to section 13243 of the Water Code, the State Water Board may specify certain conditions or areas where the discharge of waste, or certain types of waste, is prohibited.

27. With the exception of certain authorized NSWDs as defined in Section IV, this General Permit prohibits NSWDs. The State Water Board recognizes that certain NSWDs should be authorized because they are not generated by industrial activity, are not significant sources of pollutants when managed appropriately, and are generally unavoidable because they are related to safety or would occur regardless of industrial activity. Prohibited NSWDs may be authorized under other individual or general NPDES permits, or waste discharge requirements issued by the Water Boards.

28. Prohibited NSWDs are referred to as unauthorized NSWDs in this General Permit. Unauthorized NSWDs shall be either eliminated or permitted by a separate NPDES permit. Unauthorized NSWDs may contribute significant pollutant loads to receiving waters. Measures to control sources of unauthorized NSWDs such as spills, leakage, and dumping, must be addressed through the implementation of Best Management Practices (BMPs).

29. This General Permit incorporates discharge prohibitions contained in water quality control plans, as implemented by the Water Boards.

30. Direct discharges of waste, including industrial storm water discharges, to Areas of Special Biological Significance (ASBS) are prohibited unless the Discharger has applied for and the State Water Board has granted an exception to the State Water Board's 2009 Water Quality Control Plan for Ocean Waters of California as amended by State Water Board Resolution 2012-0056 (California Ocean Plan)[2] allowing the discharge.

[2] State Water Resources Control Board. Ocean Standards Web Page. <http://www.waterboards.ca.gov/water_issues/programs/ocean/>. [as of February 4, 2014].
State Water Resources Control Board. Water Quality Control Plan for Ocean Waters of California 2009. <http://www.waterboards.ca.gov/water_issues/programs/ocean/docs/2009_cop_adoptedeffective_usepa.pdf>. [as of February 4, 2014].
State Water Resources Control Board. Resolution 2012-0056. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0056.pdf>. [as of February 4, 2014].

D. Effluent Limitations

31. Section 301(b) of the Clean Water Act and 40 Code of Federal Regulations section require NPDES permits to include technology-based requirements at a minimum, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards. Clean Water Act section 402(p)(3)(A) requires that discharges of storm water runoff from industrial facilities comply with Clean Water Act section 301.

32. This General Permit requires control of pollutant discharges using BAT and BCT to reduce and prevent discharges of pollutants, and any more stringent effluent limitations necessary for receiving waters to meet applicable water quality standards.

33. It is not feasible for the State Water Board to establish numeric technology based effluent limitations for discharges authorized by this General Permit at this time. The rationale for this determination is discussed in detail in the Fact Sheet of this General Permit. Therefore, this General Permit requires Dischargers to implement minimum BMPs and applicable advanced BMPs as defined in Section X.H (collectively, BMPs) to comply with the requirements of this General Permit. This approach is consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP).

34. 40 Code of Federal Regulations section 122.44(d) requires that NPDES permits include Water Quality Based Effluent Limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality standards for receiving waters.

35. Where numeric water quality criteria have not been established, 40 Code of Federal Regulations section 122.44(d)(1)(vi) provides that WQBELs may be established using U.S. EPA criteria guidance under section 304(a) of the Clean Water Act, a proposed state criteria or policy interpreting narrative criteria supplemented with other relevant information, and/or an indicator parameter.

36. This General Permit requires Dischargers to implement BMPs when necessary, in order to support attainment of water quality standards. The use of BMPs to control or abate the discharge of pollutants is authorized by 40 Code of Federal Regulations section 122.44(k)(3) because numeric effluent limitations are infeasible and implementation of BMPs is reasonably necessary to achieve effluent limitations and water quality standards, and to carry out the purposes and intent of the Clean Water Act. (40 C.F.R. § 122.44(k)(4).)

E. Receiving Water Limitations

37. This General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges and authorized NSWDs not

cause or contribute to an exceedance of applicable water quality standards. Water quality standards apply to the quality of the receiving water, not the quality of the industrial storm water discharge. Therefore, compliance with the receiving water limitations generally cannot be determined solely by the effluent water quality characteristics. If any Discharger's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures in order to attain compliance with the receiving water limitation. Compliance with water quality standards may, in some cases, require Dischargers to implement controls that are more protective than controls implemented solely to comply with the technology-based requirements in this General Permit.

F. Total Maximum Daily Loads (TMDLs)

38. TMDLs relate to the maximum amount of a pollutant that a water body can receive and still attain water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2(i).) Discharges addressed by this General Permit are considered to be point source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the state and approved by U.S. EPA pursuant to 40 Code of Federal Regulations section 130.7. (40 C.F.R. § 122.44 (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement any relevant water quality control plans. Many TMDLs contained in water quality control plans include implementation requirements in addition to waste load allocations. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include requirements, including waste load allocations, for Dischargers covered by this General Permit.

39. The State Water Board recognizes that it is appropriate to develop TMDL-specific permit requirements derived from each TMDL's waste load allocation and implementation requirements, in order to provide clarity to Dischargers regarding their responsibilities for compliance with applicable TMDLs. The development of TMDL-specific permit requirements is subject to public noticing requirements and a corresponding public comment period. Due to the number and variety of Dischargers subject to a wide range of TMDLs, development of TMDL-specific permit requirements for each TMDL listed in Attachment E will severely delay the reissuance of this General Permit. Because most of the TMDLs were established by the Regional Water Boards, and because some of the waste load allocations and/or implementation requirements may be shared by multiple Dischargers, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level.

40. State and Regional Water Board staff will develop proposed TMDL-specific permit requirements (including monitoring and reporting requirements) for each of the TMDLs listed in Attachment E. After conducting a 30-day public comment period, the Regional Water Boards will submit to the State Water Board proposed TMDL-specific permit requirements for adoption by the State Water Board into this General Permit by July 1, 2016. The Regional Water Boards may also include proposed TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Consistent with the 2008 MSGP, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements, unless notified otherwise by a Regional Water Board.

41. The Regional Water Boards shall submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:

    a. Proposed TMDL-specific permit, monitoring and reporting requirements applicable to industrial storm water discharges and NSWDs authorized under this General Permit, including compliance schedules and deliverables consistent with the TMDLs. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards;

    b. An explanation of how the proposed TMDL-specific permit requirements, compliance schedules, and deliverables are consistent with the assumptions and requirements of any applicable waste load allocation and implement each TMDL; and,

    c. Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations.

42. Upon receipt of the information described in Finding 40, and no later than July 1, 2016, the State Water Board will issue a public notice and conduct a public comment period for the reopening of this General Permit to amend Attachment E, the Fact Sheet, and other provisions as necessary for incorporation of TMDL-specific permit requirements into this General Permit. Attachment E may also be subsequently reopened during the term of this General Permit to incorporate additional TMDL-specific permit requirements.

G. Discharges Subject to the California Ocean Plan

43. On October 16, 2012 the State Water Board amended the California Ocean Plan. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the

California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances. The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

44. This General Permit requires Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers that have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 (the effective date of this General Permit), or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

45. The California Ocean Plan prohibits the direct discharge of waste to ASBS. ASBS are defined in California Ocean Plan as "those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable."

46. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

47. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 which contains exceptions to the California Ocean Plan for specific discharges of storm water and non-point sources. This resolution also contains the special protections that are to be implemented for those discharges to ASBS.

48. This General Permit requires Dischargers who have been granted an exception to the Ocean Plan authorizing the discharges to ASBS by the State Water Board to comply with the requirements contained in Section VIII.B of this General Permit.

H. Training

49. To improve compliance and maintain consistent implementation of this General Permit, Dischargers are required to designate a Qualified Industrial Storm Water Practitioner (QISP) for each facility the Discharger operates that has entered Level 1 status in the Exceedance Response Action (ERA) process as described in Section XII of this General Permit. A QISP may be assigned to more than one facility. In order to qualify as a QISP, a State

Water Board-sponsored or approved training course must be completed. A competency exam may be required by the State Water Board to demonstrate sufficient knowledge of the QISP course material.

50. A QISP must assist the Discharger in completing the Level 1 status and Level 2 status ERA requirements as specified in Section XII of this General Permit. A QISP is also responsible for assisting New Dischargers that will be discharging to an impaired water body with a 303(d) listed impairment, demonstrate eligibility for coverage through preparing the data and/or information required in Section VII.B.

51. A Compliance Group Leader, as defined in Section XIV of this General Order must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.

52. All engineering work subject to the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq.) and required by this General Permit shall be performed by a California licensed professional engineer.

53. California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG.

I. Storm Water Pollution Prevention Plan (SWPPP) Requirements

54. This General Permit requires the development of a site-specific SWPPP in accordance with Section X of this General Permit. The SWPPP must include the information needed to demonstrate compliance with the requirements of this General Permit. The SWPPP must be submitted electronically via SMARTS, and a copy be kept at the facility. SWPPP revisions shall be completed in accordance with Section X.B of this General Permit

J. Sampling, Visual Observations, Reporting and Record Keeping

55. This General Permit complies with 40 Code of Federal Regulations section 122.44(i), which establishes monitoring requirements that must be included in storm water permits. Under this General Permit, Dischargers are required to: (a) conduct an Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation) to identify areas of the facility contributing pollutants to industrial storm water discharges, (b) evaluate whether measures to reduce or prevent industrial pollutant loads identified in the Discharger's SWPPP are adequate and properly implemented in accordance with the terms of this

General Permit, and (c) determine whether additional control measures are needed.

56. This General Permit contains monitoring requirements that are necessary to determine whether pollutants are being discharged, and whether response actions are necessary. Data and information resulting from the monitoring will assist in Dischargers' evaluations of BMP effectiveness and compliance with this General Permit. Visual observations are one form of monitoring. This General Permit requires Dischargers to perform a variety of visual observations designed to identify pollutants in industrial storm water discharges and their sources. To comply with this General Permit Dischargers shall: (1) electronically self-report any violations via SMARTS, (2) comply with the Level 1 status and Level 2 status ERA requirements, when applicable, and (3) adequately address and respond to any Regional Water Board comments on the Discharger's compliance reports.

57. Dischargers that meet the requirements of the No Exposure Certification (NEC) Conditional Exclusion set forth in Section XVII of this General Permit are exempt from the SWPPP requirements, sampling requirements, and visual observation requirements in this General Permit.

K. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

58. U.S. EPA regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) establish technology-based Effluent Limitation Guidelines and New Source Performance Standards (ELGs) for industrial storm water discharges from facilities in specific industrial categories. For these facilities, compliance with the BAT/BCT and ELG requirements constitutes compliance with technology-based requirements of this General Permit.

59. 40 Code of Federal Regulations section 122.44(i)(3) and (4) require storm water permits to require at least one Annual Evaluation and any monitoring requirements for applicable ELGs in Subchapter N. This General Permit requires Dischargers to comply with all applicable ELG requirements found in Subchapter N.

L. Sampling and Analysis Reduction

60. This General Permit reduces the number of qualifying sampling events required to be sampled each year when the Discharger demonstrates: (1) consistent compliance with this General Permit,(2) consistent effluent water quality sampling, and (3) analysis results that do not exceed numerical action levels.

M. Role of Numeric Action Levels (NALs) and Exceedance Response Actions (ERAs)

61. This General Permit incorporates a multiple objective performance measurement system that includes NALs, new comprehensive training requirements, Level 1 ERA Reports, Level 2 ERA Technical Reports, and Level 2 ERA Action Plans. Two objectives of the performance measurement system are to inform Dischargers, the public and the Water Boards on: (1) the overall pollutant control performance at any given facility, and (2) the overall performance of the industrial statewide storm water program. Additionally, the State Water Board expects that this information and assessment process will provide information necessary to determine the feasibility of numeric effluent limitations for industrial dischargers in the next reissuance of this General Permit, consistent with the State Water Board Storm Water Panel of Experts' June 2006 Recommendations.[3]

62. This General Permit contains annual and instantaneous maximum NALs. The annual NALs are established as the 2008 MSGP benchmark values, and are applicable for all parameters listed in Table 2. The instantaneous maximum NALs are calculated from a Water Board dataset, and are only applicable for Total Suspended Solids (TSS), Oil and Grease (O&G), and pH. An NAL exceedance is determined as follows:

    a. For annual NALs, an exceedance occurs when the average of all analytical results from all samples taken at a facility during a reporting year for a given parameter exceeds an annual NAL value listed in Table 2 of this General Permit; or,

    b. For the instantaneous maximum NALs, an exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for Total Suspended Solids, and Oil and Grease), or are outside of the instantaneous maximum NAL range (for pH) listed in Table 2 of this General Permit. For the purposes of this General Permit, the reporting year is July 1 through June 30.

63. The NALs are not intended to serve as technology-based or water quality-based numeric effluent limitations. The NALs are not derived directly from either BAT/BCT requirements or receiving water objectives. NAL exceedances defined in this General Permit are not, in and of themselves, violations of this General Permit. A Discharger that does not fully comply with the Level 1 status and/or Level 2 status ERA requirements, when required by the terms of this General Permit, is in violation of this General Permit.

64. ERAs are designed to assist Dischargers in complying with this General Permit. Dischargers subject to ERAs must evaluate the effectiveness of their

[3] State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006) <http://www.swrcb.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf> [as of February 4, 2014].

BMPs being implemented to ensure they are adequate to achieve compliance with this General Permit.

65. U.S. EPA regulations at Subchapter N establish ELGs for storm water discharges from facilities in 11 industrial categories. Dischargers subject to these ELGs are required to comply with the applicable requirements.

66. Exceedances of the NALs that are attributable solely to pollutants originating from non-industrial pollutant sources (such as run-on from adjacent facilities, non-industrial portions of the Discharger's property, or aerial deposition) are not a violation of this General Permit because the NALs are designed to provide feedback on industrial sources of pollutants. Dischargers may submit a Non-Industrial Source Pollutant Demonstration as part of their Level 2 ERA Technical Report to demonstrate that the presence of a pollutant causing an NAL exceedance is attributable solely to pollutants originating from non-industrial pollutant sources.

67. A Discharger who has designed, installed, and implemented BMPs to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit may submit an Industrial Activity BMPs Demonstration, as part of their Level 2 ERA Technical Report.

68. This General Permit establishes design storm standards for all treatment control BMPs. These design standards are directly based on the standards in State Water Board Order 2000-0011 regarding Standard Urban Storm Water Mitigation Plans (SUSMPs). These design standards are generally expected to be consistent with BAT/BCT, to be protective of water quality, and to be effective for most pollutants. The standards are intended to eliminate the need for most Dischargers to further treat/control industrial storm water discharges that are unlikely to contain pollutant loadings that exceed the NALs set forth in this General Permit.

N. Compliance Groups

69. Compliance Groups are groups of Dischargers (Compliance Group Participants) that share common types of pollutant sources and industrial activity characteristics. Compliance Groups provide an opportunity for the Compliance Group Participants to combine resources and develop consolidated Level 1 ERA Reports for Level 1 NAL exceedances and appropriate BMPs for implementation in response to Level 2 status ERA requirements that are representative of the entire Compliance Group. Compliance Groups also provide the Water Boards and the public with valuable information as to how industrial storm water discharges are affected by non-industrial background pollutant sources (including natural background) and geographic locations. When developing the next reissuance of this General Permit, the State Water Board expects to have a better understanding of the feasibility and benefits of sector-specific and watershed-based permitting alternatives, which may include technology- or water quality-based numeric effluent limitations. The effluent data, BMP performance data

and other information provided from Compliance Groups' consolidated reporting will further assist the State Water Board in addressing sector-specific and watershed-based permitting alternatives.

O. Conditional Exclusion – No Exposure Certification (NEC)

70. Pursuant to U.S. EPA Phase II regulations, all Dischargers subject to this General Permit may qualify for a conditional exclusion from specific requirements if they submit a NEC demonstrating that their facilities have no exposure of industrial activities and materials to storm water discharges.

71. This General Permit requires Dischargers who seek the NEC conditional exclusion to obtain coverage in accordance with Section XVII of this General Permit. Dischargers that meet the requirements of the NEC are exempt from the SWPPP, sampling requirements, and monitoring requirements in this General Permit.

72. Dischargers seeking NEC coverage are required to certify and submit the applicable permit registration documents. Annual inspections, re-certifications, and fees are required in subsequent years. Light industry facility Dischargers excluded from coverage under the previous permit (Order 97-03-DWQ) must obtain the appropriate coverage under this General Permit. Failure to comply with the Conditional Exclusion conditions listed in this General Permit may lead to enforcement for discharging without a permit pursuant to sections 13385 or 13399.25, et seq., of the Water Code. A Discharger with NEC coverage that anticipates a change (or changes) in circumstances that would lead to exposure should register for permit coverage prior to the anticipated changes.

P. Special Requirements for Facilities Handling Plastic Materials

73. Section 13367 of the Water Code requires facilities handling preproduction plastic to implement specific BMPs aimed at minimizing discharges of such materials. The definition of Plastic Materials for the purposes of this General Permit includes the following types of sources of Plastic Materials: virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other types of preproduction plastics with the potential to discharge or migrate off-site.

Q. Regional Water Board Authorities

74. Regional Water Boards are primarily responsible for enforcement of this General Permit. This General Permit recognizes that Regional Water Boards have the authority to protect the beneficial uses of receiving waters and prevent degradation of water quality in their region. As such, Regional Water Boards may modify monitoring requirements and review, comment, approve or disapprove certain Discharger submittals required under this General Permit.

IT IS HEREBY ORDERED that all Dischargers subject to this General Permit shall comply with the following conditions and requirements.

II. RECEIVING GENERAL PERMIT COVERAGE

A. Certification

1. For Storm Water Multiple Application and Report Tracking System (SMARTS) electronic account management and security reasons, as well as enforceability of this General Permit, the Discharger's Legally Responsible Person (LRP) of an industrial facility seeking coverage under this General Permit shall certify and submit all Permit Registration Documents (PRDs) for Notice of Intent (NOI) or No Exposure Certification (NEC) coverage. All other documents shall be certified and submitted via SMARTS by the Discharger's (LRP) or by their Duly Authorized Representative in accordance with the Electronic Signature and Certification Requirements in Section XXI.K. All documents required by this General Permit that are certified and submitted via SMARTS shall be in accordance with Section XXI.K.

2. Hereinafter references to certifications and submittals by the Discharger refer to the Discharger's LRP and their Duly Authorized Representative.

B. Coverages

This General Permit includes requirements for two (2) types of permit coverage, NOI coverage and NEC coverage. State Water Board Order 97-03-DWQ (previous permit) remains in effect until July 1, 2015. When PRDs are certified and submitted and the annual fee is received, the State Water Board will assign the Discharger a Waste Discharger Identification (WDID) number.

1. General Permit Coverage (NOI Coverage)

   a. Dischargers that discharge storm water associated with industrial activity to waters of the United States are required to meet all applicable requirements of this General Permit.

   b. The Discharger shall register for coverage under this General Permit by certifying and submitting PRDs via SMARTS (http://smarts.waterboards.ca.gov), which consist of:

      i. A completed NOI and signed certification statement;

      ii. A copy of a current Site Map from the Storm Water Pollution Prevention Plan (SWPPP) in Section X.E;

      iii. A SWPPP (see Section X); and,

c. The Discharger shall pay the appropriate Annual Fee in accordance with California Code of Regulations, title 23, section 2200 et seq.[4]

2. General Permit Coverage (NEC Coverage)

a. Dischargers that certify their facility has no exposure of industrial activities or materials to storm water in accordance with Section XVII qualify for NEC coverage and are not required to comply with the SWPPP or monitoring requirements of this General Permit.

b. Dischargers who qualify for NEC coverage shall conduct one Annual Facility Comprehensive Compliance Evaluation (Annual Evaluation) as described in Section XV, pay an annual fee, and certify annually that their facilities continue to meet the NEC requirements.

c. The Discharger shall submit the following PRDs on or before October 1, 2015 for NEC coverage via SMARTS:

i. A completed NEC Form (Section XVII.F.1) and signed certification statement (Section XVII.H);

ii. A completed NEC Checklist (Section XVII.F.2); and

iii. A current Site Map consistent with requirements in Section X.E.;

d. The Discharger shall pay the appropriate annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.[5]

3. General PRD Requirements

a. Site Maps

Dischargers registering for NOI or NEC coverage shall prepare a site map(s) as part of their PRDs in accordance with Section X.E. A separate copy of the site map(s) is required to be in the SWPPP. If there is a significant change in the facility layout (e.g., new building, change in storage locations, boundary change, etc.) a revision to the site map is required and shall be certified and submitted via SMARTS.

b. A Discharger shall submit a single set of PRDs for coverage under this General Permit for multiple industrial activities occurring at the same facility.

c. Any information provided to the Water Boards by the Discharger shall comply with the Homeland Security Act and other federal law that

[4] Annual fees must be mailed or sent electronically using the State Water Boards' Electronic Funds Transfer (EFT) system in SMARTS.
[5] See footnote 4.

addresses security in the United States; any information that does not comply should not be submitted in the PRDs. The Discharger must provide justification to the Regional Water Board regarding redacted information within any submittal.

d. Dischargers may redact trade secrets from information that is submitted via SMARTS. Dischargers who certify and submit redacted information via SMARTS must include a general description of the redacted information and the basis for the redaction in the version that is submitted via SMARTS. Dischargers must submit complete and un-redacted versions of the information that are clearly labeled "CONFIDENTIAL" to the Regional Water Board within 30 days of the submittal of the redacted information. All information labeled "CONFIDENTIAL" will be maintained by the Water Boards in a separate, confidential file.

4. Schedule for Submitting PRDs - Existing Dischargers Under the Previous Permit.

a. Existing Dischargers[6] with coverage under the previous permit shall continue coverage under the previous permit until July 1, 2015. All waste discharge requirements and conditions of the previous permit are in effect until July 1, 2015.

b. Existing Dischargers with coverage under the previous permit shall register for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015. Existing Dischargers previously listed in Category 10 (Light Industry) of the previous permit, and continue to have no exposure to industrial activities and materials, have until October 1, 2015 to register for NEC coverage.

c. Existing Dischargers with coverage under the previous permit, that do not register for NOI coverage by July 1, 2015, may have their permit coverage administratively terminated as soon as July 1, 2015.

d. Existing Dischargers with coverage under the previous permit that are eligible for NEC coverage but do not register for NEC coverage by October 1, 2015 may have their permit coverage administratively terminated as soon as October 1, 2015.

e. Existing Dischargers shall continue to comply with the SWPPP requirements in State Water Board Order 97-03-DWQ up to, but no later than, June 30, 2015.

[6] Existing Dischargers are Dischargers with an active Notice of Intent (permit coverage) under the previous permit (97-03-DWQ) prior to the effective date of this General Permit.

f. Existing Dischargers shall implement an updated SWPPP in accordance with Section X by July 1, 2015.

g. Existing Dischargers that submit a Notice of Termination (NOT) under the previous permit prior to July 1, 2015 and that receive NOT approval from the Regional Water Board are not subject to this General Permit unless they subsequently submitted new PRDs.

5. Schedule for Submitting PRDs - New Dischargers Obtaining Coverage On or After July 1, 2015

   New Dischargers registering for NOI coverage on or after July 1, 2015 shall certify and submit PRDs via SMARTS at least seven (7) days prior to commencement of industrial activities or on July 1, 2015, whichever comes later.

   a. New Dischargers registering for NEC coverage shall electronically certify and submit PRDs via SMARTS by October 1, 2015, or at least seven (7) days prior to commencement of industrial activities, whichever is later.

C. Termination and Changes to General Permit Coverage

1. Dischargers with NOI or NEC coverage shall request termination of coverage under this General Permit when either (a) operation of the facility has been transferred to another entity, (b) the facility has ceased operations, completed closure activities, and removed all industrial related pollutants, or (c) the facility's operations have changed and are no longer subject to the General Permit. Dischargers shall certify and submit a Notice of Termination via SMARTS. Until a valid NOT is received, the Discharger remains responsible for compliance with this General Permit and payment of accrued annual fees.

2. Whenever there is a change to the facility location, the Discharger shall certify and submit new PRDs via SMARTS. When ownership changes, the prior Discharger (seller) must inform the new Discharger (buyer) of the General Permit applications and regulatory coverage requirements. The new Discharger must certify and submit new PRDs via SMARTS to obtain coverage under this General Permit.

3. Dischargers with NOI coverage where the facility qualifies for NEC coverage in accordance with Section XVII of this General Permit, may register for NEC coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NOI coverage.

4. Dischargers with NEC coverage, where changes in the facility and/or facility operations occur, which result in NOI coverage instead of NEC coverage, shall register for NOI coverage via SMARTS. Such Dischargers are not required to submit an NOT to cancel NEC coverage.

5. Dischargers shall provide additional information supporting an NOT, or revise their PRDs via SMARTS, upon request by the Regional Water Board.

6. Dischargers that are denied approval of a submitted NOT or registration for NEC coverage by the Regional Water Board, shall continue compliance with this General Permit under their existing NOI coverage.

7. New Dischargers (Dischargers with no previous NOI or NEC coverage) shall register for NOI coverage if the Regional Water Board denies NEC coverage.

D. Preparation Requirements

1. The following documents shall be certified and submitted by the Discharger via SMARTS:

   a. Annual Reports (Section XVI) and SWPPPs (Section X);

   b. NOTs;

   c. Sampling Frequency Reduction Certification (Section XI.C.7);

   d. Level 1 ERA Reports (Section XII.C) prepared by a QISP;

   e. Level 2 ERA Technical Reports and Level 2 ERA Action Plans (Sections XII.D.1-2) prepared by a QISP; and,

   f. SWPPPs for inactive mining operations as described in Section XIII, signed (wet signature and license number) by a California licensed professional engineer.

2. The following documents shall be signed (wet signature and license number) by a California licensed professional engineer:

   a. Calculations for Dischargers subject to Subchapter N in accordance with Section XI.D;

   b. Notice of Non-Applicability (NONA) Technical Reports described in Section XX.C for facilities that are engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website;

   c. NONA Technical Reports described in Section XX.C for facilities located in basins or other physical locations that are not tributaries or hydrologically connected to waters of the United States; and,

   d. SWPPPs for inactive mines described in Section XIII.

III. DISCHARGE PROHIBITIONS

A. All discharges of storm water to waters of the United States are prohibited except as specifically authorized by this General Permit or another NPDES permit.

B. Except for non-storm water discharges (NSWDs) authorized in Section IV, discharges of liquids or materials other than storm water, either directly or indirectly to waters of the United States, are prohibited unless authorized by another NPDES permit. Unauthorized NSWDs must be either eliminated or authorized by a separate NPDES permit.

C. Industrial storm water discharges and authorized NSWDs that contain pollutants that cause or threaten to cause pollution, contamination, or nuisance as defined in section 13050 of the Water Code, are prohibited.

D. Discharges that violate any discharge prohibitions contained in applicable Regional Water Board Water Quality Control Plans (Basin Plans), or statewide water quality control plans and policies are prohibited.

E. Discharges to ASBS are prohibited in accordance with the California Ocean Plan, unless granted an exception by the State Water Board and in compliance with the Special Protections contained in Resolution 2012-0012.

F. Industrial storm water discharges and NSWDs authorized by this General Permit that contain hazardous substances equal to or in excess of a reportable quantity listed in 40 Code of Federal Regulations sections 110.6, 117.21, or 302.6 are prohibited.

IV. AUTHORIZED NON-STORM WATER DISCHARGES (NSWDs)

A. The following NSWDs are authorized provided they meet the conditions of Section IV.B:

1. Fire-hydrant and fire prevention or response system flushing;

2. Potable water sources including potable water related to the operation, maintenance, or testing of potable water systems;

3. Drinking fountain water and atmospheric condensate including refrigeration, air conditioning, and compressor condensate;

4. Irrigation drainage and landscape watering provided all pesticides, herbicides and fertilizers have been applied in accordance with the manufacturer's label;

5. Uncontaminated natural springs, groundwater, foundation drainage, footing drainage;

6. Seawater infiltration where the seawater is discharged back into the source: and,

7. Incidental windblown mist from cooling towers that collects on rooftops or adjacent portions of your facility, but not intentional discharges from the cooling tower (e.g., “piped” cooling tower blowdown or drains).

B. The NSWDs identified in Section IV.A are authorized by this General Permit if the following conditions are met:

1. The authorized NSWDs are not in violation of any Regional Water Board Water Quality Control Plans (Basin Plans) or other requirements, or statewide water quality control plans or policies requirement;

2. The authorized NSWDs are not in violation of any municipal agency ordinance or requirements;

3. BMPs are included in the SWPPP and implemented to:

   a. Reduce or prevent the contact of authorized NSWDs with materials or equipment that are potential sources of pollutants;

   b. Reduce, to the extent practicable, the flow or volume of authorized NSWDs;

   c. Ensure that authorized NSWDs do not contain quantities of pollutants that cause or contribute to an exceedance of a water quality standards; and,

   d. Reduce or prevent discharges of pollutants in authorized NSWDs in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

4. The Discharger conducts monthly visual observations (Section XI.A.1) of NSWDs and sources to ensure adequate BMP implementation and effectiveness; and,

5. The Discharger reports and describes all authorized NSWDs in the Annual Report.

C. Firefighting related discharges are not subject to this General Permit and are not subject to the conditions of Section IV.B. These discharges, however, may be subject to Regional Water Board enforcement actions under other sections of the Water Code. Firefighting related discharges that are contained and are later discharged may be subject to municipal agency ordinances and/or Regional Water Board requirements.

V. EFFLUENT LIMITATIONS

A. Dischargers shall implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

B. Industrial storm water discharges from facilities subject to storm water ELGs in Subchapter N shall not exceed those storm water ELGs. The ELGs for industrial storm water discharges subject to Subchapter N are in Attachment F of this General Permit.

C. Dischargers located within a watershed for which a Total Maximum Daily Load (TMDL) has been approved by U.S. EPA, shall comply with any applicable TMDL-specific permit requirements that have been incorporated into this General Permit in accordance with Section VII.A. Attachment E contains a reference list of potential TMDLs that may apply to Dischargers subject to this General Permit.

VI. RECEIVING WATER LIMITATIONS

A. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not cause or contribute to an exceedance of any applicable water quality standards in any affected receiving water.

B. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not adversely affect human health or the environment.

C. Dischargers shall ensure that industrial storm water discharges and authorized NSWDs do not contain pollutants in quantities that threaten to cause pollution or a public nuisance.

VII. TOTAL MAXIMUM DAILY LOADS (TMDLs)

A. Implementation

1. The State Water Board shall reopen and amend this General Permit, including Attachment E, the Fact Sheet and other applicable Permit provisions as necessary, in order to incorporate TMDL-specific permit requirements, as described in Findings 38 through 42. Once this General Permit is amended, Dischargers shall comply with the incorporated TMDL-specific permit requirements in accordance with any specified compliance schedule(s). TMDL-specific compliance dates that exceed the term of this General Permit may be included for reference, and are enforceable in the event that this General Permit is administratively extended or reissued.

2. The State Water Board may, at its discretion, reopen this General Permit to add TMDL-specific permit requirements to Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

B. New Dischargers applying for NOI coverage under this General Permit that will be discharging to a water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that:

1. The Discharger has eliminated all exposure to storm water of the pollutant(s) for which the water body is impaired, has documented the procedures taken to prevent exposure onsite, and has retained such documentation with the SWPPP at the facility;

2. The pollutant for which the water body is impaired is not present at the Discharger's facility, and the Discharger has retained documentation of this finding with the SWPPP at the facility; or,

3. The discharge of any listed pollutant will not cause or contribute to an exceedance of a water quality standard. This is demonstrated if: (1) the discharge complies with water quality standard at the point of discharge, or (2) if there are sufficient remaining waste load allocations in an approved TMDL and the discharge is controlled at least as stringently as similar discharges subject to that TMDL.

VIII. DISCHARGES SUBJECT TO THE CALIFORNIA OCEAN PLAN

A. Discharges to Ocean Waters

1. Dischargers with outfalls discharging to ocean waters that are subject to the model monitoring provisions of the California Ocean Plan shall develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015, or seven (7) days prior to commencing of operations, whichever is later, are ineligible to obtain coverage under this General Permit.

2. Dischargers are ineligible for the methods and exceptions provided in Section XI.C of this General permit for any of the outfalls discharging to ocean waters subject to the model monitoring provisions of the California Ocean Plan.

B. Discharge Granted an Exceptions for Areas of Special Biological Significance (ASBS)

Dischargers who were granted an exception to the California Ocean Plan prohibition against direct discharges of waste to an ASBS pursuant to Resolution 2012-0012[7] amended by Resolution 2012-0031[8] shall comply with the conditions and requirements set forth in Attachment G of this General Permit. Any Discharger that applies for and is granted an exception to the California Ocean Plan prohibition after July 1, 2013 shall comply with the conditions and requirements set forth in the granted exception.

IX. TRAINING QUALIFICATIONS

A. General

1. A Qualified Industrial Storm Water Practitioner (QISP) is a person (either the Discharger or a person designated by the Discharger) who has completed a State Water Board-sponsored or approved QISP training course[9], and has registered as a QISP via SMARTS. Upon completed registration the State Water Board will issue a QISP identification number.

2. The Executive Director of the State Water Board or an Executive Officer of a Regional Water Board may rescind any QISP's registration if it is found that the QISP has repeatedly demonstrated an inadequate level of performance in completing the QISP requirements in this General Permit. An individual whose QISP registration has been rescinded may request that the State Water Board review the rescission. Any request for review must be received by the State Water Board no later than 30 days of the date that the individual received written notice of the rescission.

3. Dischargers with Level 1 status shall:

   a. Designate a person to be the facility's QISP and ensure that this person has attended and satisfactorily completed the State Water Board-sponsored or approved QISP training course.

   b. Ensure that the facility's designated QISP provides sufficient training to the appropriate team members assigned to perform activities required by this General Permit.

[7] State Water Resources Control Board. Resolution 2012-0012. <http://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0012.pdf>. [as of February 4, 2014].
[8] State Water Resources Control Board. Resolution 2012-0031. <http://www.swrcb.ca.gov/board_decisions/adopted_orders/resolutions/2012/rs2012_0031.pdf>. [as of February 4, 2014].
[9] A specialized self-guided State Water Board-sponsored registration and training program will be available as an option for CPBELSG licensed professional civil, mechanical, industrial, and chemical engineers and professional geologists by the effective date of this General Permit.

X. Storm Water Pollution Prevention Plan (SWPPP)

A. SWPPP Elements

Dischargers shall develop and implement a site-specific SWPPP for each industrial facility covered by this General Permit that shall contain the following elements, as described further in this Section[10]:

1. Facility Name and Contact Information;
2. Site Map;
3. List of Industrial Materials;
4. Description of Potential Pollution Sources;
5. Assessment of Potential Pollutant Sources;
6. Minimum BMPs;
7. Advanced BMPs, if applicable;
8. Monitoring Implementation Plan;
9. Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation); and,
10. Date that SWPPP was Initially Prepared and the Date of Each SWPPP Amendment, if Applicable.

B. SWPPP Implementation and Revisions

All Dischargers are required to implement their SWPPP by July 1, 2015 or upon commencement of industrial activity. The Discharger shall:

1. Revise their on-site SWPPP whenever necessary;
2. Certify and submit via SMARTS their SWPPP within 30 days whenever the SWPPP contains significant revision(s); and,
3. With the exception of significant revisions, the Discharger is not required to certify and submit via SMARTS their SWPPP revisions more than once every three (3) months in the reporting year.

[10] Appendix 1 (SWPPP Checklist) of this General Permit is provided to assist the Discharger in including information required in the SWPPP. This checklist is not required to be used.

C. SWPPP Performance Standards

1. The Discharger shall ensure a SWPPP is prepared to:

   a. Identify and evaluate all sources of pollutants that may affect the quality of industrial storm water discharges and authorized NSWDs;

   b. Identify and describe the minimum BMPs (Section X.H.1) and any advanced BMPs (Section X.H.2) implemented to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs. BMPs shall be selected to achieve compliance with this General Permit; and,

   c. Identify and describe conditions or circumstances which may require future revisions to be made to the SWPPP.

2. The Discharger shall prepare a SWPPP in accordance with all applicable SWPPP requirements of this Section. A copy of the SWPPP shall be maintained at the facility.

D. Planning and Organization

1. Pollution Prevention Team

   Each facility must have a Pollution Prevention Team established and responsible for assisting with the implementation of the requirements in this General Permit. The Discharger shall include in the SWPPP detailed information about its Pollution Prevention Team including:

   a. The positions within the facility organization (collectively, team members) who assist in implementing the SWPPP and conducting all monitoring requirements in this General Permit;

   b. The responsibilities, duties, and activities of each of the team members; and,

   c. The procedures to identify alternate team members to implement the SWPPP and conduct required monitoring when the regularly assigned team members are temporarily unavailable (due to vacation, illness, out of town business, or other absences).

2. Other Requirements and Existing Facility Plans

   a. The Discharger shall ensure its SWPPP is developed, implemented, and revised as necessary to be consistent with any applicable municipal, state, and federal requirements that pertain to the requirements in this General Permit.

   b. The Discharger may include in their SWPPP the specific elements of existing plans, procedures, or regulatory compliance documents that

contain storm water-related BMPs or otherwise relate to the requirements of this General Permit.

c. The Discharger shall properly reference the original sources for any elements of existing plans, procedures, or regulatory compliance documents included as part of their SWPPP and shall maintain a copy of the documents at the facility as part of the SWPPP.

d. The Discharger shall document in their SWPPP the facility's scheduled operating hours as defined in Attachment C. Scheduled facility operating hours that would be considered irregular (temporary, intermittent, seasonal, weather dependent, etc.) shall also be documented in the SWPPP.

E. Site Map

1. The Discharger shall prepare a site map that includes notes, legends, a north arrow, and other data as appropriate to ensure the map is clear, legible and understandable.

2. The Discharger may provide the required information on multiple site maps.

3. The Discharger shall include the following information on the site map:

   a. The facility boundary, storm water drainage areas within the facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area, on-facility surface water bodies, areas of soil erosion, and location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDs;

   b. Locations of storm water collection and conveyance systems, associated discharge locations, and direction of flow. Include any sample locations if different than the identified discharge locations;

   c. Locations and descriptions of structural control measures[11] that affect industrial storm water discharges, authorized NSWDs, and/or run-on;

   d. Identification of all impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

[11] Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

e. Locations where materials are directly exposed to precipitation and the locations where identified significant spills or leaks (Section X.G.1.d) have occurred; and

f. Areas of industrial activity subject to this General Permit. Identify all industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and material reuse areas, and other areas of industrial activity that may have potential pollutant sources.

F. List of Industrial Materials

The Discharger shall ensure the SWPPP includes a list of industrial materials handled at the facility, and the locations where each material is stored, received, shipped, and handled, as well as the typical quantities and handling frequency.

G. Potential Pollutant Sources

1. Description of Potential Pollutant Sources

   a. Industrial Processes

      The Discharger shall ensure the SWPPP describes each industrial process including: manufacturing, cleaning, maintenance, recycling, disposal, and any other activities related to the process. The type, characteristics, and approximate quantity of industrial materials used in or resulting from the process shall be included. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.

   b. Material Handling and Storage Areas

      The Discharger shall ensure the SWPPP describes each material handling and storage area, including: the type, characteristics, and quantity of industrial materials handled or stored; the shipping, receiving, and loading procedures; the spill or leak prevention and response procedures; and the areas protected by containment structures and the corresponding containment capacity.

   c. Dust and Particulate Generating Activities

      The Discharger shall ensure the SWPPP describes all industrial activities that generate a significant amount of dust or particulate that may be deposited within the facility boundaries. The SWPPP shall describe such industrial activities, including the discharge locations, the source type, and the characteristics of the dust or particulate pollutant.

d. Significant Spills and Leaks

The Discharger shall:

i. Evaluate the facility for areas where spills and leaks can likely occur;

ii. Ensure the SWPPP includes:

a) A list of any industrial materials that have spilled or leaked in significant quantities and have discharged from the facility's storm water conveyance system within the previous five-year period;

b) A list of any toxic chemicals identified in 40 Code of Federal Regulations section 302 that have been discharged from the facilities' storm water conveyance system as reported on U.S. EPA Form R, as well as oil and hazardous substances in excess of reportable quantities (40 C.F.R. §§ 110, 117, and 302) that have discharged from the facility's storm water conveyance system within the previous five-year period;

c) A list of any industrial materials that have spilled or leaked in significant quantities and had the potential to be discharged from the facility's storm water conveyance system within the previous five-year period; and,

iii. Ensure that for each discharge or potential discharge listed above the SWPPP includes the location, characteristics, and approximate quantity of the materials spilled or leaked; approximate quantity of the materials discharged from the facility's storm water conveyance system; the cleanup or remedial actions that have occurred or are planned; the approximate remaining quantity of materials that have the potential to be discharged; and the preventive measures taken to ensure spills or leaks of the material do not reoccur.

e. NSWDs

The Discharger shall:

i. Ensure the SWPPP includes an evaluation of the facility that identifies all NSWDs, sources, and drainage areas;

ii. Ensure the SWPPP includes an evaluation of all drains (inlets and outlets) that identifies connections to the storm water conveyance system;

iii. Ensure the SWPPP includes a description of how all unauthorized NSWDs have been eliminated; and,

iv. Ensure all NSWDs are described in the SWPPP. This description shall include the source, quantity, frequency, and characteristics of the NSWDs, associated drainage area, and whether it is an authorized or unauthorized NSWD in accordance with Section IV.

f. Erodible Surfaces

The Discharger shall ensure the SWPPP includes a description of the facility locations where soil erosion may be caused by industrial activity, contact with storm water, authorized and unauthorized NSWDs, or run-on from areas surrounding the facility.

2. Assessment of Potential Pollutant Sources

a. The Discharger shall ensure that the SWPPP includes a narrative assessment of all areas of industrial activity with potential industrial pollutant sources. At a minimum, the assessment shall include:

i. The areas of the facility with likely sources of pollutants in industrial storm water discharges and authorized NSWDs;

ii. The pollutants likely to be present in industrial storm water discharges and authorized NSWDs;

iii. The approximate quantity, physical characteristics (e.g., liquid, powder, solid, etc.), and locations of each industrial material handled, produced, stored, recycled, or disposed;

iv. The degree to which the pollutants associated with those materials may be exposed to, and mobilized by contact with, storm water;

v. The direct and indirect pathways by which pollutants may be exposed to storm water or authorized NSWDs;

vi. All sampling, visual observation, and inspection records;

vii. The effectiveness of existing BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs;

viii. The estimated effectiveness of implementing, to the extent feasible, minimum BMPs to reduce or prevent pollutants in industrial storm water discharges and authorized NSWDs; and,

ix. The identification of the industrial pollutants related to the receiving waters with 303(d) listed impairments identified in Appendix 3 or approved TMDLs that may be causing or contributing to an exceedance of a water quality standard in the receiving waters.

b. Based upon the assessment above, Dischargers shall identify in the SWPPP any areas of the facility where the minimum BMPs described in

subsection H.1 below will not adequately reduce or prevent pollutants in storm water discharges in compliance with Section V.A. Dischargers shall identify any advanced BMPs, as described in subsection H.2 below, for those areas.

c. Based upon the assessment above, Dischargers shall identify any drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.

d. Based upon the assessment above, Dischargers shall identify any additional parameters, beyond the required parameters in Section XI.B.6 that indicate the presence of pollutants in industrial storm water discharges.

H. Best Management Practices (BMPs)

1. Minimum BMPs

The Discharger shall, to the extent feasible, implement and maintain all of the following minimum BMPs to reduce or prevent pollutants in industrial storm water discharges.[12]

a. Good Housekeeping

The Discharger shall:

i. Observe all outdoor areas associated with industrial activity; including storm water discharge locations, drainage areas, conveyance systems, waste handling/disposal areas, and perimeter areas impacted by off-facility materials or storm water run-on to determine housekeeping needs. Any identified debris, waste, spills, tracked materials, or leaked materials shall be cleaned and disposed of properly;

ii. Minimize or prevent material tracking;

iii. Minimize dust generated from industrial materials or activities;

iv. Ensure that all facility areas impacted by rinse/wash waters are cleaned as soon as possible;

v. Cover all stored industrial materials that can be readily mobilized by contact with storm water;

[12] For the purposes of this General Permit, the requirement to implement BMPs "to the extent feasible" requires Dischargers to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

vi. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;

vii. Prevent disposal of any rinse/wash waters or industrial materials into the storm water conveyance system;

viii. Minimize storm water discharges from non-industrial areas (e.g., storm water flows from employee parking area) that contact industrial areas of the facility; and,

ix. Minimize authorized NSWDs from non-industrial areas (e.g., potable water, fire hydrant testing, etc.) that contact industrial areas of the facility.

b. Preventive Maintenance

The Discharger shall:

i. Identify all equipment and systems used outdoors that may spill or leak pollutants;

ii. Observe the identified equipment and systems to detect leaks, or identify conditions that may result in the development of leaks;

iii. Establish an appropriate schedule for maintenance of identified equipment and systems; and,

iv. Establish procedures for prompt maintenance and repair of equipment, and maintenance of systems when conditions exist that may result in the development of spills or leaks.

c. Spill and Leak Prevention and Response

The Discharger shall:

i. Establish procedures and/or controls to minimize spills and leaks;

ii. Develop and implement spill and leak response procedures to prevent industrial materials from discharging through the storm water conveyance system. Spilled or leaked industrial materials shall be cleaned promptly and disposed of properly;

iii. Identify and describe all necessary and appropriate spill and leak response equipment, location(s) of spill and leak response equipment, and spill or leak response equipment maintenance procedures; and,

iv. Identify and train appropriate spill and leak response personnel.

d. Material Handling and Waste Management

The Discharger shall:

i. Prevent or minimize handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event;

ii. Contain all stored non-solid industrial materials or wastes (e.g., particulates, powders, shredded paper, etc.) that can be transported or dispersed by the wind or contact with storm water;

iii. Cover industrial waste disposal containers and industrial material storage containers that contain industrial materials when not in use;

iv. Divert run-on and storm water generated from within the facility away from all stockpiled materials;

v. Clean all spills of industrial materials or wastes that occur during handling in accordance with the spill response procedures (Section X.H.1.c); and,

vi. Observe and clean as appropriate, any outdoor material or waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes.

e. Erosion and Sediment Controls

For each erodible surface facility location identified in the SWPPP (Section X.G.1.f), the Discharger shall:

i. Implement effective wind erosion controls;

ii. Provide effective stabilization for inactive areas, finished slopes, and other erodible areas prior to a forecasted storm event;

iii. Maintain effective perimeter controls and stabilize all site entrances and exits to sufficiently control discharges of erodible materials from discharging or being tracked off the site;

iv. Divert run-on and storm water generated from within the facility away from all erodible materials; and,

v. If sediment basins are implemented, ensure compliance with the design storm standards in Section X.H.6.

f. Employee Training Program

The Discharger shall:

i. Ensure that all team members implementing the various compliance activities of this General Permit are properly trained to implement the requirements of this General Permit, including but not limited to: BMP implementation, BMP effectiveness evaluations, visual observations,

and monitoring activities. If a Discharger enters Level 1 status, appropriate team members shall be trained by a QISP;

ii. Prepare or acquire appropriate training manuals or training materials;

iii. Identify which personnel need to be trained, their responsibilities, and the type of training they shall receive;

iv. Provide a training schedule; and,

v. Maintain documentation of all completed training classes and the personnel that received training in the SWPPP.

g. Quality Assurance and Record Keeping

The Discharger shall:

i. Develop and implement management procedures to ensure that appropriate staff implements all elements of the SWPPP, including the Monitoring Implementation Plan;

ii. Develop a method of tracking and recording the implementation of BMPs identified in the SWPPP; and

iii. Maintain the BMP implementation records, training records, and records related to any spills and clean-up related response activities for a minimum of five (5) years (Section XXI.J.4).

2. Advanced BMPs

a. In addition to the minimum BMPs described in Section X.H.1, the Discharger shall, to the extent feasible, implement and maintain any advanced BMPs identified in Section X.G.2.b, necessary to reduce or prevent discharges of pollutants in its storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability.

b. Advanced BMPs may include one or more of the following BMPs:

i. Exposure Minimization BMPs

These include storm resistant shelters (either permanent or temporary) that prevent the contact of storm water with the identified industrial materials or area(s) of industrial activity.

ii. Storm Water Containment and Discharge Reduction BMPs

These include BMPs that divert, infiltrate, reuse, contain, retain, or reduce the volume of storm water runoff. Dischargers are

encouraged to utilize BMPs that infiltrate or reuse storm water where feasible.

iii. Treatment Control BMPs

This is the implementation of one or more mechanical, chemical, biologic, or any other treatment technology that will meet the treatment design standard.

iv. Other Advanced BMPs

Any additional BMPs not described in subsections b.i through iii above that are necessary to meet the effluent limitations of this General Permit.

3. Temporary Suspension of Industrial Activities

For facilities that plan to temporarily suspend industrial activities for ten (10) or more consecutive calendar days during a reporting year, the Discharger may also suspend monitoring if it is infeasible to conduct monitoring while industrial activities are suspended (e.g., the facility is not staffed, or the facility is remote or inaccessible) and the facility has been stabilized. The Discharger shall include in the SWPPP the BMPs necessary to achieve compliance with this General Permit during the temporary suspension of the industrial activity. Once all necessary BMPs have been implemented to stabilize the facility, the Discharger is not required to:

a. Perform monthly visual observations (Section XI.A.1.a.); or,

b. Perform sampling and analysis (Section XI.B.) if it is infeasible to do so (e.g. facility is remotely located).

The Discharger shall upload via SMARTS (7) seven calendar days prior to the planned temporary suspension of industrial activities:

a. SWPPP revisions specifically addressing the facility stabilization BMPs;

b. The justification for why monitoring is infeasible at the facility during the period of temporary suspension of industrial activities;

c. The date the facility is fully stabilized for temporary suspension of industrial activities; and,

d. The projected date that industrial activities will resume at the facility.

Upon resumption of industrial activities at the facility, the Discharger shall, via SMARTS, confirm and/or update the date the facility's industrial activities have resumed. At this time, the Discharger is required to resume all compliance activities under this General Permit.

The Regional Water Boards may review the submitted information pertaining to the temporary suspension of industrial activities. Upon review, the Regional Water Board may request revisions or reject the Discharger's request to temporarily suspend monitoring.

4. BMP Descriptions

   a. The Discharger shall ensure that the SWPPP identifies each BMP being implemented at the facility, including:

      i. The pollutant(s) that the BMP is designed to reduce or prevent in industrial storm water discharges;

      ii. The frequency, time(s) of day, or conditions when the BMP is scheduled for implementation;

      iii. The locations within each area of industrial activity or industrial pollutant source where the BMP shall be implemented;

      iv. The individual and/or position responsible for implementing the BMP;

      v. The procedures, including maintenance procedures, and/or instructions to implement the BMP effectively;

      vi. The equipment and tools necessary to implement the BMP effectively; and,

      vii. The BMPs that may require more frequent visual observations beyond the monthly visual observations as described in Section XI.A.1.

   b. The Discharger shall ensure that the SWPPP identifies and justifies each minimum BMP or applicable advanced BMP not being implemented at the facility because they do not reflect best industry practice considering technological availability and economic practicability and achievability.

   c. The Discharger shall identify any BMPs described in subsection a above that are implemented in lieu of any of the minimum or applicable advanced BMPs.

5. BMP Summary Table

   The Discharger shall prepare a table summarizing each identified area of industrial activity, the associated industrial pollutant sources, the industrial pollutants, and the BMPs being implemented.

6. Design Storm Standards for Treatment Control BMPs

All new treatment control BMPs employed by the Discharger to comply with Section X.H.2 Advanced BMPs and new sediment basins installed after the effective date of this order shall be designed to comply with design storm standards in this Section, except as provided in an Industrial Activity BMP Demonstration (Section XII.D.2.a). A Factor of Safety shall be incorporated into the design of all treatment control BMPs to ensure that storm water is sufficiently treated throughout the life of the treatment control BMPs. The design storm standards for treatment control BMPs are as follows:

a. Volume-based BMPs: The Discharger, at a minimum, shall calculate[13] the volume to be treated using one of the following methods:

   i. The volume of runoff produced from an 85th percentile 24-hour storm event, as determined from local, historical rainfall records;

   ii. The volume of runoff produced by the 85th percentile 24-hour storm event, determined as the maximized capture runoff volume for the facility, from the formula recommended in the Water Environment Federation's Manual of Practice;[14] or,

   iii. The volume of annual runoff required to achieve 80% or more treatment, determined in accordance with the methodology set forth in the latest edition of California Stormwater Best Management Practices Handbook[15], using local, historical rainfall records.

b. Flow-based BMPs: The Discharger shall calculate the flow needed to be treated using one of the following methods:

   i. The maximum flow rate of runoff produced from a rainfall intensity of at least 0.2 inches per hour for each hour of a storm event;

   ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from local historical rainfall records, multiplied by a factor of two; or,

   iii. The maximum flow rate of runoff, as determined using local historical rainfall records, that achieves approximately the same reduction in total pollutant loads as would be achieved by treatment of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

[13] All hydrologic calculations shall be certified by a California licensed professional engineer in accordance with the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq).

[14] Water Environment Federation (WEF). Manual of Practice No. 23/ ASCE Manual of Practice No. 87, cited in chapter 5 (1998 Edition) and Cited in Chapter 3 (2012 Edition) .

[15] California Stormwater Quality Association. Stormwater Best Management Practice New Development and Redevelopment Handbook. < http://www.casqa.org/ >. [as of July 3, 2013].

I. MONITORING IMPLEMENTATION PLAN

The Discharger shall prepare a Monitoring Implementation Plan in accordance with the requirements of this General Permit. The Monitoring Implementation Plan shall be included in the SWPPP and shall include the following items:

1. An identification of team members assigned to conduct the monitoring requirements;

2. A description of the following in accordance with Attachment H:

   a. Discharge locations;

   b. Visual observation procedures; and,

   c. Visual observation response procedures related to monthly visual observations and sampling event visual observations.

3. Justifications for any of the following that are applicable to the facility:

   a. Alternative discharge locations in accordance with Section XI.C.3;

   b. Representative Sampling Reduction in accordance with Section XI.C.4; or,

   c. Qualified Combined Samples in accordance with Section XI.C.5.

4. Procedures for field instrument calibration instructions, including calibration intervals specified by the manufacturer; and,

5. An example Chain of Custody form used when handling and shipping water quality samples to the lab.

XI. MONITORING

A. Visual Observations

1. Monthly Visual Observations

   a. At least once per calendar month, the Discharger shall visually observe each drainage area for the following:

      i. The presence or indications of prior, current, or potential unauthorized NSWDs and their sources;

      ii. Authorized NSWDs, sources, and associated BMPs to ensure compliance with Section IV.B.3; and,

iii. Outdoor industrial equipment and storage areas, outdoor industrial activities areas, BMPs, and all other potential source of industrial pollutants.

b. The monthly visual observations shall be conducted during daylight hours of scheduled facility operating hours and on days without precipitation.

c. The Discharger shall provide an explanation in the Annual Report for uncompleted monthly visual observations.

2. Sampling Event Visual Observations

Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.

a. The Discharger shall ensure that visual observations of storm water discharged from containment sources (e.g. secondary containment or storage ponds) are conducted at the time that the discharge is sampled.

b. Any Discharger employing volume-based or flow-based treatment BMPs shall sample any bypass that occurs while the visual observations and sampling of storm water discharges are conducted.

c. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any discharged pollutants.

d. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.

e. The Discharger shall provide an explanation in the Annual Report for uncompleted sampling event visual observations.

3. Visual Observation Records

The Discharger shall maintain records of all visual observations. Records shall include the date, approximate time, locations observed, presence and probable source of any observed pollutants, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.

4. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

B. Sampling and Analysis

1. A Qualifying Storm Event (QSE) is a precipitation event that:

   a. Produces a discharge for at least one drainage area; and,

   b. Is preceded by 48 hours with no discharge from any drainage area.

2. The Discharger shall collect and analyze storm water samples from two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30).

3. Compliance Group Participants are only required to collect and analyze storm water samples from one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of the reporting year (January 1 to June 30).

4. Except as provided in Section XI.C.4 (Representative Sampling Reduction), samples shall be collected from each drainage area at all discharge locations. The samples must be:

   a. Representative of storm water associated with industrial activities and any commingled authorized NSWDs; or,

   b. Associated with the discharge of contained storm water.

5. Samples from each discharge location shall be collected within four (4) hours of:

   a. The start of the discharge; or,

   b. The start of facility operations if the QSE occurs within the previous 12-hour period (e.g., for storms with discharges that begin during the night for facilities with day-time operating hours). Sample collection is required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii.

6. The Discharger shall analyze all collected samples for the following parameters:

   a. Total suspended solids (TSS) and oil and grease (O&G);

   b. pH (see Section XI.C.2);

c. Additional parameters identified by the Discharger on a facility-specific basis that serve as indicators of the presence of all industrial pollutants identified in the pollutant source assessment (Section X.G.2). These additional parameters may be modified (added or removed) in accordance with any updated SWPPP pollutant source assessment;

d. Additional applicable parameters listed in Table 1 below. These parameters are dependent on the facility Standard Industrial Classification (SIC) code(s);

e. Additional applicable industrial parameters related to receiving waters with 303(d) listed impairments or approved TMDLs based on the assessment in Section X.G.2.a.ix. Test methods with lower detection limits may be necessary when discharging to receiving waters with 303(d) listed impairments or TMDLs;

f. Additional parameters required by the Regional Water Board. The Discharger shall contact its Regional Water Board to determine appropriate analytical test methods for parameters not listed in Table 2 below. These analytical test methods will be added to SMARTS; and

g. For discharges subject to Subchapter N, additional parameters specifically required by Subchapter N. If the discharge is subject to ELGs, the Dischargers shall contact the Regional Water Board to determine appropriate analytical methods for parameters not listed in Table 2 below.

7. The Discharger shall select corresponding NALs, analytical test methods,, and reporting units from the list provided in Table 2 below. SMARTS will be updated over time to add additional acceptable analytical test methods. Dischargers may propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, the analytical test method will be added to SMARTS.

8. The Discharger shall ensure that the collection, preservation and handling of all storm water samples are in accordance with Attachment H, Storm Water Sample Collection and Handling Instructions.

9. Samples from different discharge locations shall not be combined or composited except as allowed in Section XI.C.5 (Qualified Combined Samples).

10. The Discharger shall ensure that all laboratory analyses are conducted according to test procedures under 40 Code of Federal Regulations part 136, including the observation of holding times, unless other test procedures have been specified in this General Permit or by the Regional Water Board.

11. Sampling Analysis Reporting

a. The Discharger shall submit all sampling and analytical results for all individual or Qualified Combined Samples via SMARTS within 30 days of obtaining all results for each sampling event.

b. The Discharger shall provide the method detection limit when an analytical result from samples taken is reported by the laboratory as a "non-detect" or less than the method detection limit. A value of zero shall not be reported.

c. The Discharger shall provide the analytical result from samples taken that is reported by the laboratory as below the minimum level (often referred to as the reporting limit) but above the method detection limit.

Reported analytical results will be averaged automatically by SMARTS. For any calculations required by this General Permit, SMARTS will assign a value of zero (0) for all results less than the minimum level as reported by the laboratory.

TABLE 1: Additional Analytical Parameters

SIC code	SIC code Description	Parameters*
102X	Copper Ores	COD; N+N
12XX	Coal Mines	Al; Fe
144X	Sand and Gravel	N+N
207X	Fats and Oils	BOD; COD; N+N
2421	Sawmills & Planning Mills	COD; Zn
2426	Hardwood Dimension	COD
2429	Special Product Sawmills	COD
243X	Millwork, Veneer, Plywood	COD
244X	Wood Containers	COD
245X	Wood Buildings & Mobile Homes	COD
2491	Wood Preserving	As; Cu
2493	Reconstituted Wood Products	COD
263X	Paperboard Mills	COD
281X	Industrial Inorganic Chemicals	Al; Fe; N+N
282X	Plastic Materials, Synthetics	Zn
284X	Soaps, Detergents, Cosmetics	N+N; Zn
287X	Fertilizers, Pesticides, etc.	Fe; N+N; Pb; Zn; P
301X	Tires, Inner Tubes	Zn
302X	Rubber and Plastic Footwear	Zn
305X	Rubber & Plastic Sealers & Hoses	Zn
306X	Misc. Fabricated Rubber Products	Zn
325X	Structural Clay Products	Al
326X	Pottery & Related Products	Al
3297	Non-Clay Refractories	Al
327X	Concrete, Gypsum, Plaster Products (Except 3274)	Fe
3295	Minerals & Earths	Fe
331X	Steel Works, Blast Furnaces, Rolling and Finishing Mills	Al; Zn
332X	Iron and Steel Foundries	Al; Cu; Fe; Zn
335X	Metal Rolling, Drawing, Extruding	Cu; Zn

336X	Nonferrous Foundries (Castings)	Cu; Zn
34XX	Fabricated Metal Products (Except 3479)	Zn; N+N; Fe; Al
3479	Coating and Engraving	Zn; N+N
4953	Hazardous Waste Facilities	NH3; Mg; COD; As; Cn; Pb; HG; Se; Ag
44XX	Water Transportation	Al; Fe; Pb; Zn
45XX	Air Transportation Facilities[16]	BOD; COD; NH3
4911	Steam Electric Power Generating Facilities	Fe
4953	Landfills and Land Application Facilities	Fe
5015	Dismantling or Wrecking Yards	Fe; Pb; Al
5093	Scrap and Waste Materials (not including source-separated recycling)	Fe; Pb; Al; Zn; COD

***Table 1 Parameter Reference**	
Ag – Silver	**Mg** – Magnesium
Al – Aluminum	**N+N** - Nitrate & Nitrite Nitrogen
As – Arsenic	**NH** – Ammonia
BOD – Biochemical Oxygen Demand	**Ni** – Nickel
Cd - Cadmium	**P** – Phosphorus
Cn – Cyanide	**Se** – Selenium
COD – Chemical Oxygen Demand	**TSS** – Total Suspended Solids
Cu – Copper	**Zn** – Zinc
Fe – Iron	**Pb** – Lead
Hg – Mercury	

[16] Only airports (SIC 4512-4581) where a single Discharger, or a combination of permitted facilities use more than 100,000 gallons of glycol-based deicing chemicals and/or 100 tons or more of urea on an average annual basis, are required to monitor these parameters for those outfalls that collect runoff from areas where deicing activities occur.

TABLE 2: Parameter NAL Values, Test Methods, and Reporting Units

PARAMETER	TEST METHOD	REPORTING UNITS	ANNUAL NAL	INSTANTANEOUS MAXIMUM NAL
pH*	See Section XI.C.2	pH units	N/A	Less than 6.0 Greater than 9.0
Suspended Solids (TSS)*, Total	SM 2540-D	mg/L	100	400
Oil & Grease (O&G)*, Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26**	
Copper, Total (H)	EPA 200.8	mg/L	0.0332**	
Cyanide, Total	SM 4500–CN C, D, or E	mg/L	0.022	
Lead, Total (H)	EPA 200.8	mg/L	0.262**	
Chemical Oxygen Demand (COD)	SM 5220C	mg/L	120	
Aluminum, Total	EPA 200.8	mg/L	0.75	
Iron, Total	EPA 200.7	mg/L	1.0	
Nitrate + Nitrite Nitrogen	SM 4500-NO3- E	mg/L as N	0.68	
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	
Ammonia (as N)	SM 4500-NH3 B+ C or E	mg/L	2.14	
Magnesium, total	EPA 200.7	mg/L	0.064	
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053**	
Nickel, Total (H)	EPA 200.8	mg/l	1.02**	
Mercury, Total	EPA 245.1	mg/L	0.0014	
Selenium, Total	EPA 200.8	mg/L	0.005	
Silver, Total (H)	EPA 200.8	mg/L	0.0183**	
Biochemical Oxygen Demand (BOD)	SM 5210B	mg/L	30	

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition
EPA – U.S. EPA test methods
(H) – Hardness dependent
* Minimum parameters required by this General Permit
**The NAL is the highest value used by U.S. EPA based on their hardness table in the 2008 MSGP.

C. Methods and Exceptions

1. The Discharger shall comply with the monitoring methods in this General Permit and Attachment H.

2. pH Methods

   a. Dischargers that are not subject to Subchapter N ELGs mandating pH analysis related to acidic or alkaline sources and have never entered Level 1 status for pH, are eligible to screen for pH using wide range litmus pH paper or other equivalent pH test kits. The pH screen shall be performed as soon as practicable, but no later than 15 minutes after the sample is collected.

   b. Dischargers subject to Subchapter N ELGs shall either analyze samples for pH using methods in accordance with 40 Code of Federal Regulations 136 for testing storm water or use a calibrated portable instrument for pH.

   c. Dischargers that enter Level 1 status (see Section XII.C) for pH shall, in the subsequent reporting years, analyze for pH using methods in accordance with 40 Code of Federal Regulations 136 or use a calibrated portable instrument for pH.

   d. Dischargers using a calibrated portable instrument for pH shall ensure that all field measurements are conducted in accordance with the accompanying manufacturer's instructions.

3. Alternative Discharge Locations

   a. The Discharger is required to identify, when practicable, alternative discharge locations for any discharge locations identified in accordance with Section XI.B.4 if the facility's discharge locations are:

      i. Affected by storm water run-on from surrounding areas that cannot be controlled; and/or,

      ii. Difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).

   b. The Discharger shall submit and certify via SMARTS any alternative discharge location or revisions to the alternative discharge locations in the Monitoring Implementation Plan.

4. Representative Sampling Reduction

   a. The Discharger may reduce the number of locations to be sampled in each drainage area (e.g., roofs with multiple downspouts, loading/unloading areas with multiple storm drains) if the industrial

activities, BMPs, and physical characteristics (grade, surface materials, etc.) of the drainage area for each location to be sampled are substantially similar to one another. To qualify for the Representative Sampling Reduction, the Discharger shall provide a Representative Sampling Reduction justification in the Monitoring Implementation Plan section of the SWPPP.

b. The Representative Sampling Reduction justification shall include:

   i. Identification and description of each drainage area and corresponding discharge location(s);

   ii. A description of the industrial activities that occur throughout the drainage area;

   iii. A description of the BMPs implemented in the drainage area;

   iv. A description of the physical characteristics of the drainage area;

   v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar; and,

   vi. An identification of the discharge location(s) selected for representative sampling, and rationale demonstrating that the selected location(s) to be sampled are representative of the discharge from the entire drainage area.

c. A Discharger that satisfies the conditions of subsection 4.b.i through v above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Representative Sampling Reduction justification.

d. Upon submittal of the Representative Sampling Reduction justification, the Discharger may reduce the number of locations to be sampled in accordance with the Representative Sampling Reduction justification. The Regional Water Board may reject the Representative Sampling Reduction justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Representative Sampling Reduction until the Regional Water Board approves the Representative Sampling Reduction justification.

5. Qualified Combined Samples

   a. The Discharger may authorize an analytical laboratory to combine samples of equal volume from as many as four (4) discharge locations if the industrial activities, BMPs, and physical characteristics (grade, surface materials, etc.) within each of the drainage areas are substantially similar to one another.

b. The Qualified Combined Samples justification shall include:

i. Identification and description of each drainage area and corresponding discharge locations;

ii. A description of the BMPs implemented in the drainage area;

iii. A description of the industrial activities that occur throughout the drainage area;

iv. A description of the physical characteristics of the drainage area; and,

v. A rationale that demonstrates that the industrial activities and physical characteristics of the drainage area(s) are substantially similar.

c. A Discharger that satisfies the conditions of subsection 5.b.i through iv above shall submit and certify via SMARTS the revisions to the Monitoring Implementation Plan that includes the Qualified Combined Samples justification.

d. Upon submittal of the Qualified Combined Samples justification revisions in the Monitoring Implementation Plan, the Discharger may authorize the lab to combine samples of equal volume from as many as four (4) drainage areas. The Regional Water Board may reject the Qualified Combined Samples justification and/or request additional supporting documentation. In such instances, the Discharger is ineligible for the Qualified Combined Samples justification until the Regional Water Board approves the Qualified Combined Samples justification.

e. Regional Water Board approval is necessary to combine samples from more than four (4) discharge locations.

6. Sample Collection and Visual Observation Exceptions

a. Sample collection and visual observations are not required under the following conditions:

i. During dangerous weather conditions such as flooding or electrical storms; or,

ii. Outside of scheduled facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled facility operating hours.

b. In the event that samples are not collected, or visual observations are not conducted in accordance with Section XI.B.5 due to these exceptions, an explanation shall be included in the Annual Report.

c. Sample collection is not required for drainage areas with no exposure to industrial activities and materials in accordance with the definitions in Section XVII.

7. Sampling Frequency Reduction Certification
   a. Dischargers are eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:

      i. Results from four (4) consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs as defined in Section XII.A; and

      ii. The Discharger is in full compliance with the requirements of this General Permit and has updated, certified and submitted via SMARTS all documents, data, and reports required by this General Permit during the time period in which samples were collected.

   b. The Regional Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.

   c. An eligible Discharger shall certify via SMARTS that it meets the conditions in subsection 7.a above.

   d. Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from one (1) QSE within the first half of each reporting year (July 1 to December 31), and one (1) QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.

   e. Dischargers who participate in a Compliance Group and certify a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year.

   f. A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the Regional Water Board that: (1) the Sampling Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the Regional Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted via SMARTS by the Discharger.

   g. A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs (Section XII.A).

D. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

1. In addition to the other requirements in this General Permit, Dischargers with facilities subject to storm water ELGs in Subchapter N shall:

   a. Collect and analyze samples from QSEs for each regulated pollutant specified in the appropriate category in Subchapter N as specified in Section XI.B;

   b. For Dischargers with facilities subject to 40 Code of Federal Regulations parts 419[17] and 443[18], estimate or calculate the volume of industrial storm water discharges from each drainage area subject to the ELGs and the mass of each regulated pollutant as defined in parts 419 and 443; and,

   c. Ensure that the volume/mass estimates or calculations required in subsection b are completed by a California licensed professional engineer.

2. Dischargers subject to Subchapter N shall submit the information in Section XI.D.1.a through c in their Annual Report.

3. Dischargers with facilities subject to storm water ELGs in Subchapter N are ineligible for the Representative Sampling Reduction in Section XI.C.4.

XII. EXCEEDANCE RESPONSE ACTIONS (ERAs)

A. NALs and NAL Exceedances

The Discharger shall perform sampling, analysis and reporting in accordance with the requirements of this General Permit and shall compare the results to the two types of NAL values in Table 2 to determine whether either type of NAL has been exceeded for each applicable parameter. The two types of potential NAL exceedances are as follows:

1. Annual NAL exceedance: The Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data). The Discharger shall compare the average concentration for each parameter to the corresponding annual NAL values in Table 2. For Dischargers using composite sampling or flow-weighted measurements in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA's NPDES Storm Water

[17] Part 419 - Petroleum refining point source category
[18] Part 443 - Effluent limitations guidelines for existing sources and standards of performance and pretreatment standards for new sources for the paving and roofing materials (tars and asphalt) point source category

Sampling Guidance Document.[19] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2; and,

2. Instantaneous maximum NAL exceedance: The Discharger shall compare all sampling and analytical results from each distinct sample (individual or combined as authorized by XI.C.5) to the corresponding instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two (2) or more analytical results from samples taken for any single parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G) or are outside of the instantaneous maximum NAL range for pH.

B. Baseline Status

At the beginning of a Discharger's NOI Coverage, all Dischargers have Baseline status for all parameters.

C. Level 1 Status

A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter. Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.[20]

1. Level 1 ERA Evaluation

    a. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:

    b. Complete an evaluation, with the assistance of a QISP, of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,

    c. Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this General Permit. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

2. Level 1 ERA Report

[19] U.S. EPA. NPDES Storm Water Sampling Guidance Document. <http://www.epa.gov/npdes/pubs/owm0093.pdf >. [as of February 4, 2014]

[20] For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status once those results have been reported.

a. Based upon the above evaluation, the Discharger shall, as soon as practicable but no later than January 1 following commencement of Level 1 status :

i. Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;

ii. Certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP that includes the following:

1) A summary of the Level 1 ERA Evaluation required in subsection C.1 above; and,

2) A detailed description of the SWPPP revisions and any additional BMPs for each parameter that exceeded an NAL.

iii. Certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address).

b. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.

3. NAL Exceedances Prior to Implementation of Level 1 Status BMPs.

Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances in SMARTS.

D. Level 2 Status

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.[21]

1. Level 2 ERA Action Plan

[21] For all sampling results reported before June 30th of the preceding reporting year. If sample results indicating an NAL exceedance are submitted after June 30th, the Discharger will change status upon the date those results have been reported into SMARTS.

a. Dischargers with Level 2 status shall certify and submit via SMARTS a Level 2 ERA Action Plan prepared by a QISP that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in subsection D.2.a through c the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.

b. The Discharger shall certify and submit via SMARTS the QISP's identification number, name, and contact information (telephone number, e-mail address) if this information has changed since previous certifications.

c. The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.

d. All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.

e. The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in Section D.2.a through c.

2. Level 2 ERA Technical Report

On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report prepared by a QISP that includes one or more of the following demonstrations:

a. Industrial Activity BMPs Demonstration

This shall include the following requirements, as applicable:

i. Shall include a description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);

ii. Shall include an evaluation of all pollutant sources associated with industrial activity that are or may be related to the NAL exceedance(s);

iii. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve

compliance with the effluent limitations of this General Permit and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;

iv. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this General Permit but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide, in addition to a description and analysis of all implemented BMPs:

1) An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;

2) Estimated costs of the additional BMPs evaluated; and,

3) An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.

v. The description and analysis of BMPs required in subsection a.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,

vi. If an alternative design storm standard for treatment control BMPs (in lieu of the design storm standard for treatment control BMPs in Section X.H.6 in this General Permit) will achieve compliance with the effluent limitations of this General Permit, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

b. Non-Industrial Pollutant Source Demonstration

This shall include:

i. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;

ii. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance;

iii. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance;

iv. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;

v. A summary of all existing BMPs for that parameter; and,

vi. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

c. Natural Background Pollutant Source Demonstration

This shall include:

i. A statement that the Discharger has determined that the NAL exceedance is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);

ii. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;

iii. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Source Demonstration;

iv. Map showing the reference site location in relation to facility along with available land cover information;

v. Reference site and test site elevation;

vi. Available geology and soil information for reference and test sites;

vii. Photographs showing site vegetation;

viii. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and,

ix. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

3. Level 2 ERA Technical Report Submittal

a. The Discharger shall certify and submit via SMARTS the Level 2 ERA Technical Report described in Section D.2 above.

b. The State Water Board and Regional Boards (Water Boards) may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the Water Boards may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this General Permit.

c. Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area (if the original Level 2 ERA Technical Report contained an Industrial Activity BMP Demonstration and the implemented BMPs were expected to eliminate future NAL exceedances in accordance with Section XII.D.2.a.ii), facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be prepared by a QISP and be certified and submitted via SMARTS by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

d. Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

4. Eligibility for Returning to Baseline Status

a. Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with subsection 2.a.i through iii above and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in Section D.3.c.

b. Dischargers are ineligible to return to baseline status if they submit any of the following:

   i. A industrial activity BMP demonstration in accordance with subsection 2.a.iv above;

   ii. An non-industrial pollutant source demonstration; or,

   iii. A natural background pollutant source demonstration.

5. Level 2 ERA Implementation Extension

   a. Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items into SMARTS, as applicable:

      i. Reasons for the time extension;

      ii. A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and

      iii. A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.

   b. The Regional Water Boards will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the Water Boards. The Water Boards may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions, (2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs.

XIII. INACTIVE MINING OPERATION CERTIFICATION

A. Inactive mining operations are defined in Part 3 of Attachment A of this General Permit. The Discharger may, in lieu of complying with the General Permit requirements described in subsection B below, certify and submit via SMARTS that their inactive mining operation meets the following conditions:

1. The Discharger has determined and justified in the SWPPP that it is impracticable to implement the monitoring requirements in this General Permit for the inactive mining operation;

2. A SWPPP has been signed (wet signature and license number) by a California licensed professional engineer and is being implemented in accordance with the requirements of this General Permit; and,

3. The facility is in compliance with this General Permit, except as provided in subsection B below.

B. The Discharger who has certified and submitted that they meet the conditions in subsection A above, are not subject to the following General Permit requirements:

1. Monitoring Implementation Plan in Section X.I;

2. Monitoring Requirements in Section XI;

3. Exceedance Response Actions (ERAs) in Section XII; and,

4. Annual Report Requirements in Section XVI.

C. Inactive Mining Operation Certification Submittal Schedule

1. The Discharger shall certify and submit via SMARTS NOI coverage PRDs listed in Section II.B.1 and meet the conditions in subsection A above.

2. The Discharger shall annually inspect the inactive mining site and certify via SMARTS no later than July 15th of each reporting year, that their inactive mining operation continues to meet the conditions in subsection A above.

3. The Discharger shall have a California licensed professional engineer review and update the SWPPP if there are changes to their inactive mining operation or additional BMPs are needed to comply with this General Permit. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer.

4. The Discharger shall certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s).

XIV. COMPLIANCE GROUPS AND COMPLIANCE GROUP LEADERS

A. Compliance Group Qualification Requirements

1. Any group of Dischargers of the same industry type or any QISP representing Dischargers of the same industry type may form a Compliance Group. A Compliance Group shall consist of Dischargers that operate facilities with similar types of industrial activities, pollutant sources, and pollutant characteristics (e.g., scrap metals recyclers would join a different group than paper recyclers, truck vehicle maintenance facilities would join a different group than airplane vehicle maintenance facilities, etc.). A Discharger participating in a Compliance Group is termed a Compliance Group Participant. Participation in a Compliance Group is not required. Compliance Groups may be formed at any time.

2. Each Compliance Group shall have a Compliance Group Leader.

3. To establish a Compliance Group, the Compliance Group Leader shall register as a Compliance Group Leader via SMARTS. The registration shall include documentation demonstrating compliance with the Compliance Group qualification requirements above and a list of the Compliance Group Participants.

4. Each Compliance Group Participant shall register as a member of an established Compliance Group via SMARTS.

5. The Executive Director of the State Water Board may review Compliance Group registrations and/or activities for compliance with the requirements of this General Permit. The Executive Director may reject the Compliance Group, the Compliance Group Leader, or individual Compliance Group Participants within the Compliance Group.

B. Compliance Group Leader Responsibilities

1. A Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders.

2. The Compliance Group Leader shall assist Compliance Group Participants with all compliance activities required by this General Permit.

3. A Compliance Group Leader shall prepare a Consolidated Level 1 ERA Report for all Compliance Group Participants with Level 1 status for the same parameter. Compliance Group Participants who certify and submit these Consolidated Level 1 ERA Reports are subject to the same provisions as individual Dischargers with Level 1 status, as described in Section XII.C. A Consolidated Level 1 ERA Report is equivalent to a Level 1 ERA Report.

4. The Compliance Group Leader shall update the Consolidated Level 1 ERA Report as needed to address additional Compliance Group Participants with ERA Level 1 status.

5. A Compliance Group Leader shall prepare a Level 2 ERA Action Plan specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Action Plans are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.

6. A Compliance Group Leader shall prepare a Level 2 ERA Technical Report specific to each Compliance Group Participant with Level 2 status. Compliance Group Participants who certify and submit these Level 2 ERA Technical Reports are subject to the same provisions as individual Dischargers with Level 2 status, as described in Section XII.D.

7. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants that have entered Level 2 status prior to preparing the individual Level 2 ERA Technical Report.

8. The Compliance Group Leader shall revise the Consolidated Level 1 ERA Report, individual Level 2 ERA Action Plans, or individual Level 2 Technical Reports in accordance with any comments received from the Water Boards.

9. The Compliance Group Leader shall inspect all the facilities of the Compliance Group Participants at a minimum of once per reporting year (July 1 to June 30).

C. Compliance Group Participant Responsibilities

1. Each Compliance Group Participant is responsible for permit compliance for the Compliance Group Participant's facility and for ensuring that the Compliance Group Leader's activities related to the Compliance Group Participant's facility comply with this General Permit.

2. Compliance Group Participants with Level 1 status shall certify and submit via SMARTS the Consolidated Level 1 ERA Report. The Compliance Group Participants shall certify that they have reviewed the Consolidated Level 1 ERA Report and have implemented any required additional BMPs. Alternatively, the Compliance Group Participant may submit an individual Level 1 ERA Report in accordance with the provisions in Section XII.C.2.

3. Compliance Group Participants with Level 2 status shall certify and submit via SMARTS their individual Level 2 ERA Action Plan and Technical Report prepared by their Compliance Group Leader. Each Compliance Group Participant shall certify that they have reviewed the Level 2 ERA Action Plan and Technical Report and will implement any required additional BMPs.

4. Compliance Group Participants can at any time discontinue their participation in their associated Compliance Group via SMARTS. Upon discontinuation, the former Compliance Group Participant is immediately subject to the sampling and analysis requirements described in Section XI.B.2.

XV. ANNUAL COMPREHENSIVE FACILITY COMPLIANCE EVALUATION (ANNUAL EVALUATION)

The Discharger shall conduct one Annual Evaluation for each reporting year (July 1 to June 30). If the Discharger conducts an Annual Evaluation fewer than eight (8) months, or more than sixteen (16) months, after it conducts the previous Annual Evaluation, it shall document the justification for doing so. The Discharger shall revise the SWPPP, as appropriate, and implement the revisions within 90 days of the Annual Evaluation. At a minimum, Annual Evaluations shall consist of:

A. A review of all sampling, visual observation, and inspection records conducted during the previous reporting year;

B. An inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the storm water conveyance system;

C. An inspection of all drainage areas previously identified as having no exposure to industrial activities and materials in accordance with the definitions in Section XVII;

D. An inspection of equipment needed to implement the BMPs;

E. An inspection of any BMPs;

F. A review and effectiveness assessment of all BMPs for each area of industrial activity and associated potential pollutant sources to determine if the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in industrial storm water discharges and authorized NSWDs; and,

G. An assessment of any other factors needed to comply with the requirements in Section XVI.B.

XVI. ANNUAL REPORT

A. The Discharger shall certify and submit via SMARTS an Annual Report no later than July 15th following each reporting year using the standardized format and checklists in SMARTS.

B. The Discharger shall include in the Annual Report:

1. A Compliance Checklist that indicates whether a Discharger complies with, and has addressed all applicable requirements of this General Permit;

2. An explanation for any non-compliance of requirements within the reporting year, as indicated in the Compliance Checklist;

3. An identification, including page numbers and/or sections, of all revisions made to the SWPPP within the reporting year; and,

4. The date(s) of the Annual Evaluation.

XVII. CONDITIONAL EXCLUSION - NO EXPOSURE CERTIFICATION (NEC)

A. Discharges composed entirely of storm water that has not been exposed to industrial activity are not industrial storm water discharges. Dischargers are conditionally excluded from complying with the SWPPP and monitoring requirements of this General Permit if all of the following conditions are met:

1. There is no exposure of Industrial Materials and Activities to rain, snow, snowmelt, and/or runoff;

2. All unauthorized NSWDs have been eliminated and all authorized NSWDs meet the conditions of Section IV;

3. The Discharger has certified and submitted via SMARTS PRDs for NEC coverage pursuant to the instructions in Section II.B.2; and,

4. The Discharger has satisfied all other requirements of this Section.

B. NEC Specific Definitions

1. No Exposure - all Industrial Materials and Activities are protected by a Storm-Resistant Shelter to prevent all exposure to rain, snow, snowmelt, and/or runoff.

2. Industrial Materials and Activities - includes, but is not limited to, industrial material handling activities or equipment, machinery, raw materials, intermediate products, by-products, final products, and waste products.

3. Material Handling Activities - includes the storage, loading and unloading, transportation, or conveyance of any industrial raw material, intermediate product, final product, or waste product.

4. Sealed - banded or otherwise secured, and without operational taps or valves.

5. Storm-Resistant Shelters - includes completely roofed and walled buildings or structures. Also includes structures with only a top cover supported by permanent supports but with no side coverings, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), or track-out, and there is no storm water discharged from within the structure that comes into contact with any materials.

C. NEC Qualifications

To qualify for an NEC, a Discharger shall:

1. Except as provided in subsection D below, provide a Storm-Resistant Shelter to protect Industrial Materials and Activities from exposure to rain, snow, snowmelt, run-on, and runoff;

2. Inspect and evaluate the facility annually to determine that storm water exposed to industrial materials or equipment has not and will not be discharged to waters of the United States. Evaluation records shall be maintained for five (5) years in accordance with Section XXI.J.4;

3. Register for NEC coverage by certifying that there are no discharges of storm water contaminated by exposure to Industrial Materials and Activities from areas of the facility subject to this General Permit, and certify that all unauthorized NSWDs have been eliminated and all authorized NSWDs meet the conditions of Section IV (Authorized NSWDs). NEC coverage and annual renewal requires payment of an annual fee in accordance with California Code of Regulations, title 23, section 2200 et seq.; and,

4. Submit PRDs for NEC coverage shall be prepared and submitted in accordance with the:

   a. Certification requirements in Section XXI.K; and,

   b. Submittal schedule in accordance with Section II.B.2.

D. NEC Industrial Materials and Activities - Storm-Resistant Shelter Not Required

To qualify for NEC coverage, a Storm-Resistant Shelter is not required for the following:

1. Drums, barrels, tanks, and similar containers that are tightly Sealed, provided those containers are not deteriorated, do not contain residual industrial materials on the outside surfaces, and do not leak;

2. Adequately maintained vehicles used in material handling;

3. Final products, other than products that would be mobilized in storm water discharge (e.g., rock salt);

4. Any Industrial Materials and Activities that are protected by a temporary shelter for a period of no more than ninety (90) days due to facility construction or remodeling; and,

5. Any Industrial Materials and Activities that are protected within a secondary containment structure that will not discharge storm water to waters of the United States.

E. NEC Limitations

1. NEC coverage is available on a facility-wide basis only, not for individual outfalls. If a facility has industrial storm water discharges from one or more drainage areas that require NOI coverage, Dischargers shall register for NOI coverage for the entire facility through SMARTS in accordance with Section II.B.2. Any drainage areas on that facility that would otherwise qualify for NEC coverage may be specially addressed in the facility SWPPP by including an NEC Checklist and a certification statement demonstrating that those drainage areas of the facility have been evaluated; and that none of the Industrial Materials or Activities listed in subsection C above are, or will be in the foreseeable future, exposed to precipitation.

2. If circumstances change and Industrial Materials and Activities become exposed to rain, snow, snowmelt, and/or runoff, the conditions for this exclusion shall no longer apply. In such cases, the Discharger may be subject to enforcement for discharging without a permit. A Discharger with NEC coverage that anticipates changes in circumstances should register for NOI coverage at least seven (7) days before anticipated exposure.

3. The Regional Water Board may deny NEC coverage and require NOI coverage upon determining that:

   a. Storm water is exposed to Industrial Materials and Activities; and/or

   b. The discharge has a reasonable potential to cause or contribute to an exceedance of an applicable water quality standards.

F. NEC Permit Registration Documents Required for Initial NEC Coverage

A Discharger shall submit via SMARTS the following PRDs for NEC coverage to document the applicability of the conditional exclusion:

1. The NEC form, which includes:

   a. The legal name, postal address, telephone number, and e-mail address of the Discharger;

   b. The facility business name and physical mailing address, the county name, and a description of the facility location if the facility does not have a physical mailing address; and,

   c. Certification by the Discharger that all PRDs submitted are correct and true and the conditions of no exposure have been met.

2. An NEC Checklist prepared by the Discharger demonstrating that the facility has been evaluated; and that none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

a. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;

b. Materials or residuals on the ground or in storm water inlets from spills/leaks;

c. Materials or products from past industrial activity;

d. Material handling equipment (except adequately maintained vehicles);

e. Materials or products during loading/unloading or transporting activities;

f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;

i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters);

j. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,

k. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

3. Site Map (see Section X.E).

G. Requirements for Annual NEC Coverage Recertification

By October 1 of each reporting year beginning in 2015, any Discharger who has previously registered for NEC coverage shall either submit and certify an NEC demonstrating that the facility has been evaluated, and that none of the Industrial Materials or Activities listed above are, or will be in the foreseeable future, exposed to precipitation, or apply for NOI coverage.

H. NEC Certification Statement

All NEC certifications and re-certifications shall include the following certification statement:

I certify under penalty of law that I have read and understand the eligibility requirements for claiming a condition of 'no exposure' and obtaining an exclusion from NPDES storm water permitting; and that there are no discharges of storm water contaminated by exposure to industrial activities

or materials from the industrial facility identified in this document (except as allowed in subsection C above). I understand that I am obligated to submit a no exposure certification form annually to the State Water Board and, if requested, to the operator of the local Municipal Separate Storm Sewer System (MS4) into which this facility discharges (where applicable). I understand that I must allow the Water Board staff, or MS4 operator where the discharge is into the local MS4, to perform inspections to confirm the condition of no exposure and to make such inspection reports publicly available upon request. I understand that I must obtain coverage under an NPDES permit prior to any point source discharge of storm water from the facility. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based upon my inquiry of the person or persons who manage the system, or those persons directly involved in gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

XVIII. SPECIAL REQUIREMENTS - PLASTIC MATERIALS

A. Facilities covered under this General Permit that handle Plastic Materials are required to implement BMPs to eliminate discharges of plastic in storm water in addition to the other requirements of this General Permit that are applicable to all other Industrial Materials and Activities. Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site. Any Dischargers' facility handling Plastic Materials will be referred to as Plastics Facilities in this General Permit. Any Plastics Facility covered under this General Permit that manufactures, transports, stores, or consumes these materials shall submit information to the State Water Board in their PRDs, including the type and form of plastics, and which BMPs are implemented at the facility to prevent illicit discharges. Pursuant to Water Code section 13367, Plastics Facilities are subject to mandatory, minimum BMPs.

1. At a minimum, Plastics Facilities shall implement and include in the SWPPP:

   a. Containment systems at each on-site storm drain discharge location down gradient of areas containing plastic material. The containment system shall be designed to trap all particles retained by a 1mm mesh screen, with a treatment capacity of no less than the peak flow rate from a one-year, one-hour storm.

   b. When a containment system is infeasible, or poses the potential to cause an illicit discharge, the facility may propose a technically feasible

alternative BMP or suite of BMPs. The alternative BMPs shall be designed to achieve the same or better performance standard as a 1mm mesh screen with a treatment capacity of the peak flow rate from a one-year, one-hour storm. Alternative BMPs shall be submitted to the Regional Water Board for approval.

c. Plastics Facilities shall use durable sealed containers designed not to rupture under typical loading and unloading activities at all points of plastic transfer and storage.

d. Plastics Facilities shall use capture devices as a form of secondary containment during transfers, loading, or unloading Plastic Materials. Examples of capture devices for secondary containment include, but are not limited to catch pans, tarps, berms or any other device that collects errant material.

e. Plastics Facilities shall have a vacuum or vacuum-type system for quick cleanup of fugitive plastic material available for employees.

f. Pursuant to Water Code section 13367(e)(1), Plastics Facilities that handle Plastic Materials smaller than 1mm in size shall develop a containment system designed to trap the smallest plastic material handled at the facility with a treatment capacity of at least the peak flow rate from a one-year, one-hour storm, or develop a feasible alternative BMP or suite of BMPs that are designed to achieve a similar or better performance standard that shall be submitted to the Regional Water Board for approval.

2. Plastics Facilities are exempt from the Water Code requirement to install a containment system under section 13367 of the Water Code if they meet one of the following requirements that are determined to be equal to, or exceed the performance requirements of a containment system:

   a. The Discharger has certified and submitted via SMARTS a valid No Exposure Certification (NEC) in accordance with Section XVII; or

   b. Plastics Facilities are exempt from installing a containment system, if the following suite of eight (8) BMPs is implemented. This combination of BMPs is considered to reduce or prevent the discharge of plastics at a performance level equivalent to or better than the 1mm mesh and flow standard in Water Code section 13367(e)(1).

      i. Plastics Facilities shall annually train employees handling Plastic Materials. Training shall include environmental hazards of plastic discharges, employee responsibility for corrective actions to prevent errant Plastic Materials, and standard procedures for containing, cleaning, and disposing of errant Plastic Materials.

ii. Plastics Facilities shall immediately fix any Plastic Materials containers that are punctured or leaking and shall clean up any errant material in a timely manner.

iii. Plastics Facilities shall manage outdoor waste disposal of Plastic Materials in a manner that prevents the materials from leaking from waste disposal containers or during waste hauling.

iv. Plastics Facilities that operate outdoor conveyance systems for Plastic Materials shall maintain the system in good operating condition. The system shall be sealed or filtered in such a way as to prevent the escape of materials when in operation. When not in operation, all connection points shall be sealed, capped, or filtered so as to not allow material to escape. Employees operating the conveyance system shall be trained how to operate in a manner that prevents the loss of materials such as secondary containment, immediate spill response, and checks to ensure the system is empty during connection changes.

v. Plastics Facilities that maintain outdoor storage of Plastic Materials shall do so in a durable, permanent structure that prevents exposure to weather that could cause the material to migrate or discharge in storm water.

vi. Plastics Facilities shall maintain a schedule for regular housekeeping and routine inspection for errant Plastic Materials. The Plastics Facility shall ensure that their employees follow the schedule.

vii. PRDs shall include the housekeeping and routine inspection schedule, spill response and prevention procedures, and employee training materials regarding plastic material handling.

viii. Plastics Facilities shall correct any deficiencies in the employment of the above BMPs that result in errant Plastic Materials that may discharge or migrate off-site in a timely manner. Any Plastic Materials that are discharged or that migrate off-site constitute an illicit discharge in violation of this General Permit.

XIX. REGIONAL WATER BOARD AUTHORITIES

A. The Regional Water Boards may review a Discharger's PRDs for NOI or NEC coverage and administratively reject General Permit coverage if the PRDs are deemed incomplete. The Regional Water Boards may take actions that include rescinding General Permit coverage, requiring a Discharger to revise and re-submit their PRDs (certified and submitted by the Discharger) within a specified time period, requiring the Discharger to apply for different General Permit coverage or a different individual or general permit, or taking no action.

B. The Regional Water Boards have the authority to enforce the provisions and requirements of this General Permit. This includes, but is not limited to,

reviewing SWPPPs, Monitoring Implementation Plans, ERA Reports, and Annual Reports, conducting compliance inspections, and taking enforcement actions.

C. As appropriate, the Regional Water Boards may issue NPDES storm water general or individual permits to a Discharger, categories of Dischargers, or Dischargers within a watershed or geographic area. Upon issuance of such NPDES permits, this General Permit shall no longer regulate the affected Discharger(s).

D. The Regional Water Boards may require a Discharger to revise its SWPPP, ERA Reports, or monitoring programs to achieve compliance with this General Permit. In this case, the Discharger shall implement these revisions in accordance with a schedule provided by the Regional Water Board.

E. The Regional Water Boards may approve requests from a Discharger to include co-located, but discontiguous, industrial activities within the same facility under a single NOI or NEC coverage.

F. Consistent with 40 Code of Federal Regulations section 122.26(a)(9)(i)(D), the Regional Water Boards may require any discharge that is not regulated by this General Permit, that is determined to contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States, to be covered under this General Permit as appropriate. Upon designation, the Discharger responsible for the discharge shall obtain coverage under this General Permit.

G. The Regional Water Boards may review a Discharger's Inactive Mining Operation Certification and reject it at any time if the Regional Water Board determines that access to the facility for monitoring purposes is practicable or that the facility is not in compliance with the applicable requirements of this General Permit.

H. All Regional Water Board actions that modify a Discharger's obligations under this General Permit must be in writing and should also be submitted in SMARTS.

XX. SPECIAL CONDITIONS

A. Reopener Clause

This General Permit may be reopened and amended to incorporate TMDL-related provisions. This General Permit may also be modified, revoked and reissued, or terminated for cause due to promulgation of amended regulations, water quality control plans or water quality control policies, receipt of U.S. EPA guidance concerning regulated activities, judicial decision, or in accordance with 40 Code of Federal Regulations sections 122.62, 122.63, 122.64, and 124.5.

B. Water Quality Based Corrective Actions

1. Upon determination by the Discharger or written notification by the Regional Water Board that industrial storm water discharges and/or authorized NSWDs contain pollutants that are in violation of Receiving Water Limitations (Section VI), the Discharger shall:

    a. Conduct a facility evaluation to identify pollutant source(s) within the facility that are associated with industrial activity and whether the BMPs described in the SWPPP have been properly implemented;

    b. Assess the facility's SWPPP and its implementation to determine whether additional BMPs or SWPPP implementation measures are necessary to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI); and,

    c. Certify and submit via SMARTS documentation based upon the above facility evaluation and assessment that:

        i. Additional BMPs and/or SWPPP implementation measures have been identified and included in the SWPPP to meet the Receiving Water Limitations (Section VI); or

        ii. No additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in industrial storm water discharges to meet the Receiving Water Limitations (Section VI).

2. The Regional Water Board may reject the Dischargers water quality based corrective actions and/or request additional supporting documentation.

C. Requirements for Dischargers Claiming "No Discharge" through the Notice of Non-Applicability (NONA)

1. For the purpose of the NONA, the Entity (Entities) is referring to the person(s) defined in section 13399.30 of the Water Code.

2. Entities who are claiming "No Discharge" through the NONA shall meet the following eligibility requirements:

    a. The facility is engineered and constructed to have contained the maximum historic precipitation event (or series of events) using the precipitation data collected from the National Oceanic and Atmospheric Agency's website (or other nearby precipitation data available from other government agencies) so that there will be no discharge of industrial storm water to waters of the United States; or,

    b. The facility is located in basins or other physical locations that are not hydrologically connected to waters of the United States.

3. When claiming the "No Discharge" option, Entities shall submit and certify via SMARTS both the NONA and a No Discharge Technical Report. The No

Discharge Technical Report shall demonstrate the facility meets the eligibility requirements described above.

4. The No Discharge Technical Report shall be signed (wet signature and license number) by a California licensed professional engineer.

XXI. STANDARD CONDITIONS

A. Duty to Comply

Dischargers shall comply with all standard conditions in this General Permit. Permit noncompliance constitutes a violation of the Clean Water Act and the Water Code and is grounds for enforcement action and/or removal from General Permit coverage.

Dischargers shall comply with effluent standards or prohibitions established under section 307(a) of the Clean Water Act for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions.

B. Duty to Reapply

Dischargers that wish to continue an activity regulated under this General Permit after the expiration date of this General Permit shall apply for and obtain authorization from the Water Boards as required by the new general permit once it is issued.

C. General Permit Actions

1. This General Permit may be modified, revoked and reissued, or terminated for cause. Submittal of a request by the Discharger for General Permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not annul any General Permit condition.

2. If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge, and that standard or prohibition is more stringent than any limitation on the pollutant in this General Permit, this General Permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition.

D. Need to Halt or Reduce Activity Not a Defense

In an enforcement action, it shall not be a defense for a Discharger that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this General Permit.

E. Duty to Mitigate

Dischargers shall take all responsible steps to reduce or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Proper Operation and Maintenance

Dischargers shall at all times properly operate and maintain any facilities and systems of treatment and control (and related equipment and apparatuses) which are installed or used by the Discharger to achieve compliance with the conditions of this General Permit. Proper operation and maintenance also include adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance may require the operation of backup or auxiliary facilities or similar systems installed by a Discharger when necessary to achieve compliance with the conditions of this General Permit.

G. Property Rights

This General Permit does not convey any property rights of any sort or any exclusive privileges. It also does not authorize any injury to private property or any invasion of personal rights, nor does it authorize any infringement of federal, state, or local laws and regulations.

H. Duty to Provide Information

Upon request by the relevant agency, Dischargers shall provide information to determine compliance with this General Permit to the Water Boards, U.S. EPA, or local Municipal Separate Storm Sewer System (MS4) within a reasonable time. Dischargers shall also furnish, upon request by the relevant agency, copies of records that are required to be kept by this General Permit.

I. Inspection and Entry

Dischargers shall allow the Water Boards, U.S. EPA, and local MS4 (including any authorized contractor acting as their representative), to:

1. Enter upon the premises at reasonable times where a regulated industrial activity is being conducted or where records are kept under the conditions of this General Permit;

2. Access and copy at reasonable times any records that must be kept under the conditions of this General Permit;

3. Inspect the facility at reasonable times; and,

4. Sample or monitor at reasonable times for the purpose of ensuring General Permit compliance.

J. Monitoring and Records

1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. If Dischargers monitor any pollutant more frequently than required, the results of such monitoring shall be included in the calculation and reporting of the data submitted.

3. Records of monitoring information shall include:

   a. The date, exact location, and time of sampling or measurement;

   b. The date(s) analyses were performed;

   c. The individual(s) that performed the analyses;

   d. The analytical techniques or methods used; and,

   e. The results of such analyses.

4. Dischargers shall retain, for a period of at least five (5) years, either a paper or electronic copy of all storm water monitoring information, records, data, and reports required by this General Permit. Copies shall be available for review by the Water Board's staff at the facility during scheduled facility operating hours.

5. Upon written request by U.S. EPA or the local MS4, Dischargers shall provide paper or electronic copies of Annual Reports or other requested records to the Water Boards, U.S. EPA, or local MS4 within ten (10) days from receipt of the request.

K. Electronic Signature and Certification Requirements

1. All Permit Registration Documents (PRDs) for NOI and NEC coverage shall be certified and submitted via SMARTS by the Discharger's Legally Responsible Person (LRP). All other documents may be certified and submitted via SMARTS by the LRP or by their designated Duly Authorized Representative.

2. When a new LRP or Duly Authorized Representative is designated, the Discharger shall ensure that the appropriate revisions are made via SMARTS. In unexpected or emergency situations, it may be necessary for the Discharger to directly contact the State Water Board's Storm Water Section to register for SMARTS account access in order to designate a new LRP.

3. Documents certified and submitted via SMARTS by an unauthorized or ineligible LRP or Duly Authorized Representative are invalid.

4. LRP eligibility is as follows:

    a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means:

        i. A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function; or

        ii. The manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

    b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively;

    c. For a municipality, state, federal, or other public agency: by either a principal executive officer or ranking elected official. This includes the chief executive officer of the agency or the senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of U.S. EPA).

5. Duly Authorized Representative eligibility is as follows:

    a. The Discharger must authorize via SMARTS any person designated as a Duly Authorized Representative;

    b. The authorization shall specify that a person designated as a Duly Authorized Representative has responsibility for the overall operation of the regulated facility or activity, such as a person that is a manager, operator, superintendent, or another position of equivalent responsibility, or is an individual who has overall responsibility for environmental matters for the company; and,

    c. The authorization must be current (it has been updated to reflect a different individual or position) prior to any report submittals, certifications, or records certified by the Duly Authorized Representative.

L. Certification

Any person signing, certifying, and submitting documents under Section XXI.K above shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

M. Anticipated Noncompliance

Dischargers shall give advance notice to the Regional Water Board and local MS4 of any planned changes in the industrial activity that may result in noncompliance with this General Permit.

N. Penalties for Falsification of Reports

Clean Water Act section 309(c)(4) provides that any person that knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this General Permit, including reports of compliance or noncompliance shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years or by both.

O. Oil and Hazardous Substance Liability

Nothing in this General Permit shall be construed to preclude the initiation of any legal action or relieve the Discharger from any responsibilities, liabilities, or penalties to which the Discharger is or may be subject to under section 311 of the Clean Water Act.

P. Severability

The provisions of this General Permit are severable; if any provision of this General Permit or the application of any provision of this General Permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this General Permit shall not be affected thereby.

Q. Penalties for Violations of Permit Conditions

1. Clean Water Act section 309 provides significant penalties for any person that violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act or any permit condition or limitation implementing any such section in a permit issued under section 402. Any

person that violates any permit condition of this General Permit is subject to a civil penalty not to exceed $37,500[22] per calendar day of such violation, as well as any other appropriate sanction provided by section 309 of the Clean Water Act.

2. The Porter-Cologne Water Quality Control Act also provides for civil and criminal penalties, which may be greater than penalties under the Clean Water Act.

R. Transfers

Coverage under this General Permit is non-transferrable. When operation of the facility has been transferred to another entity, or a facility is relocated, new PRDs for NOI and NEC coverage must be certified and submitted via SMARTS prior to the transfer, or at least seven (7) days prior to the first day of operations for a relocated facility.

S. Continuation of Expired General Permit

If this General Permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 40 Code of Federal Regulations 122.6 and remain in full force and effect.

[22] May be further adjusted in accordance with the Federal Civil Penalties Inflation Adjustment Act.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FACT SHEET FOR
STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
NPDES NO. CAS000001

*The factsheet to the IGP was updated in January 2015 to correct typographical errors. The deadline listed in Section I.D.13 (page 8) and Section II.G.1 (page 27) of the factsheet for dischargers with outfalls to ocean waters to develop and implement a monitoring program in compliance with the California Ocean Plan model monitoring provisions was corrected to July 1, 2015, which is the deadline listed in finding 44 in the general order.

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I. BACKGROUND

A. Purpose

The purpose of this Fact Sheet is to explain the legal requirements and technical rationale that serve as the basis for the requirements of this Order 2014-0057-DWQ (General Permit), adopted by the State Water Resources Control Board (State Water Board) on April 1, 2014. This General Permit regulates operators of facilities subject to storm water permitting (Dischargers), that discharge storm water associated with industrial activity (industrial storm water discharges). This General Permit replaces Water Quality Order 97-03-DWQ**.** This Fact Sheet does not contain any independently-enforceable requirements; the General Permit contains all of the actual requirements applicable to Dischargers. In case of any conflict between the Fact Sheet and the General Permit, the terms of the General Permit govern.

B. History

The Federal Clean Water Act (CWA)[1] prohibits discharges from point sources to waters of the United States, unless the discharges are in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. (CWA § 301(a).) In 1987, the CWA was amended to establish a framework for regulating municipal storm water discharges and discharges of storm water associated with industrial activity (industrial storm water discharges) under the NPDES program. (CWA § 402(p).) In 1990, the United States Environmental Protection Agency (U.S. EPA) promulgated regulations, commonly known as Phase I, establishing application requirements for storm water permits for specified categories of industries. (40 C.F.R. § 122.26.) In 1992, U.S. EPA revised the monitoring requirements for industrial storm water discharges. (40 C.F.R. § 122.44(i)(2), (4), (5).) In 1999, U.S. EPA adopted additional storm water regulations, known as Phase II. (64 Fed. Reg. 68722.) The Phase II regulations provide for, among other things, a conditional exclusion from NPDES permitting requirements for industrial activities that have no exposure to storm water.

Industrial storm water discharges are regulated pursuant to CWA section 402(p)(3)(A). This provision requires NPDES permits for industrial storm water discharges to implement CWA section 301, which includes requirements for Dischargers to comply with technology-based effluent limitations, and any more stringent water quality-based limitations necessary to meet water quality standards. Technology-based effluent limitations applicable to industrial activities are based on best conventional pollutant control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants. (CWA § 301(b)(1)(A) and (2)(A).) To ensure compliance with water quality standards, NPDES permits may also require a Discharger to implement best management practices (BMPs). 40 Code of Federal Regulations section 122.44(k)(4) requires the use of BMPs to control or abate the discharge of pollutants when numeric effluent limitations (NELs) are infeasible. The State Water Board has concluded that it is infeasible to establish

[1] Federal Water Pollution Control Act of 1970 (also referred to as the Clean Water Act or CWA), 33 U.S.C. § 1201 et seq. All further statutory references herein are to the CWA unless otherwise indicated.

NELs for storm water discharges associated with industrial activity due to insufficient information at the time of adoption of this General Permit.

On April 17, 1997, the State Water Board issued NPDES General Permit for Industrial Storm Water Discharges, Excluding Construction Activities, Water Quality Order 97-03-DWQ (previous permit). This General Permit, Order 2014-0057-DWQ rescinds the previous permit and serves as the statewide general permit for industrial storm water discharges. The State Water Board concludes that significant revisions to the previous permit requirements are necessary for implementation, consistency and objective enforcement. As discussed in this Fact Sheet, this General Permit requires Dischargers to:

- Eliminate unauthorized non-storm water discharges (NSWDs);
- Develop and implement storm water pollution prevention plans (SWPPPs) that include best management practices (BMPs);
- Implement minimum BMPs, and advanced BMPs as necessary, to achieve compliance with the effluent and receiving water limitations of this General Permit;
- Conduct monitoring, including visual observations and analytical storm water monitoring for indicator parameters;
- Compare monitoring results for monitored parameters to applicable numeric action levels (NALs) derived from the U.S. EPA 2008 Multi-Sector General Permit for Storm Water Discharges Associated with Industrial Activity (2008 MSGP) and other industrial storm water discharge monitoring data collected in California;
- Perform the appropriate Exceedance Response Actions (ERAs) when there are exceedances of the NALs; and,
- Certify and submit all permit-related compliance documents via the Storm Water Multiple Application and Report Tracking System (SMARTS). Dischargers shall certify and submit these documents which include, but are not limited to, Permit Registration Documents (PRDs) including Notices of Intent (NOIs), No Exposure Certifications (NECs), and Storm Water Pollution Prevention Plans (SWPPPs), as well as Annual Reports, Notices of Termination (NOTs), Level 1 ERA Reports, and Level 2 ERA Technical Reports.

C. Blue Ribbon Panel of Experts (Panel)

In 2005 and 2006, the State Water Board convened a Blue Ribbon Panel of Experts (Panel) to address the feasibility of NELs in California's storm water permits. Specifically, the Panel was charged with answering the following questions:

> Is it technically feasible to establish numeric effluent limitations, or some other quantifiable limit, for inclusion in storm water permits?

How would such limitations or criteria be established, and what information and data would be required? [2]

The Panel was directed to answer these questions for industrial storm water discharge general permits, construction storm water discharge general permits, and area-wide municipal storm water discharge permits. The Panel was also directed to address both technology-based and water quality based limitations and criteria.

In evaluating the establishment of numeric limitations and criteria, the Panel was directed to consider all of the following:

- The ability of the State Water Board to establish appropriate objective limitations or criteria;
- How compliance is to be determined;
- The ability of Dischargers and inspectors to monitor for compliance; and
- The technical and financial ability of Dischargers to comply with the limitations or criteria.

Following an opportunity for public comment, the Panel identified several water quality concerns, public process and program effectiveness issues. A summary of the Panel's recommendations regarding industrial storm water discharges follows:[3]

- Current data are inadequate; accordingly, the State Water Board should improve monitoring requirements to collect useful data for establishing NALs and NELs.
- Required parameters for further monitoring should be consistent with the type of industrial activity (i.e., monitor for heavy metals when there is a reasonable expectation that the industrial activity will contribute to increased heavy metals concentrations in storm water).
- Insofar as possible, the use of California data (or national data applicable to California) is preferred when setting NELs and NALs.
- Industrial facilities that do not discharge to Municipal Separate Storm Sewer Systems (MS4s) should implement BMPs for their non-industrial exposure (e.g., parking lots, roof runoff) similar to BMPs implemented by commercial facilities in MS4 jurisdictions.

[2] State Water Board Storm Water Panel of Experts, The Feasibility of Numeric Effluent Limits Applicable to Discharges of Storm Water Associated with Municipal, Industrial and Construction Activities (June 19, 2006). <http://www.waterboards.ca.gov/water_issues/programs/stormwater/docs/numeric/swpanel_final_report.pdf>. [as of February 4, 2014].

[3] See footnote 2.

- In all cases, Dischargers should implement a suite of minimum BMPs, including, but not limited to, good housekeeping practices, employee training, and preventing exposure of materials to rain.

- Standard Industrial Classification (SIC) code categories are not a satisfactory way of identifying industrial activities at any given site. The State Water Board should develop an improved method of characterizing industrial activities that will improve water quality in storm water.

- Recognizing that implementing the Panel's suggested changes is a large task, the State Water Board should set priorities for implementation of the Panel's suggested approach in order to achieve the greatest reduction of pollutants statewide.

- Recognizing that an increasing number of industries have moved industrial activities indoors to prevent storm water pollution, such facilities should be granted regulatory relief from NALs and/or NELs , but should still be required to comply with any applicable MS4 permit requirements.

- Recognizing the need for improved monitoring and reduction of pollutants in industrial storm water discharges, the State Water Board should consider the total economic impact of its requirements to not economically penalize California industries when compared to industries outside of California.

With regard to the industrial activities component of its charge, the Panel limited its focus to the question of whether sampling data can be used to derive technology-based NELs. The Panel did not address other factors or approaches that may relate to the task of determining technology- and water quality-based NELs consistent with the regulations and law. Examples of these other factors are discussed in more detail in this Fact Sheet. Additionally, in its final report the Panel did not clearly differentiate between the role of numeric and non-numeric effluent limitations, nor did it consider U.S. EPA procedures used to promulgate effluent limitation guidelines (ELGs) in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N).

D. Summary of Significant Changes in this General Permit

The previous permit issued by the State Water Board on April 17, 1997, had been administratively extended since 2002 until the adoption of this General Permit. Significant revisions to the previous permit were necessary to update permit requirements consistent with recent regulatory changes pertaining to industrial storm water under the CWA. This General Permit differs from the previous permit in the following areas:

1. Minimum Best Management Practices (BMPs)

   This General Permit requires Dischargers to implement a set of minimum BMPs. Implementation of the minimum BMPs, in combination with any advanced BMPs (BMPs, collectively,) necessary to reduce or prevent pollutants in industrial storm water discharges, serve as the basis for compliance with this General Permit's

technology-based effluent limitations and water quality based receiving water limitations. Although there is great variation in industrial activities and pollutant sources between industrial sectors and, in some cases between operations within the same industrial sector, the minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities.

The previous permit did not require a minimum set of BMPs but rather allowed Dischargers to consider which non-structural BMPs should be implemented and which structural BMPs should be considered for implementation when non-structural BMPs are ineffective.

This General Permit requires Dischargers to implement minimum BMPs (which are mostly non-structural BMPs), and advanced BMPs (which are mostly structural BMPs) when implementation of the minimum BMPs do not meet the requirements of the General Permit. Advanced BMPs consists of treatment control BMPs, exposure reduction BMPs, and storm water containment and discharge reduction BMPs. BMPs that exceed the performance expectation of minimum BMPs are considered advanced BMPs. Dischargers are encouraged to utilize advanced BMPs that infiltrate or reuse storm water where feasible.

The minimum and advanced BMPs required in this General Permit are consistent with U.S. EPA's 2008 Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (2008 MSGP), guidance developed by the California Stormwater Quality Association, and recommendations by Regional Water Quality Control Board (Regional Water Board) inspectors. Dischargers are required to evaluate BMPs being implemented and determine an appropriate interval for the implementation and inspection of these BMPs.

2. Conditional Exclusion - No Exposure Certification (NEC)

   This General Permit applies U.S. EPA Phase II regulations regarding a conditional exclusion for facilities that have no exposure of industrial activities and materials to storm water. (40 C.F.R. § 122.26(g).) (The previous permit required light industries to obtain coverage only if their activities were exposed to storm water.) This General Permit implements current U.S. EPA rules allowing any type of industry to claim a conditional exclusion. The NEC requires enrollment for coverage prior to conditionally excluding a Discharger from a majority of this General Permit's requirements.

3. Electronic Reporting Requirements

   This General Permit requires Dischargers to submit and certify all reports electronically via SMARTS. The previous permit used a paper reporting process with electronic reporting as an option.

4. Training Expectations and Roles

   This General Permit requires that Dischargers arrange to have appropriately trained personnel implementing this General Permit's requirements at each facility. In

addition, if a Discharger's facility enters Level 1 status, the Level 1 ERA Report must be prepared by a Qualified Industrial Storm Water Practitioner (QISP). All Action Plans and Technical Reports required in Level 2 status must also be prepared by a QISP.

Dischargers may appoint a staff person to complete the QISP training or may contract with an outside QISP. QISP training is tailored to persons with a high degree of technical knowledge and environmental experience. Although QISPs do not need to be California licensed professional engineers, it may be necessary to involve a California licensed professional engineer to perform certain aspects of the Technical Reports.

5. Numeric Action Levels (NALs) and NAL Exceedances

This General Permit contains two types of NAL exceedances. An annual NAL exceedance occurs when the average of all sampling results within a reporting year for a single parameter (except pH) exceeds the applicable annual NAL. The annual NALs are derived from, and function similarly to, the benchmark values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the applicable instantaneous maximum NAL value. Instantaneous maximum NALs for Total Suspended Solids (TSS) and Oil and Grease (O&G) are based on previously gathered California industrial storm water discharge monitoring data. The instantaneous maximum NAL for pH is derived from the benchmark value provided in the 2008 MSGP.

6. Exceedance Response Actions (ERA)

This General Permit requires Dischargers to develop and implement ERAs, when an annual NAL or instantaneous maximum NAL exceedance occurs during a reporting year. The first time an annual NAL or instantaneous maximum NAL exceedance occurs for any one parameter, a Discharger's status is changed from Baseline to Level 1 status, and the Discharger is required to evaluate and revise, as necessary, its BMPs (with the assistance of a QISP) and submit a report prepared by a QISP. The second time an annual NAL or instantaneous maximum NAL exceedance occurs for the same parameter in a subsequent reporting year, the Discharger's status is changed from Level 1 to Level 2 status, and Dischargers are required to submit a Level 2 ERA Action Plan and a Level 2 ERA Technical Report. Unless the demonstration is not accepted by the State Water Board or a Regional Water Board, the Discharger is not required to perform additional ERA requirements for the parameter(s) involved if the Discharger demonstrates that:

a. Additional BMPs required to eliminate NAL exceedances are not technologically available or economically practicable and achievable; or,

b. NAL exceedances are solely caused by non-industrial pollutant sources; or,

c. NAL exceedances are solely attributable to pollutants from natural background sources.

Information supporting the above demonstrations must be included in QISP-prepared Level 2 ERA Technical Reports.

7. CWA section 303(d) Impairment

This General Permit requires a Discharger to monitor additional parameters if the discharge(s) from its facility contributes pollutants to receiving waters that are listed as impaired for those pollutants (CWA section 303(d) listings). This General Permit lists the receiving waters that are 303(d) listed as impaired for pollutants that are likely to be associated with industrial storm water in Appendix 3. For example, if a Discharger discharges to a water body that is listed as impaired for copper, and the discharge(s) from its facility has the potential sources of copper, the Discharger must add copper to the list of parameters to monitor in its storm water discharge.

8. Design Storm Standards for Treatment Control BMPs

This General Permit includes design storm standards for Dischargers implementing treatment control BMPs. The design storm standards include both volume- and flow-based criteria. Dischargers are not required to retrofit existing treatment control BMPs unless required to meet the technology-based effluent limitations and receiving water limitations in this General Permit.

9. Qualifying Storm Event (QSE)

This General Permit defines a QSE as a precipitation event that:

a. Produces a discharge for at least one drainage area; and,

b. Is preceded by 48 hours with no discharge from any drainage area.

The definition above differs from the definition in the previous permit, resulting in an increase number of QSEs eligible for sample collection. Therefore, most Dischargers will be able to collect the required number of samples, regardless of their facility location.

10. Sampling Protocols

This General Permit requires Dischargers to collect samples during scheduled facility operating hours from each drainage location within four hours of: (1) the start of the discharge from a QSE occurring during scheduled facility operating hours, or (2) the start of scheduled facility operating hours if the QSE occurred in the previous twelve (12) hours. The benefits of this sampling protocol: (a) allows a more reasonable amount of time to collect samples, (b) increases the likelihood for samples collected at discharge locations to be representative of the drainage area discharge characteristics, (c) increases the number of QSEs eligible for sample collection, and, (d) reduces the likelihood of Dischargers collecting samples with short-term concentration spikes.

The previous permit required that Dischargers collect grab samples during the first hour of discharge that commenced during scheduled facility operating hours. These sample collection requirements were widely considered to be too rigid and out of step with other states' sample collection requirements. Since many storm events begin in the evening or early morning hours, numerous opportunities to collect samples were lost because Dischargers could not obtain samples during the first hour of discharge. Dischargers with facilities that have multiple discharge locations had difficulties collecting samples within such a short timeframe therefore affecting data quality.

11. Sampling Frequency

This General Permit increases the sampling frequency by requiring the Discharger to collect and analyze storm water samples from each discharge location for two (2) QSEs within the first half of each reporting year (July 1 to December 31), and two (2) QSEs within the second half of each reporting year (January 1 to June 30). The increased sampling, compared to the previous permit's two samples during the wet season, is consistent with the 2008 MSGP and other states' permit requirements and will improve compliance determination with this General Permit. The State Water Board expects that the elimination of the wet season sampling requirements will increase the number of possible QSEs eligible for monitoring.

12. Compliance Groups

To allow industrial facilities to efficiently share knowledge, skills and resources towards achieving General Permit compliance, this General Permit allows the formation of Compliance Groups and Compliance Group Leaders. Dischargers participating in a Compliance Group (Compliance Group Participants) are collectively required to sample twice a year. Compliance Group Leaders are required to be approved through the State Water Board-approved training program process, inspect each facility once within each reporting year, and prepare Level 1 and Level 2 ERA reports as necessary. The Compliance Group option is described in more detail in General Permit section XIV and in this Fact Sheet in the Section titled "Compliance Groups."

13. Discharges to Ocean Waters

This General Permit requires Dischargers with ocean-discharging outfalls subject to model monitoring provisions of the California Ocean Plan to develop and implement a monitoring plan in compliance with those provisions and any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

II. TECHNICAL RATIONALE FOR REQUIREMENTS IN THIS GENERAL PERMIT

A. Receiving General Permit Coverage

1. This General Permit provides regulatory coverage for new and existing industrial storm water discharges and authorized NSWDs from:

   a. Facilities required by federal regulations to obtain an NPDES permit;

   b. Facilities designated by the Regional Water Boards to obtain an NPDES permit; and,

   c. Facilities directed by the Regional Water Boards to obtain coverage specifically under this General Permit. The Regional Water Board typically directs a Discharger to change General Permit coverage under two circumstances:

      (1) switch from an individual NPDES permit to this General Permit, or

      (2) switch from the NPDES General Permit for Storm Water Discharges Associated with Construction And Land Disturbance Activities, (Order 2009-0009-DWQ, NPDES No CAS000002 (to this General Permit for long-term construction related activities that are similar to industrial activities (e.g. concrete batch plants).

40 Code of Federal Regulations section 122.26(b)(14) defines "storm water discharge associated with industrial activity" and describes the types of facilities subject to permitting (primarily by Standard Industrial Classification (SIC) code). This General Permit provides regulatory coverage for all facilities with industrial activities described in Attachment A where the covered industrial activity is the Discharger's primary industrial activity. In some instances, a Discharger may have more than one primary industrial activity occurring at a facility.

The 1987 SIC manual uses the term "establishment" to determine the primary economic activity of a facility. The manual instructs that where distinct and separate economic activities are performed at a single location, each activity should be treated as a separate establishment (and, therefore, separate primary activity). For example, the United States Navy (primary SIC code 9711) may conduct industrial activities subject to permitting under this General Permit, such as landfill operations (SIC code 4953), ship and boat building and repair (SIC code 3731, and flying field operations (SIC code 4581).

The SIC manual also discusses "auxiliary" functions of establishments. Auxiliary functions provide management or support services to the establishment. Examples of auxiliary functions are warehouses and storage facilities for the establishment's own materials, maintenance and repair shops of the establishment's own machinery, automotive repair shops or storage garages of the establishment's own vehicles, administrative offices, research, development, field engineering support, and testing conducted for the establishment. When auxiliary functions are performed at physically separate facilities from the establishment they serve, they generally are not subject to General Permit coverage. If

auxiliary functions are performed at the same physical location as the establishment, then they are subject to General Permit coverage if they are associated with industrial activities.

This clarification does not change the scope of which facilities are subject to permitting relative to the 1997 IGP. The 1997 IGP Fact Sheet had used the term "auxiliary" to describe a facility's separate primary activities, which has caused confusion.

In 1997, the North American Industrial Classification System (NAICS) was published, replacing the SIC code system. The U.S. EPA has indicated that it intends to incorporate the NAICS codes into the federal storm water regulations but has not done so yet. The State Water Board recognizes that many Dischargers in newer industries were not included in the 1987 SIC code manual and may have difficulty determining their SIC code information. To address this transition, SMARTS has been modified to accept both SIC codes and NAICS codes, and NAICS codes are automatically translated into SIC codes. There may be instances of conflict between SIC and NAICS codes. The use of NAICS codes shall not expand or reduce the types of industries subject to this General Permit as compared to the SIC codes listed in the General Permit. State Water Board staff will work closely with the applicant to resolve these conflicts in SMARTS as they are identified. Dischargers should be aware that the use of an NAICS code which results in failure to submit any of the required PRDs under this General Permit remains a violation of the terms of this General Permit.

The facilities included in category one of Attachment A (facilities subject to Subchapter N) are subject to storm water ELGs that are incorporated into the requirements of this General Permit. Dischargers whose facilities are included in this category must examine the appropriate federal ELGs to determine the applicability of those guidelines. This General Permit contains additional requirements (Section XI.D) that apply only to facilities with storm water ELGs.

2. Types of Discharges Not Covered by this General Permit

   a. Discharges from construction and land disturbance activities that are subject to the General Permit for Discharges of Storm Water Associated with Construction Activity (Construction General Permit).

   b. Discharges covered by an individual or general storm water NPDES permit. Some industrial storm water discharges may be regulated by other individual or general NPDES permits issued by the State Water Board or the Regional Water Boards (Water Boards, collectively,). This General Permit shall not regulate these discharges. When the individual or general NPDES permits for such discharges expire, the Water Boards may authorize coverage under this General Permit or another general NPDES permit, or may issue a new individual NPDES permit consistent with the federal and state storm water regulations. Interested parties may request that the State Water Board or appropriate Regional Water Board issue individual or general NPDES permits for specific discharges that, in their view are not properly regulated through this General Permit. General permits may be issued for a particular industrial group or watershed area which

would supersede this General Permit. To date, two Regional Water Board have issued such permits:

i. The Lahontan Regional Water Board has adopted an NPDES permit and general Waste Discharge Requirements to regulate discharges from marinas and maintenance dredging (Regional Water Board Order R6T-2005-0015 - NPDES Permit No. CAG616003) in the Lake Tahoe Hydrologic Unit.

ii. The Santa Ana Regional Water Board adopted the Sector Specific General Permit for Stormwater Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region, Order R8-2012-0012, NPDES Permit No. CAG 618001 (Scrap Metal Recycling Permit). The Scrap Metal Recycling Permit is applicable to facilities within the Santa Ana Region that are listed under Standard Industrial Classification (SIC) Code 5093 and engaged in the following types of activities: (1) automotive wrecking for scrap-wholesale (this category does not include facilities engaged in automobile dismantling for the primary purpose of selling second hard parts); (2) iron and steel scrap - wholesale; (3) junk and scrap metal - wholesale; (4) metal waste and scrap - wholesale; and (5) non-ferrous metals scrap - wholesale. Other types of facilities listed under SIC Code 5093 and engaged in waste recycling are not required to get coverage under the Scrap Metal Recycling Permit. A list of covered facilities as of February 8, 2011 was included in Attachment A of the Scrap Metal Recycling Permit.

c. Discharges that the Regional Water Boards determine to be ineligible for coverage under this General Permit. In such cases, a Regional Water Board will require the discharges be covered by another individual or general NPDES permit. The applicability of this General Permit to such discharges is terminated when the discharge is subject to another individual or general NPDES permit.

d. Discharges that do not enter waters of the United States. These include:

i. Discharges to municipal separate sanitary sewer systems;

ii. Discharges to evaporation ponds, discharges to percolation ponds, and/or any other methods used to retain and prevent industrial storm water discharges from entering waters of the United States;

iii. Discharges to combined sewer systems. In California, the only major combined sewer systems are located in San Francisco and downtown Sacramento. Dischargers who believe they discharge into a combined sewer system should contact the local Regional Water Board to verify discharge location; and,

iv. Dischargers Claiming the “No Discharge” Option in the Notice of Non-Applicability (NONA) (Fact Sheet Section II.S).

e. Discharges from mining operations or oil and gas facilities composed entirely of flows that are from conveyances or systems of conveyances used for collecting and conveying precipitation runoff and do not come into contact with any overburden, raw materials, intermediate products, finished products, by-products, or waste products located at the facility. (33 U.S.C. § 1342(l)(2).)

f. Discharges from facilities on Tribal Lands regulated by U.S. EPA.

3. Obtaining General Permit Coverage (Section II of this General Permit)

   The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at https://smarts.waterboards.ca.gov. The State Water Board has determined that all documents related to general storm water enrollment and compliance must be certified and submitted via SMARTS by Dischargers.

   This General Permit requires all Dischargers to electronically certify and submit PRDs via SMARTS to obtain: (1) regulatory coverage, or (2) to certify that there are no industrial activities exposed to storm water at the facility and obtain regulatory coverage under the NEC provision of this General Permit. Facilities that were eligible to self-certify no exposure under the previous permit (see category 10 in Attachment 1 of the previous permit) are required to certify and submit via SMARTS PRDs for NOI coverage under this General Permit by July 1, 2015 or for NEC coverage by October 1, 2015. The Water Board is estimating that 10,000 – 30,000 Dischargers may be registering for NOI or NEC coverage under this General Permit. Separate registration deadlines, one for NOI coverage and one for NEC coverage, provides Dischargers better assistance from Storm Water Helpdesk and staff.

   Dischargers shall electronically certify and submit the PRDs via SMARTS for each individual facility. This requirement is intended to establish a clear accounting of the name, address, and contact information for each Discharger, as well as a description of each Discharger's facility.

   The Water Boards recognize that certain information pertaining to an industrial facility may be confidential. Many Stakeholders were asking for clarification on the process the Water Boards would use to manage confidential information or the process Dischargers could use to redact such information. Dischargers may redact trade secrets information from required submittals (Section II.B.3.d). Dischargers are required to include a general description of the redacted information and the basis for the redaction. Dischargers are still required to submit complete and un-redacted versions of the information to the Water Boards within 30 days, however these versions should be clearly labeled "CONFIDENTIAL" so that the confidentiality of these documents is clear to Regional Water Board staff, even when there is a change in staff. This General Permit requires that all information provided to the Water Boards by the Discharger comply with the Homeland Security Act and other federal law that addresses security in the United States.

   All Dischargers who certify and submit PRDs via SMARTS for NOI coverage on or after July 1, 2015 or for NEC coverage on or after October 1, 2015, shall immediately comply with the provisions in this General Permit.

4. General Permit Coverage for Landfills

   This General Permit covers storm water discharges from landfills, land application sites, and open dumps that receive or have received industrial waste from any facility covered by this General Permit. Industrial storm water discharges from these

facilities must be covered by this General Permit unless (1) they are already covered by another NPDES permit, or (2) the Regional Water Board has determined that an NPDES permit is not required because the site has been stabilized or required closure activities have been completed.

In most cases, it is appropriate for new landfill construction or final closure to be covered by the Construction General Permit, rather than this General Permit. Questions have arisen as to what constitutes new landfill construction at an existing landfill versus the normal planned expansion of a landfill. Similarly, questions have arisen about the type of closure activities that may be subject to the Construction General Permit versus the normal closure of "cells" that occurs during continued landfill operations and are not subject to the Construction General Permit. Other questions such as whether temporary or permanent newly graded/paved roads disturbing greater than one acre at a landfill are subject to the Construction General Permit. Landfill Dischargers have asked for clarity regarding these questions. The previous permit required Dischargers to contact the Regional Water Boards to determine permit appropriateness. Site specific circumstances continue to require Dischargers to contact Regional Water Boards for final determinations.

Based upon the State Water Board's storm water program history, there are only a handful of instances where an operating landfill has been simultaneously subject to both the construction and industrial permitting requirements. Typically a landfill is subject to the construction permitting requirements during the time the landfill is initially constructed and prior to operation. A landfill is subject to the industrial permitting requirements during landfill operations, and subject to the construction permitting requirements during final landfill closure activities.

Once a landfill begins operations, continued expansion or closure of incremental landfill cells is authorized under the industrial permitting requirements since these are normal aspects of landfill operations. These expansion/closure activities occur within a limited timeframe (often taking less than 90 days from beginning to end) and are not separately subject to additional local approval (e.g., a new building permit). Any construction or demolition of temporary non-impervious roads directly related to landfill operations are subject to the industrial permitting requirements.

Construction or closure of a separate section of the landfill that is either subject to additional permitting by the local authorities and/or lasts more than 90 days requires coverage under the Construction General Permit. Construction of permanent facility structures such as buildings and impervious parking lots or roads that disturb greater than one acre are also subject to the Construction General Permit. (Permanent facility structures are defined as any structural improvements designed to remain until the landfill is closed.)

Site specific circumstances such as proximity to nearby waterways, extent of activities, pollutants of concern, and other considerations can impact any decision as to whether a particular activity is to be regulated under this General Permit or the Construction General Permit. Regional Water Boards will continue to exercise their discretion as necessary to protect the beneficial uses of the receiving water(s).

5. General Permit Coverage for Small Municipal Separate Storm Sewer Systems (MS4s)

   Section 1068 of the Intermodal Surface Transportation Efficiency Act of 1991 exempted municipal agencies serving populations of less than 100,000 from Phase I permit requirements other than sanitary landfills, power plants, and airports facilities. U.S. EPA's Phase II regulations eliminated the above exemption as of March 10, 2003. All facilities in Attachment A of this General Permit that are operated by a small municipal agency are subject to NPDES storm water permitting requirements and this General Permit.

6. Changes to General Permit Coverage

   Dischargers who no longer operate a facility required to be covered under this General Permit (either NOI or NEC coverage) are required to electronically certify and submit via SMARTS a Notice of Termination (NOT). An NOT is required when there is a change in ownership of the industrial activities subject to permitting or when industrial activities subject to permitting are permanently discontinued by the Discharger at the site. When terminating NOI coverage, Dischargers may only submit an NOT once all exposure of industrial materials and equipment have been eliminated. Dischargers may not submit NOTs for temporary or seasonal facility closures. The General Permit requires Dischargers to implement appropriate BMPs to reduce or prevent pollutants in storm water discharges during the temporary facility closure.

   This General Permit allows Dischargers to change General Permit coverage, as appropriate, from NOI coverage to NEC coverage or from NEC coverage to NOI coverage.

B. Discharge Prohibitions

This General Permit covers industrial storm water discharges and authorized NSWDs from industrial facilities and prohibits any discharge of materials other than storm water and authorized NSWDs (Section III and Section IV of this General Permit). It is a violation of this General Permit to discharge hazardous substances in storm water in excess of the reportable quantities established in 40 Code of Federal Regulations sections 117.3 and 302.4.

The State Water Board is authorized, under Water Code section 13377, to issue NPDES permits which apply and ensure compliance with all applicable provisions of the CWA, and any more stringent limitations necessary to implement water quality control plans, protect beneficial uses, and prevent nuisance.

C. Non-Storm Water Discharges (NSWDs)

Unauthorized NSWDs can be generated from various pollutant sources. Depending upon their quantity and location where generated, unauthorized NSWDs can discharge to the storm drain system during dry weather as well as during a storm event (comingled with storm water discharge). These NSWDs can consist of, but are not limited to; (1) waters generated by the rinsing or washing of vehicles, equipment,

buildings, or pavement, or (2) fluid, particulate or solid materials that have spilled, leaked, or been disposed of improperly.

Some NSWDs are not directly related to industrial activities and normally discharge minimal pollutants when properly managed. Section IV of this General Permit provides a limited list of NSWDs that are authorized if Dischargers implement BMPs to prevent contact with industrial materials prior to discharge. The list in Section IV is similar to the list provided in the 2008 MSGP but does not include pavement and external building surfaces washing without detergents. These two items are not included because the Discharger is responsible to reduce or prevent pollutants in storm water discharges from paved areas and buildings associated with industrial activities. Since industrial materials and non-industrial material likely co-exist, the washing of paved areas and external building surfaces may result in discharges of pollutants associated with industrial activities. In addition, washing activities generally occur during dry-weather periods when receiving water flows are lower than wet-weather periods. Wash waters are likely to discharge in higher concentrations than would occur if these pollutants were naturally discharged during a storm event. The discharge of high concentration wash water during a time of dry-weather flows is inconsistent with the goal of protecting receiving waters. These discharges are, therefore, considered unauthorized NSWDs. Similar to the 2008 MSGP, firefighting related discharges are not subject to this General Permit.

A major required element of the SWPPP is the identification and measures for elimination of unauthorized NSWDs. Unauthorized NSWDs can contribute a significant pollutant load to receiving waters. Measures to control spills, leakage, and dumping can often be addressed through BMPs. This General Permit's BMP requirements for NSWDs remain essentially unchanged from the previous permit other than the increased frequency of required visual observations from quarterly to monthly. See Section XI.A.1 of this General Permit.

D. Effluent Limitations

1. Technology-Based and Water Quality-Based Effluent Limitations

   CWA Section 301(b)(1)(C) requires that discharges from existing facilities must, at a minimum, comply with technology-based effluent limitations based on the technological capability of Dischargers to control pollutants in their discharges. Discharges must also comply with any more stringent water quality-based limitations necessary to meet water quality standards in accordance with CWA Section 301(b)(1)(C). Water quality-based limitations are discussed in Section E of this Fact Sheet titled "Receiving Water Limitations." Both technology-based effluent limitations and water quality-based limitations are implemented through NPDES permits. (CWA sections 301(a) and (b).)

2. Types of Technology-Based Effluent Limitations

   All NPDES permits are required to contain technology-based effluent limitations (TBELs). (40 C.F.R. §§122.44(a)(1) and 125.3.) TBELs may consist of effluent limitations guidelines (ELGs) established by U.S. EPA through regulation, or may be developed using best professional judgment on a case-by-case basis.

The CWA sets forth standards for TBELs based on the type of pollutant or the type of facility/source involved. The CWA establishes two levels of pollution control for existing sources. For the first level, existing sources that discharge pollutants directly to receiving waters were initially subject to effluent limitations based on the "best practicable control technology currently available" (BPT). (33 U.S.C. § 1314(b)(1)(B).) BPT applies to all pollutants. For the second level, existing sources that discharge conventional pollutants are subject to effluent limitations based on the "best conventional pollutant control technology" (BCT). (33 U.S.C. §1314(b)(4)(A); see also 40 C.F.R. §401.16 (list of conventional pollutants).) Also for the second level, other existing sources that discharge toxic pollutants or "nonconventional" pollutants ("nonconventional" pollutants are pollutants that are neither "toxic" nor "conventional") are subject to effluent limitations based on "best available technology economically achievable" (BAT). (33 U.S.C. §1311(b)(2)(A); see also 40 C.F.R. §401.15 (list of toxic pollutants).) The factors to be considered in establishing the levels of these control technologies are specified in section 304(b) of the CWA and in U.S. EPA's regulations at 40 C.F.R. §125.3.

When establishing ELGs for an industrial category, U.S. EPA evaluates a wide variety of technical factors to determine BPT, BCT, and BAT. U.S. EPA considers the specific factors of an industry such as pollutant sources, industrial processes, and the size and scale of operations. U.S. EPA evaluates the specific treatment, structural, and operational source control BMPs available to reduce or prevent pollutants in the discharges. The costs of implementing BMPs to address these factors are weighed against their effectiveness and ability to protect water quality. Factors such as industry economic viability, economies of scale, and retrofit costs are also considered.

To date, U.S. EPA has: (1) not promulgated storm water ELGs for most industrial categories, (2) not established NELs within all ELGs that have been promulgated, and (3) exempted certain types of facilities within an industrial category from complying with established ELGs. The feedlot category (40 Code of Federal Regulations part 412) provides an example of several of these points. In that instance, U.S. EPA did not establish numeric effluent limitations but instead: (1) established a narrative effluent limitation requiring retention of all feedlot-related runoff from a 25-year, 24-hour storm, and (2) limited application of the ELG to feedlots with a minimum number of animals. U.S. EPA also recently promulgated ELGs for the "Construction and Development (C&D)" industry, which included, among many other limitations, conditional numeric effluent limitations. Though the NELs in these ELGs were later stayed by U.S. EPA, the ELGs exempted construction sites of less than 30 acres from complying with the established numeric effluent limitations.

40 Code of Federal Regulations, Chapter I, Subchapter N ("Subchapter N"), includes over 40 separate industrial categories where the U.S. EPA has established ELGs for new and existing industrial wastewater discharges to surface waters, discharges to publicly owned treatment works (pre-treatment standards), and storm water discharges to surface waters. Generally, U.S. EPA has focused its efforts on the development of ELGs for larger industries and those industries with the greatest potential to pollute. In total, the 40 categories for which ELGs have been

established (not including construction) represent less than 10 percent of the types of facilities subject to this General Permit. Additionally, most ELGs focus on industrial process wastewater discharges and pre-treatment standards, and only 11 of the 40 categories establish numeric or narrative ELGs for industrial storm water discharges. Those that do include ELGs for industrial storm water discharges generally address storm water discharges that are generated from direct contact with primary pollutant sources at the subject facilities, and not the totality of the industrial storm water discharge from the facility, as the term "storm water discharge associated with industrial activity" for this General Order is defined in the CWA. (40 C.F.R. § 122.26(b)(14).) Where U.S. EPA has not issued effluent limitation guidelines for an industry, the State Water Board is required to establish effluent limitations for NPDES permits on a case-by-case basis based on best professional judgment (BPJ). (33 U.S.C. § 1342(a)(1); 40 C.F.R. § 125.3(c)(2).) In this General Permit, most of the TBELs are based on BPJ decision-making because no ELG applies.

The TBELs in this General Permit represent the BPT (for conventional, toxic, and non-conventional pollutants), BCT (for conventional pollutants), and BAT (for toxic pollutants and non-conventional pollutants) levels of control for the applicable pollutants. If U.S. EPA has not promulgated ELGs for an industry, or if a Discharger is discharging a pollutant not covered by the otherwise applicable ELG, the State Water Board is required to establish effluent limitations in NPDES permit limitations based on best professional judgment. (33 U.S.C. § 1342(a)(1); 40 C.F.R. 125.3(c).) This General Permit includes TBELS established on best professional judgment and limitations based on storm water-specific ELGs listed in Attachment F of this General Permit, where applicable.

3. Authority to Include Non-Numeric Technology-Based Limits in NPDES Permits

TBELs in this General Permit are based on best professional judgment and are non-numeric ("narrative") technology-based effluent limitations expressed as requirements for implementation of effective BMPs. Federal regulations provide that permits must include BMPs to control or abate the discharge of pollutants when where "[n]umeric effluent limitations are infeasible." 40 C.F.R. 122.44(k)(3).

Since 1977, courts have recognized that there are circumstances when numeric effluent limitations are infeasible and have held that EPA may issue permits with conditions (e.g., BMPs) designed to reduce the level of effluent discharges to acceptable levels. Natural Res. Def. Council, Inc. v. Costle, 568 F.2d 1369 (D.C.Cir.1977).

U.S. EPA has also interpreted the CWA to allow BMPs to take the place of numeric effluent limitations under certain circumstances. 40 C.F.R. §122.44(k), titled "Establishing limitations, standards, and other permit conditions (applicable to State NPDES programs ...)," provides that permits may include BMPs to control or abate the discharge of pollutants when: (1) "[a]uthorized under section 402(p) of the CWA for the control of stormwater discharges"; or (2) "[n]umeric effluent limitations are infeasible." 40 C.F.R. § 122.44(k).

In 2006, The U.S. Court of Appeals for the Sixth Circuit held that the CWA does not require U.S. EPA to set numeric limits where such limits are infeasible. (Citizens Coal Council v. United States Environmental Protection Agency, 447 F.3d 879, 895-96 (6th Cir. 2006)). The Citizens Coal court cited to the statement in Waterkeeper Alliance, Inc. v. EPA, 399 F.3d 486, 502 (2d Cir. 2005) that "site-specific BMPs are effluent limitations under the CWA" in concluding that "the EPA's inclusion of numeric and non-numeric limitations in the guideline for the coal remining subcategory was a reasonable exercise of its authority under the CWA." (447 F.3d at 896.) Additionally, the Citizen's Coal court cited to Natural Res. Def. Council, Inc. v. EPA, 673 F.2d 400, 403 (D.C.Cir.1982) noting that "section 502(11) [of the CWA] defines 'effluent limitation' as 'any restriction' on the amounts of pollutants discharged, not just a numerical restriction." NPDES permit writers have substantial discretion to impose non-quantitative permit requirements pursuant to section 402(a)(1)), especially when the use of numeric limits is infeasible. (NRDC v. EPA, 822 F.2d 104, 122-24 (D.C. Cir. 1987); 40 C.F.R. 122.44(k)(3).)

4. Decision to Include Non-Numeric Technology-Based Effluent Limits in This General Permit

   It is infeasible for the State Water Board to develop numeric effluent limitations using the best professional judgment approach due to lack of sufficient information. Previous versions of this General Permit required Dischargers to sample their industrial storm water discharges and report the results to the Regional Water Boards. Dischargers were not required to submit this data online into a statewide database; as a result, much of this data is not available for analysis. Moreover, much of the data that are available for analysis are not of sufficient quality to make conclusions or perform basic statistical tests.

   The Blue Ribbon Panel of Experts, State Water Board staff, and many stakeholders evaluated the available storm water data set and concluded that the information provides limited value due to the limited pool of industrial facilities submitting data, poor overall data quality, and extreme variance within the dataset, as described below.

   The poor quality of the existing data set is attributable a number of factors. For example, the previous permits have required Dischargers to sample during the first hour of discharge from two storm events a year. This sampling schedule was designed to catch what was considered to represent the higher end of storm water discharge concentrations for most parameters. The results from this type of sampling were thought to be an indicator of whether or not additional BMPs would be necessary. The sampling schedule was not designed, however, to estimate pollutant discharge loading, or to characterize the impact of the discharge on the receiving water. Doing so would normally require the use of more advanced sampling protocols such as flow meters, continuous automatic sampling devices, certified/trained sampling personnel, and other facility-specific considerations.

   Furthermore, there is currently no data which details the relationship between the BMPs implemented at each facility and the facility's sampling results. The SWPPPs required by the previous permits were not submitted to the Water Boards, but were

kept onsite by Dischargers. Due to the limited availability of quality sampling data and "level of effort" information contained in SWPPPs, the State Water Board is unable to exercise best professional judgment to make the connection between effluent quality (sampling results) and the level of effort, costs, and performance of the various technologies that is needed in order to express the TBELs in this General Permit numerically, as NELs.

Some stakeholders have suggested that separating the data sets by industry type would lead to more reliable data with which to develop NELs. Advocates of this approach suggest that the variability of the data may be caused in part by the mixing of data from different industrial categories. The State Water Board believes that the variation is primarily due to storm intensity, duration, time of year, soil saturation or some other factors. It is necessary to collect information related to those factors and BMPs implemented in order to evaluate the variability attributable to those factors. There is currently too large of an information gap to begin the process of developing NELs for all industrial sectors not currently subject to ELGs.

The State Water Board has proposed NELs in past drafts of this General Permit. In comments, many stakeholders have highlighted the difficulty of developing statewide NELs that are applicable to all industry sectors, or even NELs that cover any specific industry sectors. For example, stakeholders have commented that:

a. Background/ambient conditions in some hydrogeologic zones may contribute pollutant loadings that would significantly contribute to, if not exceed, the NEL values;

b. Some advanced treatment technologies have flow/volume limitations as well as economy of scale issues for smaller facilities;

c. Treatment technologies that require that sheet flows be captured and conveyed via discrete channels or basins may not only result in significant retrofit costs, but may conflict with local ordinances that prohibit such practices, as they can cause damage or erosion to down gradient property owners, or cause other environmental problems;

d. There is insufficient regulatory guidance and procedures to allow permit writers to properly specify monitoring frequency and sampling protocols (e.g., instantaneous maximum, 1-day average, 3-day average, etc.), and for Dischargers to obtain representative samples to compare to NELs for the purpose of strict compliance; and,

e. NELs must be developed with consideration of what is economically achievable for each industrial sector. These stakeholders point out that the U.S. EPA goes to great lengths evaluating the various BMP technologies available for a particular pollutant, the costs and efficiency of each BMP, and the applicability of the BMPs to the industry as a whole or to a limited number of industrial sites based upon the size of the facility, the quantity of material, and other considerations.

The State Water Board does not have the information (including monitoring data, industry specific information, BMP performance analyses, water quality information, monitoring guidelines, and information on costs and overall effectiveness of control technologies) necessary to promulgate NELs at the time of adoption of this General Permit. Therefore, it is infeasible to include NELs in this statewide General Permit.

Many of the new requirements in this General Permit have been designed to address the shortcomings of previous permits and the existing storm water data set. Under this General Permit, sampling results must be certified and submitted into SMARTS by Dischargers, along with SWPPPs which outline the technologies and BMPs used to control pollutants at each facility. The ERA process will also collect information on costs and the engineering aspects of the various control technologies employed by each facility. Previous permit versions did not have a mechanism for receiving this site specific information electronically, and only a small percentage of Dischargers submitted their Annual Reports via SMARTS. This General Permit will make this information more accessible, allowing the Water Boards to evaluate the relationship between BMPs and the ability of facilities to meet the NALs set forth in this General Permit. Finally, the new Qualified Industrial Storm Water Practitioner (QISP) training requirements of this General Permit have been designed in part to improve the quality of the data submitted.

5. Narrative Technology-Based Effluent Limitations (TBELs) and Best Management Practices (BMPs)

   The primary TBEL in this General Permit requires Dischargers to "implement BMPs that comply with the BAT/BCT requirements of this General Permit to reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering technological availability and economic practicability and achievability." (Section V.A of this General Permit). This TBEL is a restatement of the BAT/BCT standard, as articulated by U.S. EPA in the 2008 MSGP and accompanying Fact Sheet. In order to comply with this TBEL, Dischargers must implement BMPs that meet or exceed the BAT/BCT technology-based standard. The requirement to "reduce or prevent" is equivalent to the requirement in the federal regulations that BMPs be used in lieu of NELs to "control or abate" the discharge of pollutants. (40 C.F.R. § 122.44(k).)

   BMPs are defined as the "scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to reduce or prevent the discharge of pollutants… includ[ing] treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage." (40 C.F.R. § 122.2.)

   This General Permit (Sections X.H.1 and X.H.2) requires all Dischargers to implement minimum BMPs, as well as any advanced BMPs that are necessary to adequately reduce or prevent pollutants in discharges consistent with the TBELs. The minimum BMPs specified in this General Permit represent common practices that can be implemented by most facilities. This General Permit generally does not mandate the specific mode of design, installation or implementation for the minimum BMPs at a Discharger's facility. It is up to the Discharger, in the first instance, to

determine what must be done to meet the applicable effluent limits. For example, Section X.H.1.a.vi of this General Permit requires Dischargers to contain all stored non-solid industrial materials that can be transported or dispersed via wind or contact with storm water. How this is achieved will vary by facility: for some facilities, all activities may be moved indoors, while for others this will not be feasible. However, even for the latter, many activities may be moved indoors, others may be contained using tarps or a containment system, while still other activities may be limited to times when exposure to precipitation is not likely. Each of these control measures is acceptable and appropriate depending upon the facility-specific circumstances.

BMPs can be actions (including processes, procedures, schedules of activities, prohibitions on practices and other management practices), or structural or installed devices to reduce or prevent water pollution. (40 C.F.R. § 122.2.) They can be just about anything that is effective at preventing pollutants from entering the environment, and for meeting applicable limits of this General Permit. In this General Permit, Dischargers are required to select, design, install, and implement facility-specific control measures to meet these limits. Many industrial facilities already have such control measures in place for product loss prevention, accident and fire prevention, worker health and safety or to comply with other environmental regulations. Dischargers must tailor the BMPs detailed in this General Permit to their facilities, as well as improve upon them as necessary to meet permit limits. The examples detailed in this Fact Sheet emphasize prevention over treatment. However, sometimes more traditional end-of-pipe treatment may be necessary, particularly where a facility might otherwise cause or contribute to an exceedance of water quality standards.

This General Permit requires Dischargers to implement BMPs "to the extent feasible." Consistent with the control level requirements of the CWA, for the purposes of this General Permit, the requirement to implement BMPs "to the extent feasible" means to reduce and/or prevent discharges of pollutants using BMPs that represent BAT and BPT in light of best industry practice.[4] In other words, Dischargers are required to select, design, install and implement BMPs that reduce or prevent discharges of pollutants in their storm water discharge in a manner that reflects best industry practice considering their technological availability and economic practicability and achievability.

To determine technological availability and economic practicability and achievability, Dischargers need to consider what control measures are considered "best" for their industry, and then select and design control measures for their site that are viable in terms of cost and technology. The State Water Board believes that for many facilities minimization of pollutants in storm water discharges can be achieved without using highly engineered, complex treatment systems. The BMPs included in

[4] Because toxic and nonconventional pollutants are controlled in the first step by BPT and in the second step by BAT, and the second level of control is "increasingly stringent" (EPA v. National Crushed Stone, 449 U.S. 64, 69 (1980), for simplicity of discussion, the rest of this discussion will focus on BAT. Similarly, because the BAT levels of control in this General Permit are expressed as BMPs and pollution prevention measures, they will also control conventional pollutants. Therefore this discussion will focus on BAT rather than BCT or BPT for conventional pollutants.

this General Permit emphasize effective “low-tech” controls, such as regular cleaning of outdoor areas where industrial activities may take place, proper maintenance of equipment, diversion of storm water around areas where pollutants may be picked up, and effective advanced planning and training (e.g., for spill prevention and response).

E. Receiving Water Limitations and Water Quality Standards

Pursuant to CWA section 301(b)(1)(C) and Water Code section 13377, this General Permit requires compliance with receiving water limitations based on water quality standards. The primary receiving water limitation requires that industrial storm water discharges not cause or contribute to an exceedance of applicable water quality standards. Implementation of the BMPs as required by the technology-based effluent limitation in Section V of this General Permit will typically result in compliance with the receiving water limitations. The discussion of BMPs in this General Permit generally focuses on requiring implementation of BMPs to the extent necessary to achieve compliance with the technology-based effluent limitations, because the technology-based limitations apply similarly to all facilities. In addition, however, this General Permit also makes it clear that, if any individual facility's storm water discharge causes or contributes to an exceedance of a water quality standard, that Discharger must implement additional BMPs or other control measures that are tailored to that facility in order to attain compliance with the receiving water limitation. A Discharger that is notified by a Regional Water Board or who determines the discharge is causing or contributing to an exceedance of a water quality standard must comply with the Water Quality Based Corrective Actions found in Section XX.B of this General Permit.

Water Quality Based Corrective Actions are different from the Level 1 and Level 2 ERAs that result from effluent-based monitoring. It is possible for a Discharger to be engaged in Level 1 or Level 2 ERAs for one or more pollutants and simultaneously be required to perform Water Quality Based Corrective Actions for one or more other pollutants.

Failure to comply with these additional Water Quality Based Corrective Action requirements is a violation of this General Permit. If additional operational source control measures do not adequately reduce the pollutants, Dischargers must implement additional measures such as the construction of treatment systems and/or overhead coverage. Overhead coverage is any structure or temporary shelter that prevents the vertical contact of precipitation with industrial materials or activities. If the Regional Water Board determines that the Discharger’s selected BMPs are inadequate, the Regional Water Board may require implementation of additional BMPs and/or may take enforcement against Dischargers for failure to comply with this General Permit.

F. Total Maximum Daily Loads (TMDLs)

TMDLs are regulatory tools that provide the maximum amount of a pollutant from potential source in the watershed that a water body can receive while attaining water quality standards. A TMDL is defined as the sum of the allowable loads of a single pollutant from all contributing point sources (the waste load allocations) and non-point sources (load allocations), plus the contribution from background sources. (40 C.F.R. § 130.2, subd. (i).) Discharges covered by this General Permit are considered to be point

source discharges, and therefore must comply with effluent limitations that are "consistent with the assumptions and requirements of any available waste load allocation for the discharge prepared by the State and approved by EPA pursuant to 40 Code of Federal Regulations section 130.7." (40 C.F.R. § 122.44, subd. (d)(1)(vii).) In addition, Water Code section 13263, subdivision (a), requires that waste discharge requirements implement relevant water quality control plans. Many TMDLs in existing water quality control plans include both waste load allocations and implementation requirements. Attachment E of this General Permit lists the watersheds with U.S. EPA-approved and U.S. EPA-established TMDLs that include TMDL requirements for Dischargers covered by this General Permit.

NPDES-regulated storm water discharges (which include industrial storm water) must be addressed by waste load allocations in TMDLs. (40 C.F.R. § 130.2(h).) NPDES permits must contain effluent limits and conditions consistent with the requirements and assumptions of the waste load allocations in TMDLs. (40 C.F.R. § 122.44(d)(1)(vii)(B).) To date, the relevant waste load allocations assigned to industrial storm water discharges are not directly translatable to effluent limitations. Many of the TMDLs lack sufficient facility specific information, discharge characterization data, implementation requirements, and compliance monitoring requirements. Accordingly, an analysis of each TMDL applicable to industrial storm water discharges must to be performed to determine if it is appropriate to translate the waste load allocation into a numeric effluent limit, or if the effluent limit is to be expressed narratively using a BMP approach. U.S. EPA recognizes that because storm water discharges are highly variable in frequency and duration and are not easily characterized, it is often not feasible or appropriate to establish numeric limits. Variability and the lack of data available make it difficult to determine with precision or certainty actual and projected loadings for individual Dischargers or groups of Dischargers.

Regardless of whether the effluent limit is to be numeric or narrative, the existing waste load allocations must be carefully analyzed, and in many cases translated, to determine the appropriate effluent limitations. Issues of interpretation exist with all of the waste load allocations applicable to Dischargers, and these issues vary based on the TMDL. Below is an example of one of the simpler issues:

FIGURE 1: Example Waste Load Allocations Proposed Translation: Ballona Creek Estuary – Toxic Pollutants

Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (grams/year/acre)				
Cadmium	Copper	Lead	Silver	Zinc
0.1	3	4	0.1	13
Metals per Acre Waste Load Allocations for Individual General Construction or Industrial Storm Water Permittees (milligrams/year/acre)				
Chlordane	DDTs	Total Polychlorinated biphenyl (PCBs)	Total Polycyclic aromatic hydrocarbons (PAHs)	
0.04	0.14	2	350	

In order for the above waste load allocations to effectively be implemented as effluent limits under the General Permit, the Water Boards must (1) identify which discharges the waste load allocations apply to, (2) identify the acreages of the individual facilities, (3) convert the waste load allocations from grams/year/acre (or milligrams/year/acre) to grams/year (or milligrams/year) based on the acreage at each identified facility, (4) assign the effluent limits to the identified Dischargers, (5) determine appropriate monitoring to assess compliance with the effluent limits, and (6) develop a tracking mechanism for each identified facility and their individual effluent limits. A similar stepwise process is necessary for each TMDL with waste load allocations assigned to industrial storm water discharges. For TMDLs where effluent limits will be expressed as BMPs, analysis must to be performed to determine the appropriate BMPs and the corresponding effectiveness to comply with the assigned waste load allocations.

Some waste load allocations are already expressed as concentration based numbers. It may appear simple to incorporate these values into this General Permit as effluent limits, but the questions still remain regarding how to determine compliance. The monitoring requirements in this General Permit are not designed to measure compliance with a numeric effluent limit or to measure the effect of a discharge on a receiving water body. (See the discussion on monitoring requirements in Fact Sheet Section II.J.) This General Permit requires sampling of four (4) storm events a year, with certain limitations as to when a discharge may be sampled. This method of monitoring may not appropriately serve as TMDL compliance sampling since grab samples are only representative of the particular moment in time when the sample was taken. Since storm water is highly variable, four grab samples per year may not provide sufficient confidence that the effluent limit is being met. An alternative monitoring scheme may be necessary to determine the facility's impact on the receiving water and to determine compliance with any assigned effluent limits. Questions concerning whether sampling results should be grab samples, composite samples, flow-weighted averaged over all drainage areas, etc. cannot be determined for each concentration-based TMDL without a more thorough analysis.

Additionally, monitoring and assessment requirements must be developed for all of the TMDLs to determine compliance with or progress towards meeting TMDL requirements. The proposed monitoring requirements in this General Permit are not designed to assess pollutant loading or determine compliance with TMDL-specific effluent limits.

Due to the large number and variety of discharges subject to a wide range of TMDLs statewide, to prevent a severe delay in the adoption of this General Permit, TMDL-specific permit requirements for the TMDLs listed in Attachment E will be proposed by the Regional Water Boards. Since the waste load allocations and/or implementation requirements apply to multiple discharges in the region(s) the TMDL were developed, the development of TMDL-specific permit requirements is best coordinated at the Regional Water Board level. The development of TMDL-specific permit requirements is subject to notice and a public comment period prior to incorporation into this General Permit.

Regional Water Board staff, with the assistance of State Water Board staff, will develop and submit the proposed TMDL-specific permit requirements for each of the TMDLs listed in Attachment E by July 1, 2016.[5] After conducting a 30-day public comment period, the Regional Water Boards will propose TMDL-specific permit requirements to the State Water Board for adoption into this General Permit. The Regional Water Boards may also include TMDL-specific monitoring requirements for inclusion in this General Permit, or may issue Regional Water Board orders pursuant to Water Code section 13383 requiring TMDL-specific monitoring. The Regional Water Boards or their Executive Officers may complete these tasks, and the proposed TMDL-specific permit requirements shall have no force or effect until adopted, with or without modification, by the State Water Board. Unless directed to do so by the Regional Water Board, Dischargers are not required to take any additional actions to comply with the TMDLs listed in Attachment E until the State Water Board reopens this General Permit and includes TMDL-specific permit requirements. This approach is consistent with the 2008 MSGP. TMDL-specific permit requirements are not limited by the BAT/BCT technology-based standards.

The Regional Water Boards will submit to the State Water Board the following information for each of the TMDLs listed in Attachment E:

- Proposed TMDL-specific permit requirements, including any applicable effluent limitations, implementation timelines, additional monitoring requirements, reporting requirements, an explanation of how an exceedance of an effluent limitation or a violation of the TMDL will be determined, and required deliverables consistent with the TMDL(s);
- An explanation of how the proposed TMDL-specific permit requirements, timelines, and deliverables are consistent with the assumptions and requirements of applicable waste load allocation(s) to implement the TMDL(s);
- Where a BMP-based approach is proposed, an explanation of how the proposed BMPs will be sufficient to implement applicable waste load allocations; and
- Where concentration-based monitoring is required, an explanation of how the required monitoring, reporting and calculation methodology for an exceedance of an effluent limitation or a violation of the TMDL(s) will be sufficient to demonstrate compliance with the TMDL(s).

Upon receipt of the information described above, the State Water Board will conduct a public comment period and reopen this General Permit to populate Attachment E, the Fact Sheet, and other provisions as necessary in order to incorporate these TMDL-specific permit requirements into this General Permit. Attachment E may also be reopened during the term of this General Permit to add additional TMDLs and corresponding implementation requirements.

This General Permit (Section X.G.2.a.ix) requires a Discharger to identify any additional industrial parameters that may be discharged to a waterbody with a 303(d) impairment identified in Appendix 3 as likely to be associated with industrial storm water.

[5] Due to the workload associated with the implementation of this General Permit (e.g., training program development, NEC outreach, electronic enrollment and reporting via SMARTS) it is believed that two years in necessary for Staff to complete a comprehensive analysis and stakeholder process for TMDLS applicable to Dischargers under this General Permit.

Dischargers may need to implement additional monitoring for any applicable parameters (Section XI.B.6.e). Appendix 3 of this General Permit includes the water bodies with 303(d) impairments or TMDLs for pollutants that are likely to be associated with industrial storm water in black font, and those that are not likely to be associated with industrial storm water in red font. This determination is based on the pollutant or pollutants that are causing each impairment, and the State Water Board's general experience regarding the types of pollutants that are typically found in industrial storm water discharges. The list of waterbodies is from the State Water Boards statewide 2010 Integrated CWA Section 303(d) List / Section 305(b) Report.

Some of the water bodies with 303(d) impairments or TMDLs listed in Appendix 3 of this General Permit are not applicable to Dischargers covered under this General Permit. Appendix 3 indicates these water bodies Dischargers are not required to include in their pollutant source assessment (unless directed to do so by the Regional Water Board).

New Dischargers (as defined in Attachment C) applying for NOI coverage under this General Permit that will be discharging to an impaired water body with a 303(d) listed impairment are ineligible for coverage unless the Discharger submits data and/or information, prepared by a QISP, demonstrating that the facility will not cause or contribute to the impairment. Section VII.B of this General Permit describes the three different options New Dischargers have for making this determination. This General Permit requires a QISP to assist the New Discharger with this determination because individuals making this determination will need expertise in industrial storm water pollutant sources, BMPs and a thorough understanding of complying with U.S. EPA's storm water regulations and this General Permit's requirements. Not requiring New Dischargers to have a QISP assist in this demonstration would possibly lead to costly retrofits or closure of a new facility that has not demonstrated that the facility will not cause or contribute to the impairment.

G. Discharges Subject to the California Ocean Plan

1. Discharges to Ocean Waters

   On October 16, 2012 the State Water Board amended the California Ocean Plan (California Ocean Plan) to require industrial storm water Dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. The amended California Ocean Plan requires industrial storm water dischargers with outfalls discharging to ocean waters to comply with the California Ocean Plan's model monitoring provisions. These provisions require Dischargers to: (a) monitor runoff for specific parameters at all outfalls from two storm events per year, and collect at least one representative receiving water sample per year, (b) conduct specified toxicity monitoring at certain types of outfalls at a minimum of once per year, and (c) conduct marine sediment monitoring for toxicity under specific circumstances (California Ocean Plan, Appendix III). The California Ocean Plan provides conditions under which some of the above monitoring provisions may be waived by the Water Boards.

   This General Permit requires dischargers with outfalls that discharge to ocean waters to comply with the California Ocean Plan's model monitoring provisions and

any additional monitoring requirements established pursuant to Water Code section 13383. Dischargers who have not developed and implemented a monitoring program in compliance with the California Ocean Plan's model monitoring provisions by July 1, 2015 or seven (7) days prior to commencing operations, whichever is later, are ineligible to obtain coverage under this General Permit.

2. Areas of Special Biological Significance (ASBS) Exception

   The State Water Board adopted the California Ocean Plan (California Ocean Plan) in 1972, and has subsequently amended the Plan. The California Ocean Plan prohibits the discharge of waste to designated ASBS. ASBS are ocean areas designated by the State Water Board as requiring special protection through the maintenance of natural water quality. The California Ocean Plan states that the State Water Board may grant an exception to California Ocean Plan provisions where the State Water Board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

   On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (ASBS Exception), which grants an exception to the California Ocean Plan prohibition on discharges to ASBS for a limited number of industrial storm water Discharger applicants. The ASBS Exception contains "Special Protections" to maintain natural water quality and protect the beneficial uses of the ASBS. In order to legally discharge into an ASBS, these Dischargers must comply with the terms of the ASBS Exception and obtain coverage under this General Permit. This General Permit incorporates the terms of the ASBS Exception and includes the applicable monitoring requirements for all Dischargers discharging to an ASBS under the ASBS Exception.

H. Training Qualifications

This General Permit and the previous permit both require Dischargers to ensure that personnel responsible for permit compliance have an acceptable level of knowledge. Stakeholders have observed that the previous permit did not adequately specify how to comply with various elements of the permit, such as selecting discharge locations representative of the facility storm water discharge and evaluating potential pollutant sources, nor did it provide a clearly outlined Discharger training program. Guidance that is available from outside sources can be complicated to understand or costly to obtain, which can result in many Dischargers developing and implementing deficient SWPPPs and conducting inadequate monitoring activities. Some Dischargers under the previous permit had the resources to hire professional environmental staff or environmental consultants to assist in compliance. Even in those cases, however, there was little certainty that Dischargers received training regarding implementation of the various BMPs being implemented and required monitoring activities under the previous permit. Through this General Permit, the State Water Board seeks to improve compliance and monitoring data quality, and expand each Discharger's understanding of this General Permit's requirements.

This General Permit establishes the Qualified Industrial Storm Water Practitioner (QISP) role. A QISP is someone who has completed a State Water Board sponsored or

approved QISP training course and has registered in SMARTS. A QISP is required to implement certain General Permit requirements at the facility once it has entered Level 1 status in the ERA process as described in Section XII of this General Permit. In some instances it may be advisable for a facility employee to take the training, or for a facility to hire a QISP prior to entering Level 1 status as the training will contain information on the new permit requirements and how to perform certain tasks such as selecting discharge locations representative of the facility storm water discharge, evaluating potential pollutant sources, and identifying inadequate SWPPP elements.

Some industry stakeholders have claimed that their staff is already adequately trained. These employees may continue to perform the basic permit functions (e.g. prepare SWPPPs, perform monitoring requirements, and prepare Annual Reports) without receiving any additional training if the facility's sampling and analysis results do not exceed the NALs. This requirement is structured in a manner to reduce the costs of compliance for facilities that may not negatively impact receiving water quality.

California licensed professional civil, industrial, chemical, and mechanical engineers and geologists have licenses that have professional overlap with the topics of this General Permit. The California Department of Consumer Affairs, Board for Professional Engineers, Land Surveyors and Geologists (CBPELSG) provides the licensure and regulation of professional civil, industrial, chemical, and mechanical engineers and professional geologists in California. The State Water Board is developing a specialized self-guided State Water Board-sponsored registration and training program specifically for these CPBELSG licensed engineers and geologists in good standing with CBPELSG. The CBPELSG has staff and resources dedicated to investigate and take appropriate enforcement actions in instances where a licensed professional engineer or geologist is alleged to be noncompliant with CBPELSG's laws and regulations. Actions that result in noncompliance with this General Permit may constitute a potential violation of the CBPELSG requirements and may subject a licensee to investigation by the CBPELSG.

A QISP may represent one or more facilities but must be able to perform the functions required by this General Permit at all times. It is advisable that this individual be limited to a specific geographic region due to the difficulty of performing the needed tasks before, during, and after qualifying storm events may be difficult or impossible if extensive travel is required. Dischargers are required to ensure that the designated QISP has completed the appropriate QISP training course.

This General Permit contains a mechanism that allows for the Water Boards' Executive Director or Executive Officer to rescind the registration of any QISPs who are found to be inadequately performing their duties as a QISP will no longer be able to do so. A QISP may ask the State Water Board to review any decision to revoke his or her QISP registration. Table 1 of this Fact Sheet below describes the different roles that the QISP and California licensed professional engineers have in this General Permit.

TABLE 1: Role-Specific Permit Requirements

Qualifications	Task
QISP	Assist New Dischargers determine coverage eligibility for Discharges to an impaired water body, Level 1 ERA Evaluation and report, Level 2 ERA Action Plan, and Technical Report, and the Level 2 ERA extension
California licensed professional engineer	Inactive Mining Operation Certification, SWPPPs for inactive mining, and annual re-certification of Inactive Mining Operation Certification, NONA Technical Reports, and Subchapter N calculations

I. Storm Water Pollution Prevention Plan (SWPPP)

1. General

This General Permit requires that all Dischargers develop, implement, and retain onsite a site-specific SWPPP. The SWPPP requirements generally follow U.S. EPA's five-phase approach to developing SWPPPs, which has been adapted to reflect the requirements of this General Permit in Figure 2 of this Fact Sheet. This approach provides the flexibility necessary to establish appropriate BMPs for different industrial activities and pollutant sources. This General Permit requires a Discharger to include in its SWPPP (Section X of this General Permit) a site map, authorized NSWDs at the facility, and an identification and assessment of potential pollutants sources resulting from exposure of industrial activities to storm water.

This General Permit requires that Dischargers clearly describe the BMPs that are being implemented in the SWPPP. In addition to providing descriptions, Dischargers must also describe who is responsible for the BMPs, where the BMPs will be installed, how often and when the BMPs will be implemented, and identify any pollutants of concern. Table 2 of this Fact Sheet provides an example of how a Discharger could assess potential pollution sources and provide a corresponding BMPs summary.

This General Permit requires that Dischargers select an appropriate facility inspection frequency beyond the required monthly inspections if necessary, and to determine if SWPPP revisions are necessary to address any physical or operational changes at the facility or make changes to the existing BMPs (Section X.H.4.a.vii and Section XI.A.4 of this General Permit). Facilities that are subject to multi-phased physical expansion or significant seasonal operational changes may require more frequent SWPPP updates and facility inspections. Facilities with very stable operations may require fewer SWPPP updates and facility inspections.

Failure to develop or implement an adequate SWPPP, or update or revise an existing SWPPP as required, is a violation of this General Permit. Failure to maintain the SWPPP on-site and have it available for inspection is also a violation of this General Permit.

Dischargers are also required to submit their SWPPPs and any SWPPP revisions via SMARTS; accordingly, BMP revisions made in response to observed compliance problems will be included in the revised SWPPP electronically submitted via SMARTS. Not all SWPPP revisions are significant and it is up to the Dischargers to distinguish between revisions that are significant and those that are not significant. If no changes are made at all to the SWPPP, the Discharger is not required to resubmit the SWPPP on any specific frequency.

- Significant SWPPP Revisions: Dischargers are required to certify and submit via SMARTS their SWPPP within 30 days of the significant revision(s). While it is not easy to draw a line generally between revisions that are significant and those that are not significant, Dischargers are not required to certify and submit via SMARTS any SWPPP revisions that are comprised of only typographical fixes or minor clarifications.

- All Other SWPPP Revisions: Dischargers are required to submit revisions to the SWPPP that are determined to not be significant every three (3) months in the reporting year.

FIGURE 2: Five Phases for Developing and Implementing an Industrial Storm Water Pollution Prevention Plan (SWPPP)

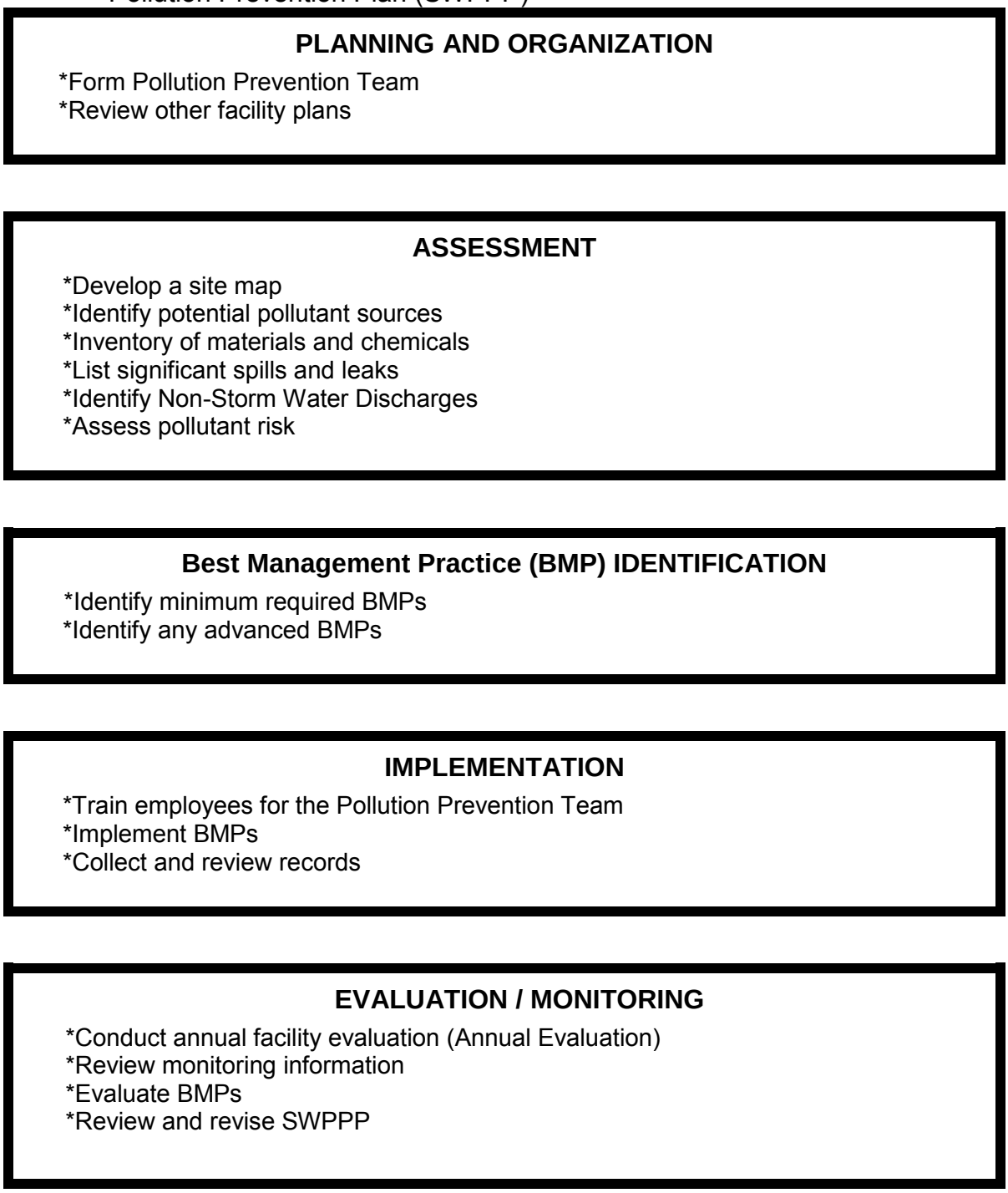

TABLE 2: Example - Assessment of Potential Industrial Pollution Sources and Corresponding BMPs Summary

Area	Activity	Pollutant Source	Industrial Pollutant	BMPs
Vehicle and Equipment Fueling	Fueling	Spills and leaks during delivery	Fuel oil	-Use spill and overflow protection
		Spills caused by topping off fuel tanks	Fuel oil	-Train employees on proper fueling, cleanup, and spill response techniques
		Hosing or washing down fuel area	Fuel oil	-Use dry cleanup methods rather than hosing down area -Implement proper spill prevention control program
		Leaking storage tanks	Fuel oil	-Inspect fueling areas regularly to detect problems
		Rainfall running off fueling area, and rainfall running onto and off fueling area	Fuel oil	-Minimize run-on of storm water into the fueling area, cover fueling area

2. Minimum and Advanced BMPs

Section V of this General Permit requires the Discharger to comply with technology-based effluent limitations (TBELs). In this General Permit, TBELs rely on implementation of BMPs for Dischargers to reduce and prevent pollutants in their discharge. The BMP effluent limitations have been integrated into the Section X.H of this General Permit and are divided into two categories – minimum BMPs which are generally non-structural BMPs that all Dischargers must implement to the extent feasible, and advanced BMPs which are generally structural BMPs that must be implemented if the minimum BMPs are inadequate to achieve compliance with the TBELs. Section X of this General Permit includes both substantive control requirements in the form of the BMPs listed in Section X.H, as well as various reporting and recordkeeping requirements. The requirement to implement BMPs "to the extent feasible" allows Dischargers flexibility when implementing BMPs, by not requiring the implementation of BMPs that are not technologically available and economically practicable and achievable in light of best industry practices.

The 2008 MSGP requires Dischargers to comply with 12 non-numeric technology-based effluent limits in Section 2.1.2 of the permit through the implementation of "control measures." This requirement is an expansion of the general considerations outlined in the MSGP adopted in 2000. The control measures specified by the U.S. EPA in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

1. Minimize Exposure
2. Good Housekeeping
3. Maintenance
4. Spill Prevention and Response Procedures
5. Erosion and Sediment Controls
6. Management of Runoff
7. Salt Storage Piles or Piles Containing Salt
8. Sector Specific Non-Numeric Effluent Limits
9. Employee Training
10. Non-Storm Water Discharges (NSWDs)
11. Waste, Garbage and Floatable Debris
12. Dust Generation and Vehicle Tracking of Industrial Materials

This General Permit addresses eleven of the above twelve control measures from the 2008 MSGP Section 2.1.2 Non-Numeric Technology-Based Effluent Limits (BPT/BAT/BCT). Eleven of the control measures are addressed as minimum BMPs that the State Water Board has determined to be most applicable to California's Dischargers. Two of those eleven control measures (1- Minimize Exposure, 6 – Management of Runoff) are also identified as advanced BMPs (Section X.H.2 of this General Permit). This General Permit is not a sector-specific permit and therefore does not contain limitations to address control measure number 8 (Sector Specific Non-Numeric Effluent Limits).

The non-structural elements of the control measure to minimize exposure are addressed in the minimum BMP Section X.H.1 of this General Permit while structural control elements are addressed in the advanced BMP Section X.H.2 of this General Permit. The on-site diversion elements of the control measure to minimize exposure are addressed as minimum BMPs.

The runoff reduction elements of the control measure to minimize exposure are included as advanced BMPs. Advanced BMPs that are required to be implemented when a Discharger has implemented the minimum BMPs to the extent feasible and they are not adequate to comply with the TBELs. The advanced BMP categories are: (1) exposure minimization BMPs, (2) storm water containment and discharge reduction BMPs, (3) treatment control BMPs, and (4) additional advanced BMPs needed to meet the effluent limitations of this General Permit. Advanced BMPs are generally structural control measures and can include any BMPs that exceed the minimum BMPs. The control measure for Non-Storm Water Discharges (NSWDs) is addressed in both the discharge prohibitions (Section III) and authorized non-storm water discharges (Section IV) of this General Permit and essentially represents a minimum BMP.

This General Permit encourages Dischargers to utilize BMPs that infiltrate or reuse storm water where feasible. The State Water Board expects that these types of BMPs will not be appropriate for all industrial facilities, but recognizes the many possible benefits (e.g. increased aquifer recharge, reduces flooding, improvements to water quality) associated with the infiltration and reuse of storm water. Encouraging the use of storm water infiltration and reuse BMPs is consistent with the statewide approach to managing storm water with lower impact methods.

The BMPs in this General Permit that coincide with the control measures in the 2008 MSGP are as follows (in order as listed in the 2008 MSGP):

a. Minimization of Exposure to Storm Water

Section 2.1.2.1 of the 2008 MSGP requires Dischargers to minimize the exposure of industrial materials and areas of industrial activity to rain, snow, snowmelt, and runoff. The 2008 MSGP mixes both structural and nonstructural BMPs and specifies particular BMPs to consider when minimizing exposure such as grading/berming areas to minimize runoff, locating materials indoors, spill clean up, contain vehicle fluid leaks or drain fluids before storing vehicles on-site, secondary containment of materials, conduct cleaning activities undercover, indoors or in bermed areas, and drain all wash water to a proper collection system.

This General Permit requires the evaluation of BMPs in the potential pollutant source assessment in the SWPPP (Section X.G.2). When the minimum BMPs are not adequate to comply with the TBELs, Dischargers are required to implement advanced BMPs (Section X.H.2.a). These advanced BMPs may include additional exposure minimization BMPs (Section X.H.2.b.1).

b. Good Housekeeping

Section 2.1.2.2 of the 2008 MSGP requires that Dischargers keep all exposed areas that may be a potential source of pollutants clean and orderly. This General Permit (Section X.H.1.a) seeks to define “clean and orderly” by specifying a required set of nine (9) minimum good housekeeping BMPs, which include: observations of outdoor/exposed areas, BMPs for controlling material tracking, BMPs for dust generated from industrial materials or activities, BMPs for rinse/wash water activities, covering stored industrial materials/waste, containing all stored non-solid industrial materials, preventing discharge of rinse/wash waters/industrial materials, prevent non-industrial area discharges from contact with industrial areas of the facility, and prevent authorized NSWDs from non-industrial areas from contact with industrial areas of the facility.

c. Preventative Maintenance

Section 2.1.2.3 of the 2008 MSGP requires that Dischargers regularly inspect, test, maintain, and repair all industrial equipment to prevent leaks, spills and releases of pollutants that may be exposed to storm water discharged to receiving waters. This General Permit (Section X.H.1.b) incorporates this

concept by requiring four (4) nonstructural BMPs which include: identification and inspection of equipment, observations of potential leaks in identified equipment, an equipment maintenance schedule, and equipment maintenance procedures.

d. Spill and Leak Prevention and Response

Section 2.1.2.4 of the 2008 MSGP requires that Dischargers minimize the potential for leaks, spills and other releases that may be exposed to storm water. Dischargers are also required to develop a spill response plan which includes procedures such as labeling of containers that are susceptible to a spill or a leakage, establishing containment measures for such industrial materials, procedures for stopping leaks/spills, and provisions for notification of the appropriate personnel about any occurrence. This General Permit (Section X.H.1.c) requires implementation of four (4) BMPs to address spills. These BMPs include: developing a set of spill response procedures to minimize spills/leaks, develop procedures to minimize the discharge of industrial materials generated through spill/leaks, identifying/describing the equipment needed and where it will be located at the facility, and identify/training appropriate spill response personnel.

e. Erosion and Sediment Controls

Section 2.1.2.5 of the 2008 MSGP requires the use of structural and/or non-structural control measures to stabilize exposed areas and contain runoff. Also required is the use of a flow velocity dissipation device(s) in outfall channels where necessary to reduce erosion and/or settle out pollutants. This General Permit (Section X.H.1.e) requires the implementation of (5) BMPs to prevent erosion and sediment discharges. The erosion and sediment control BMPs include: implementing effective wind erosion controls, providing for effective stabilization of erodible areas prior to a forecasted storm event, site entrance stabilization/prevent material tracking offsite and implement perimeter controls, diversion of run-on and storm water generated from within the facility away from all erodible materials, and ensuring compliance with the design storm standards in Section X.H.6. U.S. EPA has developed online resources for erosion and sediment controls.[6]

f. Management of Runoff

Section 2.1.2.6 of the 2008 MSGP requires the diversion, infiltration, reuse, containment, or otherwise reduction of storm water runoff, to minimize pollutants in discharges. This General Permit (Sections X.H.1.a.viii, X.H.1.d.iv., and

[6] U.S. EPA. 2008 MSGP. <http://cfpub.epa.gov/npdes/stormwater/msgp.cfm> [as of February 4, 2014].
U.S. EPA. National Menu of BMPs. <http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm>. [as of February 4, 2014].
U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas <http://water.epa.gov/polwaste/nps/urban/index.cfm>. [as of February 4, 2014].

X.H.1.e.iv) requires Dischargers to divert run-on from non-industrial sources and manage storm water generated within the facility away from industrial materials and erodible surfaces. Runoff reduction is required as an advanced BMP when minimum BMPs are not adequate to comply with the TBELs. The 2008 MSGP encouraged Dischargers to consult with EPA's internet-based resources relating to runoff management.[7]

g. Salt Storage Piles or Piles Containing Salt

Section 2.1.2.7 of the 2008 MSGP requires salt storage piles/piles containing salt that may be discharged to be enclosed or covered and to use BMPs when the salt is being used. This General Permit does not have a minimum BMP specifically for salt storage, however it does require all stockpiled/stored industrial materials be managed in a way to reduce or prevent industrial storm water discharges of the stored/stockpiled pollutants. The good housekeeping (Section X.H.1.a) and material handling and waste management (Section X.H.1.d) minimum BMPs in this General Permit require that all materials readily mobilized by storm water be covered, the minimization of handling of industrial materials or wastes that can be readily mobilized by contact with storm water during a storm event, and the diversion of run-on from stock piled materials.

h. Sector Specific Non-Numeric Effluent Limits

Section 2.1.2.8 of the 2008 MSGP requires Dischargers to achieve any additional non-numeric limits stipulated in the relevant sector-specific section(s) of Part 8 of the 2008 MSGP. This General Permit is not a sector-specific permit and does not contain sector-specific non-numeric effluent limitations like the 2008 MSGP. While this General Permit does not specify sector-specific BMPs, Dischargers are required to select and implement BMPs for their specific facility to reduce or prevent industrial storm water discharges of pollutants to comply with the technology-based effluent limitations. In addition, sectors with applicable ELGs must comply with those ELGs.

i. Employee Training Program

Section 2.1.2.9 of the 2008 MSGP requires all employees engaged in industrial activities or the handling of industrial materials that may affect storm water to obtain training covering implementation of this General Permit. This General Permit (Section X.D.1 and X.H.1.f) requires a facility to establish a Pollution Prevention Team (team members, collectively) responsible for implementing permit requirements such as the SWPPP, monitoring requirements, or BMPs.

[7] U.S. EPA. Sector-Specific Industrial Stormwater Fact Sheet Series <www.epa.gov/npdes/stormwater/msgp>. [as of February 4, 2014].
U.S. EPA. National Menu of Stormwater BMPs <www.epa.gov/npdes/stormwater/menuofbmps> [as of February 4, 2014].
U.S. EPA. National Management Measures to Control Nonpoint Source Pollution from Urban Areas (and any similar State or Tribal publications) <www.epa.gov/owow/nps/urbanmm/index.html>. [as of February 4, 2014].

The five (5) minimum training BMPs include: ensuring that all team members are properly trained, preparing the proper training materials and manuals, identifying which individuals needs to be trained, providing a training schedule, and maintaining documentation on the training courses and which individuals received the training.

This General Permit also requires a QISP to be assigned to each facility that reaches Level 1 status. One purpose of a QISP is to have an individual available who can provide compliance assistance with these training requirements. The QISP is responsible for training the appropriate team members. Appropriate team members are any team members involved in implementing this General Permit for drainage areas causing NAL exceedances, and any other team members identified by the QISP that need additional training to implement this General Permit.

j. NSWDs

Section 2.1.2.10 of the 2008 MSGP requires that unauthorized NSWDs are eliminated (Part 1.2.3 of the 2008 MSGP lists the NSWDs authorized by the 2008 MSGP). The good housekeeping minimum BMP (Section X.H.1.a.ix of this General Permit) requires that contact between authorized NSWDs and industrial areas of the facility be minimized. This General Permit (Section IV) also includes separate requirements for authorized NSWDs and (Section III) prohibits unauthorized NSWDs.

k. Material Handling and Waste Management

Section 2.1.2.11 of the 2008 MSGP requires that Dischargers ensure waste, garbage, and floatable debris are not discharged into receiving waters. The 2008 MSGP identifies keeping areas clean and intercepting such materials as ways to minimize such discharges. This General Permit (Section X.H.1.d) requires Dischargers to implement six (6) general BMPs that address material handling and waste management. These BMPs include: preventing or minimizing handling of waste or materials during a storm event that could potentially result in a discharge, containing industrial materials susceptible to being dispersed by the wind, covering industrial waste disposal containers when not in use to contain industrial materials, diversion of run-on and storm water generated from within the facility away from all stock piled materials, cleaning and managing spills of such wastes or materials (in accordance with Section X.H.1.e of this General Permit), and conducting observations of outdoor areas and equipment that may come into contact with such materials or waste and become contaminated.

l. Waste, Garbage and Floatable Debris

Section 2.1.2.11 of the 2008 MSGP requires that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged. Material handling and waste management BMPs are included in Section X.H.1.d of this General Permit. Dischargers are required to: prevent handling of waste materials during a storm event that could result in a discharge, contain waste disposal

containers when not in use, clean and manage spills from waste, and observe outdoor areas and equipment that may come into contact with waste and become contaminated.

m. Dust Generation and Vehicle Tracking of Industrial Materials

Section 2.1.2.12 of the 2008 MSGP requires that generation of dust and off-site tracking of raw, final, or waste materials is minimized. This General Permit does not require minimization of dust generation and vehicle tracking of industrial materials as a minimum BMP directly. Dust generation and vehicle tracking of industrial materials BMPs are included in Section X.H.1.a ("good housekeeping") of this General Permit where Dischargers must prevent dust generation from industrial materials or activities and contain all stored non-solid industrial materials that can be transported or dispersed via wind or come in contact with storm water, and Section X.H.1.d. ("material handling and waste management") of this General Permit, which requires Dischargers to contain non-solid industrial materials or wastes that can be dispersed via wind erosion or come into contact with storm water during handling.

n. Quality Assurance and Record Keeping

Section 2.1.2 of the 2008 MSGP does not directly designate record keeping as a control measure. This General Permit (Section X.H.1.g) includes quality assurance and record keeping as a minimum BMP and requires Dischargers to implement three (3) general BMPs. These BMPs include: developing and implementing procedures to ensure that all elements of the SWPPP are implemented, develop a method of tracking and recording the implementation of all BMPs identified in the SWPPP, and a requirement to keep and maintain those records. This ensures that management procedures are designed and permit requirements are implemented by appropriate staff.

o. Implementation of BMPs in the SWPPP

Like the previous permit, this General Permit does not assign Dischargers a schedule to implement BMPs. Instead, this General Permit requires Dischargers to select the appropriate schedule to implement the minimum BMPs. In addition, this General Permit requires Dischargers to identify, as necessary, any BMPs that should be implemented prior to precipitation events. Although Dischargers are required to maintain internal procedures to ensure the BMPs are implemented according to schedule or prior to precipitation events, Dischargers are only required to certify in the Annual Report whether they complied with the BMP implementation requirements.

Dischargers are required to implement an effective suite of BMPs that meet the technology and water-quality based limitations of this General Permit. Based upon Regional Water Board staff inspections, there is significant variation between Dischargers' interpretations of what BMPs were necessary to comply with the previous permit. This General Permit establishes a new requirement that Dischargers must implement, to the extent feasible, specific minimum BMPs

to reduce or prevent the presence of pollutants in their industrial storm water discharge. In addition, due to the wide variety of facilities conducting numerous and differing industrial activities throughout the state, this General Permit retains the requirement from the previous permit that Dischargers establish and implement additional BMPs beyond the minimum. Implementation of this General Permit's minimum BMPs, together with any necessary advanced BMPs, will result in compliance with the effluent limitations of this General Permit (Section V.A). All Dischargers must evaluate their facilities and determine the best practices within their industry considering technological availability and economic practicability and achievability to implement these minimum BMPs and any advanced BMPs.

The State Water Board has selected minimum BMPs that are generally applicable at all facilities. The minimum BMPs are consistent with the types of BMPs normally found in properly developed SWPPPs and, in most cases, should represent a significant portion of the effort required for a Discharger to achieve compliance. Due to the diverse industries covered by this General Permit, the development of a more comprehensive list of minimum BMPs is not currently feasible. The selection, applicability, and effectiveness of a given BMP is often related to industrial activity type and to facility-specific facts and circumstances. Advanced BMPs must be selected and implemented by Dischargers, based on the type of industry and facility-specific conditions, to the extent necessary to comply with the technology-based effluent limitation requirements of this General Permit.

Failure to implement all of the minimum BMPs to the extent feasible is a violation of this General Permit. (Section X.H.1.) Dischargers must justify any determination that it is infeasible to implement a minimum BMP in the SWPPP (Section X.H.4.b). Failure to implement advanced BMPs necessary to achieve compliance with either the technology or water quality standards requirements in this General Permit is a violation of this General Permit.

p. Temporary Suspension of Industrial Activities

The exception for inactive and unstaffed sites in section 6.2.1.3 of the 2008 MSGP does not require a Discharger with a facility that is inactive and unstaffed with no industrial materials or activities exposed to storm water (in accordance with the substantive requirements in 40 Code of Federal Regulations section 122.26(g)) to complete benchmark monitoring. The Discharger is required to sign and certify a statement in the SWPPP verifying that the site is inactive and unstaffed. If circumstances change and industrial materials or activities become exposed to storm water or the facility becomes active and/or staffed, this exception no longer applies and the Discharger is required to begin complying immediately with the applicable benchmark monitoring requirements under part 6.2 of the 2008 MSGP.

This General Permit allows Dischargers to temporarily suspend monitoring at facilities where industrial activities have been suspended in accordance with Section X.H.3. This is only intended for Dischargers with facilities where it is

infeasible to comply with this General Permit's monitoring while activities are suspended (e.g. remote, unstaffed, or inaccessible facilities during the time of such a suspension). Dischargers are required to update the facility's SWPPP with the BMPs being used to stabilize the site and submit the suspension dates and a justification for the suspension of monitoring via SMARTS.

3. Design Storm Standards for Treatment Control BMPs

It is the State Water Board's intent to minimize the regulatory uncertainty and costs concerning treatment control BMPs in order to encourage the implementation of treatment control BMPs when appropriate. Section X.H.6 of this General Permit specifies a design storm standard for use when treatment controls BMPs are installed. There is both a volume-based and flow-based design storm standard in this General Permit. Both are based on the 85th percentile 24-hour storm event. Without a design storm standard, Dischargers have installed treatment controls using a wide variety of designs that were sometimes either unnecessarily stringent/expensive, or deficient in complying with the requirements of the relevant permit. Some Dischargers have been hesitant to consider treatment options because of the uncertainty concerning acceptable treatment design. The design storm standards are generally expected to:

- Be consistent with the effluent limitations of this General Permit;
- Be protective of water quality;
- Be achievable for most pollutants and their associated treatment technologies; and,
- Reduce the costs associated with treating industrial storm water discharges beyond the levels necessary to achieve compliance with this General Permit.

In lieu of complying with the design storm standards for treatment control BMPs, Dischargers may certify and submit a Level 2 ERA Technical Report, including an Industrial Activity BMPs Demonstration (Section XII.D.2.a of this General Permit). The Level 2 ERA Technical Report requirement is based upon NAL exceedances. Under this option, a Discharger with Level 2 status must either implement BMPs to eliminate future NAL exceedances, or justify what BMPs must be implemented to comply with this General Permit even if the BMPs will not eliminate future exceedances of NALs. Dischargers who implement treatment control BMPs that vary from the design storm standards in Section X.H.6 must include an analysis showing that their treatment control BMPs comply with this General Permit's effluent limitations in the Industrial Activity BMP Demonstration.

This General Permit does not require Dischargers to retrofit existing treatment controls that do not meet the design storm standard, unless the Discharger determines that the existing treatment controls are not adequate to comply with this General Permit. In addition, once TMDL-specific implementation requirements are added to this General Permit, those Dischargers subject to TMDLs may need to add

new or retrofitted treatment control BMPs to meet the TMDL implementation requirements.

To arrive at these design storm standards, the State Water Board has relied heavily on previous Water Board decisions concerning treatment efficacy for municipalities, published documents, stakeholder comments, and reasonableness. In 2000, the State Water Board issued State Water Board Order WQ 2000-11, which upheld Los Angeles Regional Water Board's permit requirements which mandated that all new development and redevelopment exceeding certain size criteria design treatment BMPs based on a specific storm volume: the 85th percentile 24-hour storm event. This design storm standard was based on research demonstrating that the standard represents the maximized treatment volume cut-off at the point of diminishing returns for rainfall/runoff frequency.[8] On the basis of this equation, the maximized runoff volume for 85 percent treatment of annual runoff volumes in California can range from 0.08 to 0.86 inch depending on the imperviousness of the watershed area and the mean amount of rainfall. This design storm standard is referred to as the Standard Urban Storm Water Mitigation Plan's volumetric criterion and there are multiple acceptable methods of calculating this volume. For more information, see the California Stormwater Best Management Practices Handbook.[9]

The San Diego Regional Water Board first established both volumetric and flow-based design storm criteria for NPDES MS4 permits. It is generally accepted by civil engineers doing hydrology work to use twice the peak hourly flow of a specific storm event to use as the basis for flow-based design of BMPs. This General Permit therefore establishes the flow-based design storm standard to be twice the peak hourly flow of the 85th percentile 24-hour storm event.

The primary objective of specifying a design storm standard is to properly size BMPs to, at a minimum, effectively treat the first flush of run-off from all storm events. The economic impacts of treating all storm water from a facility versus the minimal environmental benefit of complete treatment justify the design storm approach. It is unrealistic to require each facility to do a cost benefit analysis of their treatment structures. To simplify the requirements for design, the State Water Board reviewed research from the City of Portland[10] and the City of San Jose[11] to determine the volume of each rain event compared to the amount of events that occur for that volume. The results of their findings show an inflection point that is typically found at approximately the 80 to 85 percentile of recorded storm events.

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[8] California Regional Water Quality Control Board Los Angeles Region, Standard Urban Storm Water Mitigation Plans and Numerical Design Standards for Best Management Practices - Staff Report and Record of Decision (Jan. 18, 2000) <http://www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/susmp/susmp_final_staff_report.pdf>. [as of February 4, 2014].

[9] California Stormwater Quality Association, Stormwater Best Management Practice New Development and Redevelopment Handbook (2003) <http://www.casqa.org/>. [as of February 4, 2014].

[10] City of Portland Oregon. Portland Stormwater Management Manual Appendix E.1: Pollution Reduction Methodology E.1-1 (August 1, 2008). <http://www.portlandoregon.gov/bes/article/202909>. [as of February 4, 2014].

[11] California Stormwater Quality Association (CASQA). CASQA BMP Handbook (January 2003) New Development and Redevelopment (Errata 9-04) <http://www.casqa.org/>. [as of February 4, 2014].

Dischargers should be aware of the potential unintended public health concerns associated with treatment control BMPs. Extensive monitoring studies conducted by the California Department of Public Health (CDPH) have documented that mosquitoes opportunistically breed in structural BMPs, particularly those that hold standing water for over 96 hours. BMPs that produce mosquitoes create potential public health concerns and increase the burden on local vector control agencies that are mandated to inspect for and abate mosquitoes and other vectors within their jurisdictional boundaries. These unintended consequences can be lessened when BMPs incorporate design, construction, and maintenance principles developed specifically to minimize standing water available to mosquitoes[12] while having negligible effects on the capacity of the structures to provide water quality improvements. The California Health and Safety Code prohibits landowners from knowingly providing habitat for or allowing the production of mosquitoes and other vectors, and gives local vector control agencies broad inspection and abatement powers.[13]

Dischargers who install any type of volume-based treatment device are encouraged to consider the BMPs in the California Department of Public Health's guidance manual published July 2012, "Best Management Practices for Mosquito Control in California" at http://www.cdph.ca.gov/HealthInfo/discond/Documents/BMPforMosquitoControl07-12.pdf.

4. Monitoring Implementation Plan

Dischargers are required to prepare and implement a Monitoring Implementation Plan (Section X.I of this General Permit). The Monitoring Implementation Plan requirements are designed to assist the Discharger in developing a comprehensive plan for the monitoring requirements in this General Permit and to assess their monitoring program. The Monitoring Implementation Plan includes a description of visual observation procedures and locations, as well as sampling procedures, locations, and methods. The Monitoring Implementation Plan shall be included in the SWPPP.

J. Monitoring and Reporting Requirements

1. General Monitoring Provisions

This General Permit requires Dischargers to develop and implement a facility-specific monitoring program. Monitoring is defined as visual observations, sampling and analysis. The monitoring data will be used to determine:

[12] California Department of Public Health. (2012). Best Management Practices for Mosquito Control in California. < http://www.westnile.ca.gov/resources.php>. [as of February 4, 2014]
[13] California Health & Safety Code, Division 3, Section 2060 and following.

a. Whether BMPs addressing pollutants in industrial storm water discharges and authorized NSWDs are effective for compliance with the effluent and receiving water limitations of this General Permit,

b. The presence of pollutants in industrial storm water discharges and authorized NSWDs (and their sources) that may trigger the implementation of additional BMPs and/or SWPPP revisions; and,

c. The effectiveness of BMPs in reducing or preventing pollutants in industrial storm water discharges and authorized NSWDs.

Effluent sampling and analysis information may be useful to Dischargers when evaluating the need for improved BMPs. The monitoring requirements in this General Permit recognize the 2008 MSGP approach to visual observations as an effective monitoring method for evaluating the effectiveness of BMPs at most facilities. Section 6.2 of the 2008 MSGP limits its monitoring sampling requirements to certain industrial categories. Similar to the previous permit, this General Permit requires all Dischargers to sample unless they have obtained NEC coverage or have an inactive mining operation(s) certified as allowed under this General Permit Section XIII.

This General Permit defines a Qualifying Storm Event (QSE) to provide clarity to Dischargers of when sampling is required. The previous permit (Section B.5.a) specified that sampling was required within the first hour of discharge, however, this General Permit requires Dischargers to sample within four hours of the start of Discharge. Many Dischargers were not able to get samples of their discharge locations within one (1) hour under the previous permit so this general permit has expanded the timeframe allowed to provide enough time to sample all discharge locations. The previous permit required three working dry days before sampling and this General Permit defines this period as 48 hours, this timeframe was decreased to provide more opportunities for Dischargers to obtain samples. This General Permit does not specify a volume for sampling due to the complexity of using rain gauges and the limited access of rain gauge station data.

Dischargers are only required to obtain samples required during scheduled facility operating hours and when sampling conditions are safe in accordance with Section XI.C.6.a.ii of this General Permit. If a storm event occurs during unscheduled facility operating hours (e.g. during the weekend or night) and during the 12 hours preceding the scheduled facility operating hours, the Dischargers is still responsible for obtaining samples at discharge locations that are still producing a discharge at the start of facility operations. Under the previous permit, many Dischargers were unable to obtain samples due to rainfall beginning at night.

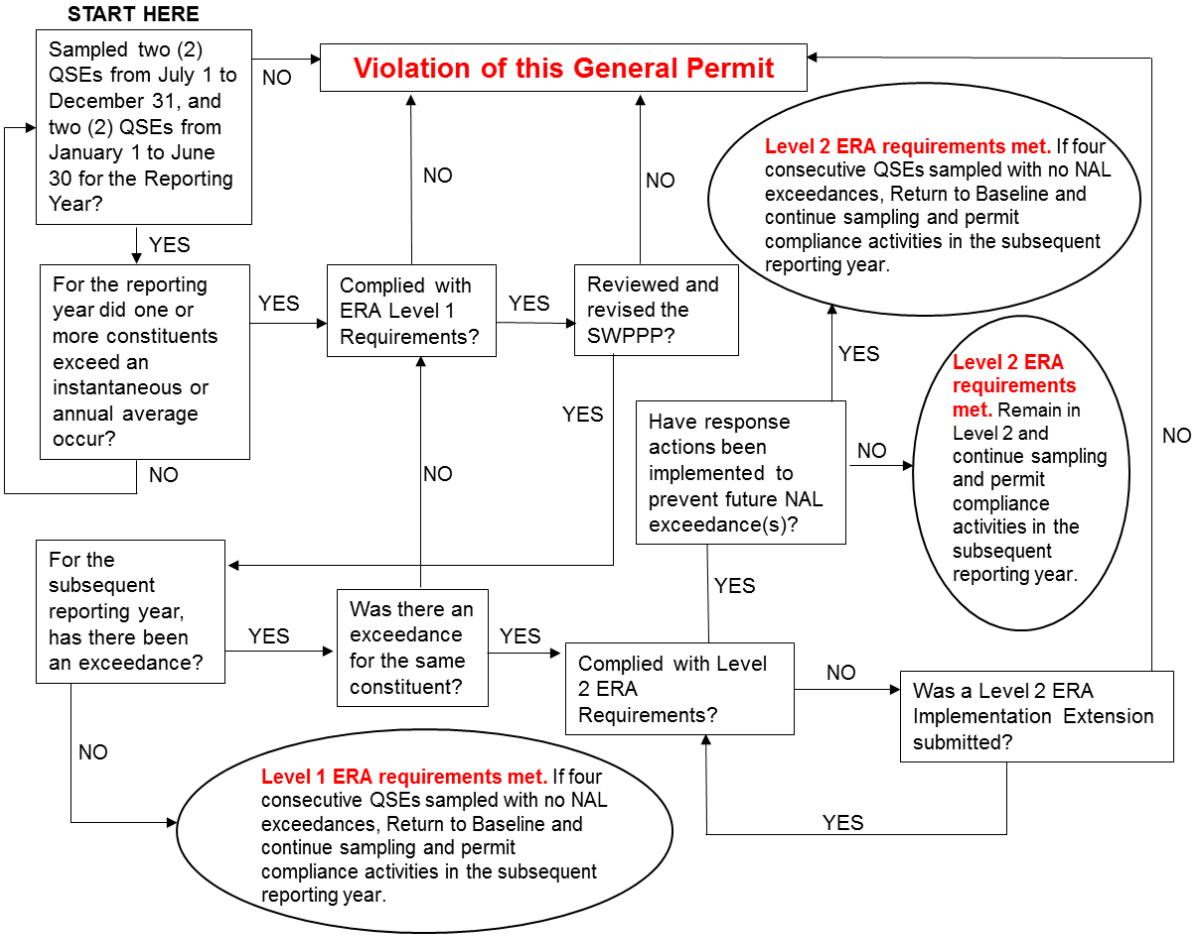
The State Water Board recognizes that it may not be feasible for all facilities to obtain four QSEs in a reporting year because there may not be enough qualifying storm events to do so. Therefore, a Discharger that is unable to collect and analyze storm water samples from two QSEs in each half of a reporting year due to a lack of QSEs is not in violation of Section XI.B.2. Dischargers that miss four QSEs during

a reporting year due to the fact that four QSEs did not occur are not required to make up these sampling events in subsequent reporting years.

The State Water Board recognizes that each facility has unique physical characteristics, industrial activities, and/or variations in BMP implementation and performance which warrants the requirement that each facility demonstrate its compliance. Figure 3 of this Fact Sheet provides a summary of all the monitoring-related requirements of this General Permit. This General Permit's monitoring requirements include sampling and analysis requirements for specific indicator parameters that indicate the presence of pollutants in industrial storm water discharges. The "indicator parameters" are oil and grease (for petroleum hydrocarbons), total suspended solids (for sediment and sediment bound pollutants) and pH (for acidic and alkaline pollutants). Additionally, Dischargers are required to evaluate their facilities and analyze samples for additional facility-specific parameters. These monitoring program requirements are designed to provide useful, cost-effective, timely, and easily obtained information to assist Dischargers as they identify their facility's pollutant sources and implement corrective actions and revise BMPs as necessary (Section XI.A.4 of this General Permit).

This General Permit requires a combination of visual observations and analytical monitoring. Visual observations provide Dischargers with immediate information indicating the presence of many pollutants and their sources. Dischargers must implement timely actions and revise BMPs as necessary (Section XI.A.4) when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP. Analytical monitoring provides an additional indication of the presence and concentrations of pollutants in storm water discharge. Dischargers are required to evaluate potential pollutant sources and corresponding BMPs and revise the SWPPP appropriately when specific types of NAL exceedances occur as described below.

FIGURE 3: Compliance Determination Flowchart



2. Visual Observations

There are two major changes to the visual observation requirements in this General Permit compared to the previous permit, which include:

a. Monthly Visual Observations

The previous permit required separate quarterly visual observations for unauthorized and authorized non-storm water discharges. It did not require periodic visual observations of the facility to determine whether all potential pollutant sources were being adequately controlled with BMPs. Prior drafts of this General Permit proposed the addition of pre-storm inspections. This was met with great resistance by Dischargers because of the complexity and burden of determining when a QSE would occur. Many of these Dischargers recommended that monthly BMP and non-storm water discharge visual observations should replace the proposed pre-storm inspections. This General Permit merges all visual observations into a single monthly visual observation.

b. Sampling Event Visual Observations

The previous permit required monthly storm water visual observations. This required Dischargers to conduct visual observations for QSEs that were not being sampled since only two QSEs were required to be sampled in the previous permit. As discussed below, the sampling requirement has been increased to four QSEs within each reporting year with two QSEs required in each half of the reporting year. We expect that this will result in more samples being collected and analyzed, since most of California experiences, on average, at least two QSEs per half year. This General Permit streamlines the storm water visual observation requirement by linking the visual observations to the time of sampling.

3. Sampling and Analysis

   a. General

      As part of the process for developing previous drafts of this General Permit, the State Water Board considered comments from numerous stakeholders concerning sampling and analysis. Sampling and analysis issues were the most dominant of all issues raised in the comments.

      The State Water Board received stakeholder comments that fall into three primary categories concerning this General Permit's sampling and analysis approach:

      i. Comments supporting an intensive water quality sampling and analysis approach (with the goal of producing more accurate discharge-characterizing and pollutant concentration data) as the primary method of determining compliance with effluent limitations and receiving water limitations. Since this approach requires large amounts of high quality data to accurately quantify the characteristics of the discharges, it is referred to as the quantitative monitoring approach. Stakeholders supporting the quantitative approach generally also support the use of stringent NELs to evaluate compliance with this General Permit;

      ii. Comments supporting only visual observations as the primary method of determining compliance: These stakeholders generally assert that storm water sampling is an incomplete and not very cost effective means of determining water quality impacts on the receiving waters; and,

      iii. Comments supporting a combination of visual observations and cost-effective water quality sampling and analysis approach (sampling and analysis that would produce data indicating the presence of pollutants) to determine compliance (similar to the previous permit's approach). Since this approach uses more qualitative information to describe the quality and characteristics of the discharges, it is referred to as the qualitative monitoring approach.

      Within each of the three categories, there are various recommendations and rationales as to the exact monitoring frequencies, procedures and methods, required to implement the approach. Stakeholders in favor of the quantitative monitoring approach commented that it is the only reliable and meaningful

method of assuring that: (1) BMPs are effective in reducing or preventing pollutants in storm water discharge in compliance with BAT/BCT, and (2) the discharge is not causing or contributing to an exceedance of a water quality standards. The stakeholders state that visual observations are not effective in measuring pollutant concentrations nor is it effective in determining the presence of colorless and/or odorless pollutants. The stakeholders state that qualitative monitoring (and the use of indicator parameters) will not provide results useful for calculating pollutant loading nor will it accurately characterize the discharge.

Stakeholders in favor of requiring only visual observations state that sampling and analysis is unnecessary because (1) the previous permit did not include NELs so the usefulness of sampling and analysis data is limited, (2) a significant majority of Dischargers should be able to develop appropriate BMPs without sampling and analysis data, (3) most pollutant sources and pollutants can be detected and mitigated through visual observations, (4) the costs associated with quantitative monitoring are excessive and disproportionate to any benefits, (5) U.S. EPA's storm water regulations do not require sampling, (6) The 2008 MSGP relies heavily on visual observations and requires only a limited number of specific industries to conduct sampling and analysis, and (7) the majority of Dischargers are small businesses and do not have sufficient training or understanding to perform accurate sampling and analysis.

Stakeholders in favor of requiring both visual observations and a cost-effective qualitative monitoring program state that (1) both are within the means and understanding of most Dischargers, and (2) monitoring results are useful for evaluating a Discharger's compliance without unnecessarily increasing the burden on the Discharger and without subjecting Dischargers to non-technical enforcement actions.

The State Water Board finds that it is feasible for the majority of Dischargers to develop appropriate BMPs without having to perform large amounts of quantitative monitoring, which can be very costly. In the absence of implementing NELs, the State Water Board has determined that the infeasibility and costs associated with developing quantitative monitoring programs at each of thousands industrial facilities currently permitted would outweigh the limited benefits. The primary difficulty associated with requiring intensive quantitative monitoring lies with the cost and the difficulty of accurately sampling industrial storm water discharges.

Stakeholders that support quantitative monitoring believe the data is necessary to determine pollutant loading, concentration, or contribution to water quality violations. In order to derive data necessary to support those goals, however, the data must be of high quality, meaning it must be accurate, precise and have an intact chain of custody. Many industrial facilities do not have well-defined storm water conveyance systems for sample collection. Storm water frequently discharges from multiple locations through sheet flow into nearby streets and adjoining properties. Sample collection from a portion of the sheet flow is an inexact measurement since not all of the flow is sampled. Requiring every Discharger to construct well-defined storm water conveyances may cost

anywhere from thousands to hundreds of thousands of dollars per facility depending on the size and nature of each industrial facility. At many facilities, the construction of such conveyances may also violate local building codes, create safety hazards, cause flooding, or increase erosion. In addition, eliminating sheet flow at some facilities could result in increased pollutant concentrations.

The State Water Board has considered the complexity and costs associated with quantitative monitoring. Unlike continuous point source discharges (e.g., publicly owned treatment works), storm water discharges are variable in intensity and duration. The concentration of pollutants discharged at any one time is dependent on many complex variables. The largest concentration of pollutants would be expected to discharge earlier in the storm event and taper off as discharges continue. Therefore, effective quantitative monitoring of storm water discharges would require that storm water discharges be collected and sampled until most or all of the pollutants have been discharged. Multiple samples would need to be collected over many hours. To determine the pollutant mass loading, the storm water discharge flow must also be measured each time a sample is collected.

For a quantitative monitoring approach to yield useful pollutant loading information, the installation of automatic sampling devices and flow meters at each discharge location would usually be necessary. In addition, qualified individuals would be needed to conduct the monitoring procedures, and to handle and maintain flow meters and automatic samplers are needed. A significant majority of storm water Dischargers under this General Permit do not possess the skills to manage such an effort. Dischargers will bear the cost of employing and/or training on-site staff to do this work, or the cost of contracting with environmental consultants and acquiring the required flow meters and automatic samplers. The cost to Dischargers to conduct quantitative monitoring varies depending on the number of outfalls, the number of storms, the length of each storm, the amount of staff training, and other variables.

To address these concerns, this General Permit includes a number of new items that bridge the gap between the previous permit's qualitative monitoring and the quantitative approach recommended by many commenters. This General Permit includes a requirement for all Dischargers to designate a QISP when they enter Level 1 status due to NAL exceedances. The QISP is required to be trained to: (1) more accurately identify discharge locations representative of the facility storm water discharge (2) select and implement appropriate sampling procedures (3) evaluate and develop additional BMPs to reduce or prevent pollutants in the industrial storm water discharges.

Dischargers that fail to develop and implement an adequate Monitoring Implementation Plan that includes both visual observations and sampling and analysis, are in violation of this General Permit. Dischargers that fail to comply with Level 1 status and Level 2 status ERA requirements, triggered by NAL exceedances, are in violation of this General Permit.

Water Code section 13383.5 requires that the State Water Board include (1) standardized methods for collection of storm water samples, (2) standardized methods for analysis of storm water samples, (3) a requirement that every sample analysis be completed by a State certified laboratory or in the field in accordance with Quality Assurance and Quality Control (QA/QC) protocols, (4) a standardized reporting format, (5) standardized sampling and analysis programs for QA/QC, and (6) minimum detection limits. The monitoring requirements in this General Permit (Section XI), as supplemented by SMARTS, address these requirements.

Under the previous permit, many Dischargers did not developed adequate sample collection and handling procedures, decreasing the quality of analytical results. In addition, Dischargers often selected inappropriate test methods, method detection limits, or reporting units. This General Permit requires all Dischargers to identify discharge locations that are representative of industrial storm water discharges and develop and implement reasonable sampling procedures to ensure that samples are not mishandled or contaminated.

It is infeasible for the State Water Board to provide a single comprehensive set of sample collection and handling procedures/instructions due to the wide variation in storm water conveyance and collection systems in use at facilities around the state. As an alternative, Attachment H of this General Permit provides minimum storm water sample collection and handling instructions that pertain to all facilities. Dischargers are required to develop facility-specific sample collection and handling procedures based upon these minimum requirements. Table 2 in this General Permit provides the minimum test methods that shall be used for a variety of common pollutants. Dischargers must be aware that use of more sensitive test methods (e.g., U.S. EPA Method 1631 for Mercury) may be necessary if they discharge to an impaired water body or are otherwise required to do so by the Regional Water Board. This General Permit allows Dischargers to propose an analytical test method for any parameter or pollutant that does not have an analytical test method specified in Table 2 or in SMARTS. Dischargers may also propose analytical test methods with substantially similar or more stringent method detection limits than existing approved analytical test methods. Upon approval, SMARTS will be updated over time to add additional acceptable analytical test methods.

The previous permit allowed Dischargers to reduce sampling analysis requirements for substantially similar drainage areas by either (1) combining samples for an unspecified maximum number of substantially similar drainage areas, or (2) sampling a reduced number of substantially similar drainage areas. The State Water Board provided this procedure to reduce analytical costs. The complexity associated with determining substantially similar drainage areas has led Dischargers to produce various, and sometimes questionable, analytical schemes. In addition, the previous permit did not establish a maximum number of samples that could be combined.

To standardize sample collection and analysis as required by Water Code section 13383.5, while continuing to offer a reduced analytic cost option, these

requirements have been revised. Section XI.B.4 of this General Permit requires Dischargers to collect samples from all discharge locations regardless of whether the discharges are substantially similar or not. Dischargers may analyze each sample collected, or may analyze a combined sample consisting of equal volumes, collected from as many as four (4) substantially similar discharge locations. A minimum of one combined sample shall be analyzed for every one (1) to four (4) discharge locations, and the samples shall be combined in the lab in accordance with Section XI.C.5 of this General Permit.

Representative sampling is only allowed for sheet flow discharges or discharges from drainage areas with multiple discharge locations. Dischargers shall select the appropriate location(s) to be sampled and intervals necessary to obtain samples representative of storm water associated with industrial activities generated within the corresponding drainage area. Dischargers are not required to sample discharge locations that have no exposure of industrial activities or materials as defined in Section XVII of this General Permit within the corresponding drainage area. However, Dischargers are required to conduct the monthly visual observations regardless of the selected locations to be sampled.

This General Permit defines a QSE as a precipitation event that produces a discharge from any drainage area that is preceded by 48 consecutive hours without a discharge from any drainage area. The previous permit did not include a QSE definition; instead, it utilized a different approach to defining the storm events that were required to be sampled. Under the previous permit, eligible storm events were storm events that occurred after three consecutive working days of dry weather. The three consecutive working days of dry weather definition in the previous permit led Dischargers to miss many opportunities to sample. Some Dischargers were unable to collect samples from two storm events in certain years under the previous definition. To resolve this difficulty, this General Permit increases the sampling requirements to four (4) QSEs per year, while decreasing the number of days without a discharge, resulting in additional opportunities for Dischargers to sample. Additionally, by eliminating the previous permit's reference to "dry weather," this General Permit allows some precipitation to occur between QSEs so long as there is no discharge from any drainage area. This change will result in more QSE sampling opportunities.

To improve clarity and consistency, the definitions contained in other storm water permits were considered with the goal of developing a standard definition for 'dry weather' for this General Permit. The 2008 MSGP sets a "measurable storm event" as one that produces at least 0.1 inches of precipitation and results in an actual discharge after 72 hours (three days) of dry weather. The State of Washington defines a "qualifying storm event" as a storm with at least 0.1 inches of precipitation preceded by at least 24 hours of no measurable precipitation, mirroring the definition found in the previous MSGP (2000 version). The State of Oregon requires that samples be taken in the first 12 hours of discharge and no less than 14 days apart. Review of other permits concludes that there is not a single commonly used approach to triggering sampling in industrial general permits. Therefore an enforceable sampling trigger is included in this General

permit that requires Dischargers to sample four storm events within each reporting year.

b. Effluent Water Quality Sampling and Analysis Parameters

Dischargers are required to sample and analyze their effluent for certain parameters. "Parameter" is a term used in laboratory analysis circles to represent a distinct, reportable measure of a particular type. For example, ammonia, hexavalent chromium, total nitrogen and chemical oxygen demand are all parameters that a laboratory can analyze storm water effluent for and report a quantity back. A parameter is also an indicator of pollution. In this General Permit, pH, total suspended solids and chemical oxygen demand are examples of indicator parameters. They are not direct measures of a water quality problem or condition of pollution but can be used to indicate a problem or condition of pollution. Indicator parameters can also be used to indicate practices and/or the presence of materials at a facility to bring forth information for compliance evaluation processes, like annual report review and inspection. For example, chemical oxygen demand concentrations can indicate the presence of dissolved organic compounds, like residual food from collected recycling materials.

Minimum parameter-specific monitoring is required for Dischargers, regardless of whether additional facility-specific parameters are selected. This General Permit requires some parameters to be analyzed and reported for the duration of permit coverage to develop comparable sampling data over time and over many storm events and to demonstrate compliance. The Regional Water Boards may use such data to evaluate individual facility compliance and assess the differences between various industries. Accordingly, the parameters selected correspond to a broad range of industrial facilities, are inexpensive to sample and analyze, and have sampling and analysis methods which are easy to understand and implement. Some analytical methods for field measurements of some parameters, such as pH, may be performed using relatively inexpensive field instruments and provides an immediate alert to possible pollutant sources.

The following three selected minimum parameters are considered indicator parameters, regardless of facility type. These parameters typically provide indication and/or the correlation of whether other pollutants are present in storm water discharge. These parameters were selected for the following reasons:

i. pH is a numeric measurement of the hydrogen-ion concentration. Many industrial facilities handle materials that can affect pH. A sample is considered to have a neutral pH if it has a value of 7. At values less than 7, water is considered acidic; above 7 it is considered alkaline or basic. Pure rain water in California typically has a pH value of approximately 7.

ii. Total Suspended Solids (TSS) is an indicator of the un-dissolved solids that are present in storm water discharge. Sources of TSS include sediment from erosion, and dirt from impervious (i.e., paved) areas. Many pollutants adhere to sediment particles; therefore, reducing sediment will reduce the amount of these pollutants in storm water discharge.

iii. Oil and Grease (O&G) is a measure of the amount of O&G present in storm water discharge. At very low concentrations, O&G can cause sheen on the surface of water. O&G can adversely affect aquatic life, create unsightly floating material, and make water undrinkable. Sources of O&G include, but are not limited to, maintenance shops, vehicles, machines and roadways.

The previous permit allowed Dischargers to analyze samples for either O&G or Total Organic Carbon (TOC). This General Permit requires all Dischargers analyze samples for O&G since almost all Dischargers with outdoor activities operate equipment and vehicles can potentially generate insoluble oils and greases. Dischargers with water soluble-based organic oils may be required to also test for TOC. The TOC and O&G tests are not synonymous, duplicative or interchangeable.

This General Permit removes the requirement to analyze for specific conductance as part of the minimum analytic parameters. Specific conductance is not required by U.S. EPA for any industry type. Additionally, stakeholder comments indicate that there are many non-industrial sources that may cause high specific conductance and interfere with the efficacy of the test. For example, salty air deposition that occurs at facilities in coastal areas may raise the specific conductance in water over 500 micro-ohms per centimeter (µhos/cm). Dischargers are not prevented from performing a specific conductance test as a screening tool if it is useful to detect a particular pollutant of concern as required (e.g. salinity).

This General Permit requires Dischargers subject to Subchapter N ELGs for pH to analyze for pH using approved test methods in accordance with 40 Code of Federal Regulations part 136. These federal regulations specify that analysis of pH must take place within 15 minutes of sample collection. All other Dischargers may screen for pH using wide range litmus pH paper or other equivalent pH test kits within 15 minutes of sample collection. If in any reporting year a Discharger has two or more pH results outside of the range of 6.0 – 9.0 pH units, that Discharger is required to comply with the approved test methods in 40 Code of Federal Regulations part 136 in subsequent reporting years.

For almost all Dischargers, obtaining laboratory analysis within 15 minutes is logistically impossible. For many Dischargers, maintaining a calibrated pH meter is difficult, labor intensive, and error prone. Screening for pH will limit the number of additional Dischargers required to comply with 40 Code of Federal Regulations part 136 methods to those that have pH measures outside the range of 6.0-9.0 pH units. The use of wide range litmus pH paper or other equivalent pH test kits is not as accurate as a calibrated pH meter, however litmus paper is allowed in the 2008 MSGP, and when used properly it can provide an accurate screening measure to determine if further more-accurate pH sampling is necessary to determine compliance.

Review of available monitoring data shows that storm water discharges from most types of industrial facilities comply with the pH range of 6.0 to 9.0 pH units. There are specific types of industries, like cement or concrete manufacturers that

have shown a trend of higher pH values very close to 9.0 pH units. Rather than require all industries as a whole to monitor with the more costly 40 Code of Federal Regulations part 136 methods, this General Permit establishes a triggering mechanism for these more advanced pH test methods. The Regional Water Boards retain their authority to require more accurate test methods. Once a Discharger triggers the requirement to use the more accurate testing methods in 40 Code of Federal Regulations part 136, the Discharger may not revert back to screening for pH for the duration of coverage under this General Permit.

In the early 1990s, U.S. EPA, through its group application program, evaluated nationwide monitoring data and developed the listed parameters and SIC associations shown in Table 1 of this General Permit. The 2008 MSGP requires that Dischargers analyze storm water effluent for the listed parameters under certain conditions. In addition to the parameters in Table 1 of this General Permit, Dischargers are required to select additional facility-specific analytical parameters to be monitored, based upon the types of materials that are both exposed to and mobilized by contact with storm water. Dischargers must, at a minimum, understand how to identify industrial materials that are handled outdoors and which of those materials can easily dissolve or be otherwise transported via storm water.

The Regional Water Boards have the authority to revise the monitoring requirements for an individual facility or group of facilities based on site-specific factors including geographic location, industry type, and potential to pollute. For example, the Los Angeles Regional Water Board required all dismantlers (SIC Code 5015) within their jurisdiction to monitor for copper and zinc instead of aluminum and iron during the term of the previous permit. SMARTS will be programmed to incorporate any monitoring revisions required by the Regional Water Boards. Dischargers will receive email notification of the monitoring requirement revision and their SMARTS analytical reporting input screen will display the corresponding revisions. Dischargers may add, but not otherwise modify, the sampling parameters on their SMARTS input screen.

Dischargers are also required to identify pollutants that may cause or contribute to an existing exceedance of any applicable water quality standards for the receiving water. This General Permit requires Dischargers to control its discharge as necessary to meet the receiving water limitations, and to select additional monitoring parameters that are representative of industrial materials handled at the facility (regardless of the degree of storm water contact or relative mobility) that may be related to pollutants causing a water body to be impaired.

4. Methods and Exceptions

   a. Storm Water Discharge Locations

      Dischargers are required to visually observe and collect samples of industrial storm water discharges from each drainage area at all discharge locations. These samples must be representative of the storm water discharge leaving each drainage area. This is a change from the previous permit which allowed a

Discharger to reduce the number of discharge locations sampled if two or more discharge locations were substantially similar.

Dischargers are required to identify, when practicable, alternate discharge locations if: (1) the facility's industrial drainage areas are affected by storm water run-on from surrounding areas that cannot be controlled, or (2) discharge locations are difficult to observe or sample (e.g. submerged discharge outlets, dangerous discharge location accessibility).

b. Representative Sampling Reduction

Some stakeholders have indicated that there are unique circumstances where sampling a subset of representative discharge locations fully characterizes the full set of storm water discharges. Stakeholders provided examples related to drainage areas with multiple discharge locations where sampling only a subset of these discharge locations produces results that are representative of the drainage areas' storm water discharges. In such situations, this General Permit allows Dischargers to reduce the number of discharge locations. For each drainage area with multiple discharge locations (e.g. roofs with multiple downspouts, loading/unloading areas with multiple storm drain inlets), the Discharger may reduce the number of discharge locations to be sampled if the conditions in Section XI.C.4 of this General Permit are met.

c. Qualified Combined Samples

Dischargers may combine samples from up to four (4) discharge locations if the industrial activities within each drainage area and each drainage area's physical characteristics (i.e. grade, surface materials) are substantially similar.

Dischargers are required to provide documentation in the Monitoring Implementation Plan supporting that the above conditions have been evaluated and fulfilled. A Discharger may combine samples from more than four (4) discharge locations only with approval from the appropriate Regional Water Board.

d. Sample Collection and Visual Observation Exceptions

Dischargers are not required to collect samples or conduct visual observations during dangerous weather conditions such as flooding or electrical storms, or outside of scheduled facility operating hours. A Discharger is not precluded from conducting sample collection activities or visual observations outside of scheduled facility operating hours.

In the event that a Discharger is unable to collect the required samples or conduct visual observations due to the above exceptions, the Discharger must include an explanation of the conditions obstructing safe monitoring in its Annual Report. If access to a discharge location is dangerous on a routine basis, a Discharger must choose an alternative discharge location in accordance with General Permit Section XI.C.3.

e. Sampling Frequency Reduction

Facilities that do not have NAL exceedances for four (4) consecutive QSEs are unlikely to pose a significant threat to water quality. If the storm water from these facilities is also in full compliance with this General Permit, the Discharger is eligible for a reduction in sampling frequency. The Sampling Frequency Reduction allows a Discharger to decrease its monitoring from four (4) samples within each reporting year to one (1) QSE within the first half of each reporting year (July 1 to December 31) and one (1) QSE within the second half of each reporting year (January 1 to June 30). If a Discharger has a subsequent NAL exceedance after the Sampling Frequency Reduction, it must comply with the original sampling requirements of this General Permit. Only Dischargers that have baseline status or that have satisfied the Level 1 requirements are eligible for this sampling and analysis reduction.

A Discharger requesting to reduce its sampling frequency shall certify and submit a Sampling Frequency Reduction certification via SMARTS. The Sampling Frequency Reduction certification shall include documentation that the General Permit conditions for the Sampling Frequency Reduction have been satisfied.

Dischargers participating in a Compliance Group and certifying a Sampling Frequency Reduction are only required to collect and analyze storm water samples from one (1) QSE within each reporting year. These Dischargers must receive year-round compliance assistance from their Compliance Group Leader and must comply with all requirements of this General Permit.

5. Facilities Subject to Federal Storm Water Effluent Limitation Guidelines (ELGs)

Federal regulations at Subchapter N establish ELGs for industrial storm water discharges from facilities in eleven industrial sectors. For these facilities, compliance with the ELGs constitutes compliance with the technology standard of BPT, BAT, BCT, or New Source Performance Standards provided in the ELG for the specified pollutants, and compliance with the technology-based requirements in this General Permit for the specified pollutant.

K. Exceedance Response Actions (ERAs)

1. General

The previous permit did not incorporate the benchmarks from any of the MSGPs or NALs for Dischargers to evaluate sampling results. Unlike the requirements for industrial storm water discharges that cause or contribute to an exceedance of a water quality standards, the previous permit did not provide definitions, procedures or guidelines to assess sampling results. Many Regional Water Boards have formally or informally notified Dischargers that exceedances of the MSGP benchmarks should be used to determine whether additional BMPs are necessary. However, there was considerable confusion as to the extent to which a Discharger would be expected to implement actions in response to exceedances of these values, and the timelines that had to be met to prevent an enforcement action. The lack of specificity with regards to what constituted an exceedance, and what actions

are required in response to an exceedance, have been identified as a problem by the Water Boards, industry and environmental stakeholders.

This General Permit contains two (2) types of NALs. Annual NALs function similarly to, and are based upon, the values provided in the 2008 MSGP. Instantaneous maximum NALs target hot spots or episodic discharges of pollutants and are established based on California industrial storm water discharge monitoring data. When a Discharger exceeds an NAL it is required to perform ERAs. The ERAs are divided into two levels of responses and can generally be differentiated by the number of years in which a facility's discharge exceeds an NAL trigger. These two levels are explained further in Section XII of this General Permit. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This process is also designed to provide Dischargers with a more defined pathway towards full compliance.

The ERA requirements in this General Permit were developed using best professional judgment and Water Board experience with the shortcomings of the previous permit's compliance procedures. Public comments received during State Water Board hearings on the 2002, 2005, 2011, 2012 and 2013 draft permits, and NPDES industrial storm water discharge permits from other states with well-defined ERA requirements were also considered by the State Water Board.

The State Water Board presumes that one single NAL exceedance for a particular parameter is not a clear indicator that a facility's discharge is out of compliance with the technology-based effluent limitations or receiving water limitations. This presumption recognizes the highly variable nature of storm water discharge and the limited value of a single quarterly grab sample to represent the quality of a facility's storm water discharge for an entire storm event and all other non-sampled storm events. With this presumption, the State Water Board is addressing costly monitoring requirements that do not bring forth valuable compliance and/or water quality information.

2. NALs and NAL Exceedances

   a. This General Permit contains two types of NAL exceedances as follows:

      Annual NAL exceedance - the Discharger is required to calculate the average annual concentration for each parameter using the results of all sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data), and compare the annual average concentration to the corresponding Annual NAL values in Table 2 of this General Permit. An annual NAL exceedance occurs when the annual average of all the sampling results for a parameter taken within a reporting year exceeds the annual NAL value for that parameter listed in Table 2 of this General Permit.

      For the purposes of calculating the annual average concentration for each parameter, this General Permit considers any sampling result that are a "non-detect" or less than the method detection limit as a zero (0) value. The reason to use zero (0) values instead of the detected but not quantifiable

value (minimum level or reporting limit) is that these values are very low and are unlikely to contribute to an NAL exceedance. There are statistical methods to include low values when calculations are for numeric criteria and limitations, however, the NALs in this General Permit are approximate values used to provide feedback to the Discharger on site performance, and are not numeric criteria or limitations. Therefore, it is not necessary to include these insignificant values in the calculations for the NALs. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.[14]

i. Instantaneous maximum NAL exceedance - the Discharger is required to compare all sampling and analytical results from each distinct sample (individual or combined) to the corresponding instantaneous maximum NAL values in Table 2 of this General Permit. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

b. Instantaneous maximum NAL analysis

In its June 19, 2006 report, the Blue Ribbon Panel of Experts (Panel) made several specific recommendations for how to set numeric limitations in future industrial storm water general permit(s). For sites not subject to TMDLs, the Panel suggested that the numeric values be based upon industry types or categories, with the recognition that each industry has its own specific water quality issues and financial viability. Furthermore, the Panel concluded:

> To establish Numeric Limits for industrial sites requires a reliable database, describing current emissions by industry types or categories, and performance of existing BMPs. The current industrial permit has not produced such a database for most industrial categories because of inconsistencies in monitoring or compliance with monitoring requirements. The Board needs to reexamine the existing data sources, collect new data as required and for additional water quality parameters (the current permit requires only pH, conductivity, total suspended solids, and either total organic carbon or oil and grease) to establish practical and achievable Numeric Limits.

The Panel suggested an alternative method that would allow the use of the existing Water Board dataset to establish action levels, referred to as the “ranked percentile” method. The Panel recommended:

[14] U.S. EPA. NPDES Storm Water Sampling Guidance Document. Web. July 1992. <http://www.epa.gov/npdes/pubs/owm0093.pdf>. [as of February 4, 2014].

> The ranked percentile approach (also a statistical approach) relies on the average cumulative distribution of water quality data for each constituent developed from many water quality samples taken for many events at many locations. The Action Level would then be defined as those concentrations that consistently exceed some percentage of all water quality events (i.e. the 90th percentile). In this case, action would be required at those locations that were consistently in the outer limit (i.e. uppermost 10th percentile) of the distribution of observed effluent qualities from urban runoff.

After performing various data analysis exercises with the Water Board dataset, State Water Board staff concluded that the Water Board dataset is not adequate to calculate instantaneous NAL values using the Panel's recommended method for all of parameters that have annual NAL values based on the U.S. EPA benchmarks. Additionally, public comments on the January 2011 draft of this General Permit suggest that it is problematic to calculate NAL values based on the existing data. Therefore, the Water Board dataset was not used to calculate instantaneous NAL values for all parameters.

However, since all Dischargers regulated under the previous permit were required to sample for TSS and O&G/TOC, State Water Board staff found that the existing dataset for these parameters is of sufficient quality to calculate instantaneous NAL values. State Water Board staff also found that this data was less prone to what appear to be data input errors. The final dataset used to calculate the instantaneous NALs in this General Permit had outlier values that were eliminated from the dataset by using approved test method detection limits ranges. The methods and corresponding method detection limit ranges used to screen outliers are as follows:

- O&G - EPA 413.1 Applicable Range: 5-1,000 mg/L
- O&G - EPA 1664 Applicable Range: 5-1,000 mg/L
- TSS - EPA 160.2 Applicable Range: 4-20,000 mg/L

The intent of the instantaneous maximum NAL is to identify specific drainage areas of concern or episodic sources of pollution in industrial storm water that may indicate inadequate storm water controls and/or water quality impacts. In the effort to add instantaneous NAL exceedances to the ERA process, the State Water Board explored different options for the development of an appropriate value (i.e. percentile approach, benchmarks times a multiplier, confidence intervals). The California Stormwater Quality Association's comments on the previous draft permit included a proposed method for calculating NAL values using a percentile approach. The State Water Board researched and evaluated this methodology and determined it is the most appropriate way to directly compare available electronic sampling data from Dischargers regulated under the previous permit. This percentile approach was used to establish the instantaneous maximum NALs in this General Permit, for discharges to directly compare with sampling results and identify drainage areas of water quality concern.

The percentile approach is a non-parametric approach identified in many statistical textbooks for determining highly suspect values. Highly suspect values are defined as values that exceed the limits of the outer fences of a box plot. Upper limits of the outer fence are calculated by adding three times the inter-quartile range (25th to 75th percentiles) to the upper-end of the inter-quartile range (the 75th percentile). The California Stormwater Quality Association calculated an NAL value of 401 mg/L for TSS using the percentile approach using the Water Board dataset. The State Water Board performed the same analysis with the same Water Board dataset and calculated a slightly different value of 396 mg/L; therefore, the instantaneous maximum NAL value for TSS of 400 mg/L was established. Appling the percentile approach to the existing O&G data results in the instantaneous maximum NAL value for O&G of 25 mg/L.

The State Water Board compared existing sampling data to the instantaneous maximum NAL values and concluded that seven (7) percent of the total samples exceeded the highly suspected value for TSS and 7.8 percent of the total samples exceeded the highly suspected value for O&G. These results suggest that the instantaneous maximum NAL values are adequate to identify drainage areas of concern statewide since they are not regularly exceeded. Using best professional judgment, the State Water Board concludes that an exceedance of these values twice within a reporting year is unlikely to be the result of storm event variability or random BMP implementation problems, and the use of the percentile approach is therefore appropriate.

Due to issues with the ranges of concentrations and the logarithmic nature of pH, statistical methods cannot be applied to pH in the same ways as other parameters. Review of storm water sampling data by the State Water Board and other stakeholders has shown that pH is not typically a parameter of concern for most industrial facilities. Accordingly, a range of pH limits established in Regional Water Board Basin Plans is implemented in this General Permit for the instantaneous maximum NAL values. Most Basin Plans set a water quality objective of 6.0 - 9.0 pH units for water bodies, an exceedance outside the range of 6.0 - 9.0 pH units is consistent with the water quality concerns for pH among Regional Water Boards. An industrial facility with proper BMP implementation is expected to have industrial storm water discharges within the range of 6.0 - 9.0 pH units.

High concentrations of TSS and O&G, or pH values outside the range of 6.0 – 9.0 pH units, in a discharge may be an indicator of potential BMP implementation or receiving water quality concerns with other pollutants with parameters that do not have an instantaneous maximum NAL value. The State Water Board may consider instantaneous maximum NAL values for other parameters in a subsequent reissuance of this General Permit, based on data collected during this General Permit term.

The percentile approach is considered by many stakeholders to be the best method to evaluate BMP performance and general effluent quality in a community or population where the vast majority of the industrial facilities are implementing sufficient pollutant control measures. The Water Board's current

dataset does not provide a way of evaluating actual BMP implementation at each facility when analyzing the data; therefore the monitoring information reported during the previous permit term cannot be linked to compliance with technology-based standards. The State Water Board intends to use data collected during this General Permit term to evaluate the percentile approach, improve the quality of collected data for other parameters, and further develop an understanding of how reported data relates to implemented BMP-control technologies.

Under this General Permit, a Discharger enters Level 1 status and must fulfill the Level 1 status ERA requirements following its first occurrence of any NAL exceedance. Level 2 status ERA requirements follow the second occurrence of an NAL exceedance for the same parameter in a subsequent reporting year. This ERA process provides Dischargers with an adaptive management-based process to develop and implement cost-effective BMPs that are protective of water quality and compliant with this General Permit. This General Permit's ERA process is designed to have a well-defined compliance end-point. It is not a violation of this General Permit to exceed the NAL values; it is a violation of the permit, however, to fail to comply with the Level 1 status and Level 2 status ERA requirements in the event of NAL exceedances.

The State Water Board acknowledges that storm water discharge concentrations are often highly variable and dependent upon numerous circumstances such as storm size, the time elapsed since the last storm, seasonal activities, and the time of sample collection. Since there are potential enforcement consequences for failure to comply with this General Permit's ERA process, the State Water Board's intention is to use NAL exceedances to solely require Dischargers with recurring annual NAL exceedances or drainage areas that produce recurring instantaneous maximum NAL exceedances to be subject to the follow-up ERA requirements.

If NALs exceedances do not occur, the State Water Board generally expects that the Discharger has implemented sufficient BMPs to control storm water pollution. When NAL exceedances do occur, however, the potential that the Discharger may not have implemented appropriate and/or sufficient BMPs increases, and the Discharger is required to implement escalating levels of ERAs. If NAL exceedances occur, this General Permit requires Dischargers to evaluate and potentially install additional BMPs, or re-evaluate and improve existing BMPs to be in compliance with this General Permit.

3. Baseline Status

At the beginning of a Discharger's NOI coverage under this General Permit, the Discharger has Baseline status. A Discharger demonstrating compliance with all NALs will remain at Baseline status and is not required to complete Level 1 status and Level 2 status ERA requirements.

If a Discharger has returned to Baseline status (from Level 2 status) and additional NAL exceedances occur, the Discharger goes into Level 1 status, then potentially

Level 2 status. Dischargers do not go directly into Level 2 status from Baseline status.

4. Level 1 Status

   Regardless of when an NAL exceedance occurs during Baseline status, a Discharger's status changes from Baseline status to Level 1 status on July 1 of the subsequent reporting year. By October 1 following the commencement of Level 1 status, the Discharger is required to appoint a QISP to assist with the completion of the Level 1 Evaluation. The Level 1 Evaluation must include a review of the facility's SWPPP for compliance with the effluent and receiving water limitations of this General Permit, an evaluation of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s), and identification of any additional BMPs that will eliminate future exceedances. When conducting the Level 1 Evaluation, a Discharger must ensure that all potential pollutant sources that could be causing or contributing to the NAL exceedance(s) are fully characterized, that the current BMPs are adequately described, that employees responsible for implementing BMPs are appropriately trained, and that internal procedures are in place to track that BMPs are being implemented as designed in the SWPPP. A Discharger is additionally required to evaluate the need for additional BMPs. Level 1 ERAs are designed to provide the Discharger the opportunity to improve existing BMPs or add additional BMPs to comply with the requirements of this General Permit.

   By January 1 following commencement of Level 1 status, a Discharger is required to certify and submit via SMARTS a Level 1 ERA Report prepared by a QISP. The Level 1 ERA Report must contain a summary of the Level 1 Evaluation, all new or revised BMPs added to the SWPPP.

   In most cases, the State Water Board believes that Level 1 status BMPs will be operationally related rather than structural and, therefore can be implemented without delay. Recognizing that a Discharger should not be penalized for sampling results obtained before implementing BMPs, sampling results for parameters and their corresponding drainage areas that caused the NAL exceedance up to October 1 or the date the BMPs were implemented, whichever is sooner, will not be used for calculating NAL exceedances. Although this General Permit allows up to January 1 to implement Level 1 status BMPs, the State Board has chosen an interim date of October 1 to encourage more timely Level 1 BMP implementation. Dischargers who implement Level 1 BMPs after October 1 may risk obtaining subsequent sampling results that may cause them to go into Level 2 status.

5. Level 2 Status

   Level 2 ERAs are required during any subsequent reporting year in which the same parameter(s) has an NAL exceedance (annual average or instantaneous maximum), if this occurs, a Discharger's status changes from Level 1 status to Level 2 status on July 1 of the subsequent reporting year. Dischargers with Level 2 status must further evaluate BMP options for their facility. Dischargers may have to implement additional BMPs, which may include physical, structural, or mechanical devices that

are intended to prevent pollutants from contacting storm water. Examples of such controls include, but are not limited to:

- Enclosing and/or covering outdoor pollutant sources within a building or under a roofed or tarped outdoor area.

- Physically separating the pollutant sources from contact with run-on of uncontaminated storm water.

- Devices that direct contaminated storm water to appropriate treatment BMPs (e.g., discharge to sanitary sewer as allowed by local sewer authority).

- Treatment BMPs including, but not limited to, detention ponds, oil/water separators, sand filters, sediment removal controls, and constructed wetlands.

Dischargers may select the most cost-effective BMPs to control the discharge of pollutants in industrial storm water discharges. Where appropriate, BMPs can be designed and targeted for various pollutant sources (e.g., providing overhead coverage for one potential pollutant while discharging to a detention basin for another source may be the most cost-effective solution).

a. Level 2 ERA Action Plans

The State Water Board acknowledges that there may be circumstances that make it difficult, if not impossible, for a Discharger to immediately implement additional BMPs. For example, it may take time to get a contract for construction in place, obtain necessary building permits, and design and construct the BMPs. Dischargers may also suspect that pollutants are from a non-industrial or natural background source and need time to study their site. A Discharger is required to certify and submit an Action Plan prepared by a QISP via SMARTS by January 1 following the reporting year in which the NAL exceedance that resulted in the Discharger entering Level 2 occurred. The Level 2 ERA Action Plan requires a Discharger to propose actions necessary to complete the Level 2 ERA Technical Report, the demonstrations the Discharger has selected, and propose a time frame for implementation.

If a Discharger changes the QISP assisting with the Level 2 ERA requirements this General Permit requires the Discharger to update the QISP information via SMARTS. Current information on individuals assisting Dischargers with compliance of this General Permit provides the Water Boards with the necessary contact information if there are questions on the submitted documents, and for possible verification of a QISP's certification.

Dischargers are required to address each Level 2 NAL exceedance in an Action Plan. The State Water Board recognizes that Dischargers with Level 2 status may have multiple parameters or facility areas that have Level 2 NAL exceedances and the timing of the exceedances may make it very difficult to address all Level 2 NAL exceedances in one Action Plan. When Level 2 ERA exceedances occur in subsequent reporting years, after an Action Plan is

certified and submitted, a Discharger will need to develop an Action Plan for this new Level 2 NAL exceedance. This General Permit defines new Level 2 NAL exceedances as an exceedance for a new parameter in any drainage area at the facility, or an exceedance for the same parameter being addressed in an existing Action Plan, but where the exceedance occurred in a different drainage area than identified in the existing Action Plan.

b. Level 2 ERA Technical Reports

The Level 2 ERA Technical Report contains three different options that require a Discharger to submit demonstrations showing the cause of the NAL exceedance(s). This General Permit requires a Discharger to appoint a QISP to prepare the Level 2 ERA Technical Reports. The State Water Board acknowledges that there may be cases where a combination of the demonstrations may be appropriate; therefore a Discharger may combine any of the following three demonstration options in their Level 2 ERA Technical Report when appropriate. A Discharger is only required to annually update its Level 2 ERA Technical Report when necessary as defined in Section XII.D.3.c of this General Permit, and is not required to annually re-certify and re-submit the entire Level 2 ERA Technical Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified in Section XII.D.3.c of this General Permit, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

i. Industrial Activity BMPs Demonstration

The Industrial Activity BMPs Demonstration is for the following:

- Dischargers who decided to implement additional BMPs that are expected to eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit, and

- Dischargers who decided to implement additional BMPs that may not eliminate future NAL exceedance(s) and that have been implemented in order to achieve compliance with the technology-based effluent limitations of this General Permit.

When preparing the Industrial Activity BMPs Demonstration, the QISP shall identify and evaluate all individual pollutant source(s) associated with industrial activity that are or may be related to an NAL exceedance and all designed, information on the drainage areas associated with the Level 2 NAL exceedances, and installed BMPs that are implemented to reduce or prevent pollutants in industrial storm water discharges in compliance with this General Permit.

If an Industrial Activity BMPs Demonstration is submitted as the Level 2 ERA Technical Report and the Discharger is able to show reductions in pollutant concentrations below the NALs for four (4) subsequent consecutive QSEs, the Discharger returns to Baseline Status. A Discharger that submits an Industrial Activity BMPs Demonstration but has not installed additional BMPs that are expected to eliminate future NAL exceedance(s) will remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

ii. Non-Industrial Pollutant Source Demonstration

A Non-Industrial Pollutant Source Demonstration is for a Discharger to demonstrate that the pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and additional BMPs at the facility will not contribute to the reduction of pollutant concentrations.

Dischargers including the Non-Industrial Pollutant Demonstration in their Level 2 ERA Technical Report shall have a QISP determine that the sources of non-industrial pollutants in storm water discharges are not from industrial activity or natural background sources within the facility.

Sources of non-industrial pollutants that are discharged separately and are not comingled with storm water associated with industrial activity are not considered subject to this General Permit's requirements. When pollutants from non-industrial sources are comingled with storm water associated with industrial activity, the Discharger is responsible for all the pollutants in the combined discharge unless the technical report clearly demonstrates that the NAL exceedances due to the combined discharge are solely attributable to the non-industrial sources. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. In most cases, the Non-Industrial Pollutant Source Demonstration will contain sampling data and analysis distinguishing the pollutants from non-industrial sources from the pollutants generated by industrial activity.

Once the Level 2 ERA Technical Report, including this demonstration is certified and submitted via SMARTS, the Discharger has satisfied all the requirements necessary for that pollutant for ERA purposes. A Discharger that submits a Non-Industrial Pollutant Demonstration remains with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

iii. Natural Background Pollutant Source Demonstration

The benchmark monitoring schedule in section 6.2.1.2 of the 2008 MSGP allows a Discharger to determine that the exceedance of the benchmark is attributable solely to the presence of that pollutant in the natural background. A Discharger making this determination is not required to perform corrective

action or additional benchmark monitoring providing that the other 2008 MSGP requirements are met. The 2008 MSGP Fact Sheet requires Dischargers to include in the following in the SWPPP: 1) map(s) showing the reference site location, facility, available land cover information, reference site and test site elevation, available geology and soil information for reference and test sites, photographs showing site vegetation, site reconnaissance survey data and records. This General Permit requires this information to be included in the Natural Background Pollutant Source Demonstration in Section XII.D.2.c.

The Natural Background Pollutant Source Demonstration in this General Permit is for a Discharger that can demonstrate that pollutants causing the NAL exceedances are not related to industrial activities conducted at the facility, and are solely attributable to the presence of those pollutants in natural background. The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance. Natural background pollutants include those substances that are naturally occurring in soils or groundwater that have not been disturbed by industrial activities. Natural background pollutants do not include legacy pollutants from earlier activity on a site, or pollutants in run-on from neighboring sources which are not naturally occurring. Dischargers are not required to reduce concentrations for pollutants in the effluent caused by natural background sources if these pollutants concentrations are not increased by industrial activity.

The 2008 MSGP Fact Sheet states that the background concentration of a pollutant in runoff from a non-human impacted reference site in the same watershed must be determined by evaluation of ambient monitoring data or by using information from a peer-reviewed publication or a local, state, or federal government publication specific to runoff or storm water in the immediate region. Studies that are in other geographic areas, or are clearly based on different topographies or soils, are not sufficient to meet this requirement. When such data is not available, and there are no known sources of the pollutant, the background concentration should be assumed to be zero.
In cases where historic monitoring data from a site are used for generating a natural background concentration, and the site is no longer accessible or able to meet reference site acceptability criteria, the Discharger must submit documentation (e.g., historic land use maps) indicating the site did meet reference site criteria (such as indicating the absence of human activity) during the time data collection occurred.

Once the Level 2 ERA Technical Report, including a Natural Background Demonstration meeting the conditions in Section XII.D.2.c of this General Permit is certified and submitted via SMARTS, the Discharger is no longer responsible for the identified background parameters(s) in the corresponding drainage area(s). A Discharger that submits this type of demonstration will

remain with Level 2 status but is not subject to additional ERAs unless directed by the Regional Water Board.

c. Level 2 ERA Implementation Extension

The State Water Board recognizes that there may be circumstances that make implementation of all necessary actions required in the Level 2 ERAs by the permitted due dates infeasible. In such circumstances a Discharger may request additional time by submitting a Level 2 ERA Implementation Extension. The Level 2 ERA Implementation Extension will automatically allow Dischargers up to an additional six (6) months to complete the tasks identified in the Level 2 ERA Action Plans while remaining in compliance with this General Permit. The Level 2 ERA Implementation Extension is subject to Regional Water Board review. If additional time is needed beyond the initial six (6) month extension, a second Level 2 ERA Implementation Extension may be submitted but is not effective unless it is approved by the Water Board.

L. Inactive Mining Operations

Inactive mining sites may need coverage under this General Permit. Inactive mining operations are mining sites, or portions of sites, where mineral mining and/or dressing occurred in the past with an identifiable Discharger (owner or operator), but are no longer actively operating. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials. A Discharger has the option to certify and submit via SMARTS that its inactive mining operations meet the conditions for an Inactive Mining Operation Certification in Section XIII of this General Permit. The Discharger must have a SWPPP for an inactive mine signed (wet signature with license number) by a California licensed professional engineer. The Inactive Mining Operation Certification in this General Permit is in lieu of performing certain identified permit requirements. This General Permit requires an annual inspection of an inactive mining site and an annual re-certification of the SWPPP. Any significant updates to the SWPPP shall be signed (wet signature and license number) by a California license professional engineer. The Discharger must certify and submit via SMARTS any significantly revised SWPPP within 30 days of the revision(s)

M. Compliance Groups and Compliance Group Leaders

Group Monitoring, as defined in the previous permit, has been eliminated in this General Permit and replaced with a new compliance option called Compliance Groups. The Compliance Group option differs from Group Monitoring as it requires (1) all Dischargers participating in a Compliance Group (Compliance Group Participants) sample two QSEs each year, (2) the Compliance Group Leader to inspect each Participant's facility within each reporting year, (3) the Compliance Group Leader must complete a State Water Board sponsored or approved training program for Compliance Group Leaders, and (4) the Compliance Group Leader to prepare Consolidated Level 1 ERA Reports, and individual Level 2 ERA Action Plans and Technical Reports. The Compliance Group option is similar to Group Monitoring as it retains a mechanism that

allows Dischargers of the same industry type to comply with this General Permit through shared resources in a cost saving manner.

This General Permit emphasizes sampling and analysis as a means to evaluate BMP performance and overall compliance, and the significantly reduced sampling requirements previously afforded to Group Monitoring Participants (two samples within a five-year period) does not provide the necessary information to achieve these goals. However, a moderate reduction in sampling requirements is included as an incentive for Compliance Group Participants while concurrently requiring sufficient individual facility sampling data to determine compliance. A Compliance Group Leader is required to provide the necessary sampling training and guidance to the Compliance Group Participants. This additional training requirement will increase sampling data quality that will offset the reduced sampling frequency for Compliance Groups.

Participation in Compliance Groups will provide additional cost savings for Dischargers in the preparation of the Consolidated Level 1 ERA Reports, and for Compliance Group Leader assistance in preparing the Level 2 ERA Action Plans and the individual Level 2 ERA Technical Reports. It is likely that many of the pollutant sources causing NAL exceedances, and the corresponding BMP cost evaluation and selection, when appropriate, will overlap for groups of facilities in a similar industry type. When these overlaps occur, a Compliance Group Leader should be able to more efficiently evaluate the pollutant sources and BMP options, and prepare the necessary reports.

The State Water Board believes that it is necessary for Compliance Group Leaders to have a higher level of industrial storm water compliance and training experience than the expectations of a QISP. Many stakeholder comments on this General Permit suggested various certifications to provide this higher level of experience; however, the State Water Board believes a process similar to the Trainer of Record process for the Construction General Permit training program will develop Compliance Group Leaders with the appropriate level of experience to fulfill the necessary qualifications.

The intent of the Compliance Groups is to have only one or a small number of Compliance Groups per industrial sector. The process for becoming a QISP trainer and/or a Compliance Group Leader is purposely similar to the Construction General Permit trainer of record process for consistency within storm water regulatory leaders. The formal process to qualify to conduct trainings for QISPs and/or to be a Compliance Group Leader will include the submittal of a statement of qualifications for review, a review fee, completion of an exam and training specific to this role. For more information see the Construction General Permit trainer of record process: http://www.casqa.org/TrainingandEducation/ConstructionGeneralPermitTrainingQSDQSPToR/tabid/205/Default.aspx

After the initial Compliance Group registration, Compliance Group Leaders are required to submit and maintain their list of Compliance Group Participants via SMARTS. There are no additional administrative documents required. The previous permit required group leaders to provide annual group evaluation reports and a letter of intent to continue group monitoring. The State Water Board found these items to be resource intensive and placed an unnecessary administrative burden on group leaders. The

Compliance Group requirements in this General Permit reduces the administrative burden on both the Compliance Group Leaders and Water Board staff.

The State Water Board's intent for the effluent data, BMP selection, cost, and performance information, and other industry specific information provided in Compliance Group reports is for evaluation of sector-specific permitting approaches and the use of NALs in the next reissuance of this General Permit.

N. Annual Evaluation

Federal regulations require NPDES industrial storm water Dischargers to evaluate their facility and SWPPP annually. Typically this requires an inspection of the facility to ensure: (1) the SWPPP site map is up to date, (2) control of all potential pollutant sources is included in the SWPPP, and (3) sampling data and visual observation records are used to evaluate if the proper BMPs are being implemented. As Dischargers are required to conduct monthly visual observation that partially overlap with the actions required by the annual evaluation requirements, Dischargers may perform the annual evaluation inspection concurrent with a monthly visual observation.

O. Annual Report

All Dischargers shall certify and submit via SMARTS an Annual Report no later than July 15 following each reporting year. The reporting requirements for this General Permit's Annual Report are streamlined in comparison to the previous permit. The Annual Report now consists of two primary parts: (1) a compliance checklist indicating which permit requirements were completed and which were not (e.g., a Discharger who completes the required sampling of four QSEs during the reporting year, versus a Discharger who is only able to sample two QSEs during the reporting year), and (2) an explanation for items on the compliance checklist that were determined incomplete by the Discharger. Unlike the previous permit, the Annual Report does not require Dischargers to provide the details of each visual observation (such as name of observer, time of observation, observation summary, corrective actions, etc.) or provide the details of the Annual Comprehensive Site Evaluation. Dischargers, however, continue to be required to retain those records and have them available upon request. The Annual Report is further simplified through the immediate electronic reporting via SMARTS of sampling data and copies of the original laboratory reports instead of such information being included in the Annual Report.

P. Conditional Exclusion - No Exposure Certification (NEC) Requirements

This General Permit's conditional exclusion requirements are similar to the requirements provided in 40 C.F.R. section 122.26(g)(3). Clarifications were added in this General Permit, however, to the types of "storm resistant shelters" and the periods when "temporary shelters" may be used in order to avert regulatory confusion. California does not have operating coal power plants, which are a major contributor to acid rain elsewhere in the United States. California does have nonpoint sources or atmospheric deposition that may locally impact the pH of the rain water, however this is

not categorized as acid rain as referred to by the U.S. EPA for the NEC coverage requirements. The No Exposure Guidance Document[15] developed by the U.S. EPA mentions acid rain as a potential source of contaminants to consider for NEC coverage. The acid rain leachate language was not included in this General Permit's Appendix 2 to clarify that Dischargers may qualify for NEC coverage, even if the facility has metal buildings or structures.

The Discharger shall certify and submit complete PRDs for NEC coverage via SMARTS. Based upon the State Water Board's experience with reissuing and implementing the 2009 Construction General Permit, the transition for existing Dischargers to register under this new General Permit is staff resource intensive. The State Water Board staff is available to assist Dischargers requiring assistance with enrolling under this General Permit, both for NOI coverage and NEC coverage. The State Water Board has also experienced that more time is needed for its staff to assist Dischargers registering for NEC coverage. To provide better customer service to all Dischargers, three months have been added to the NEC coverage PRD submittal schedule for new and existing Dischargers (Section II.B.4 of this General Permit, extending the NEC coverage registration date to October 1, 2015.

Dischargers must annually inspect their facility to ensure continued compliance with NEC requirements, and annually re-certify and submit an NEC via SMARTS. Based on its regulatory experience, the State Water Board has determined that a five-year NEC re-certification period is inadequate. A significant percentage of facilities may revise, expand, or relocate their operations in any given year. Furthermore, a significant percentage of facilities experience turnover of staff knowledgeable of the NEC requirements and limitations. Accordingly, the State Water Board believes that annual NEC evaluation and re-certification requirements are appropriate to continually assure adequate program compliance.

Q. Special Requirements - Plastic Materials

Water Code section 13367 requires the Water Boards to implement measures that control discharges of preproduction plastic from point and nonpoint sources. The State Water Board intends to use this General Permit to regulate discharges of preproduction plastics from areas of facilities that are subject to this General Permit. A Regional Water Board may designate facilities, or areas of facilities, that are not otherwise subject to this General Permit, pursuant to Section XIX.F. For example, a Regional Water Board may designate Plastic Materials handling areas of a transportation facility that are not associated with vehicle maintenance as requiring coverage under this General Permit.

Preproduction plastics used by the plastic manufacturing industry are small in size and have the potential to mobilize in storm water. Preproduction plastic washed into storm water drains can move to waters of the United States where it contributes to the growing problem of plastic debris in inland and coastal waters. Water Code section 13367

[15] U.S. EPA. Guidance Manual for Conditional Exclusion from Storm Water Permitting Based On "No Exposure" of Industrial Activities to Storm Water. Web. June 2000. < http://www.epa.gov/npdes/pubs/noxguide.pdf>. [as of January 31, 2014].

outlines five mandatory BMPs that are required for all facilities that handle preproduction plastic. These mandatory BMPs are included in this General Permit.

The State Water Board has received comments regarding the Water Code requirements for Plastics Facilities to install a containment system for on-site storm drain locations that meet 1mm capture and 1-year 1-hour storm flow requirement standards. As a result, this General Permit includes the option under Water Code section 13367 that allows a plastics facility to propose an alternative BMP or suite of BMPs that can meet the same performance and flow requirements as a 1mm capture and 1-year 1-hour storm flow containment system standards. These alternative BMPs are to be submitted to the Regional Water Board for approval. This alternative is intended to allow the facility to develop BMPs that focus on pollution prevention measures that can perform as well as, or better than, the containment system otherwise required by the statute.

The State Water Board also includes two additional containment system alternatives in this General Permit that are considered to be equivalent to, or better than, the 1mm capture and 1-year 1-hour storm flow requirements:

- An alternative allowing plastic facilities to implement a suite of eight BMPs addressing the majority of potential sources of plastic discharges. This suite of BMPs is based on industry and U.S. EPA recommendations and Water Board experience with storm water inspections, violations, and enforcement cases throughout California.

- An alternative allowing a facility to operate in a manner such that all preproduction plastic materials are used indoors and pose no potential threat for discharge off-site. The facility is required to notify the Regional Water Board of the intent to seek this exemption and of any changes to the facility or operations that may disqualify the facility for the exemption. The exemption may be revoked by the Regional Water Board at any time.

Plastics facilities may use preproduction plastic materials that are less than 1mm in size, or produce materials, byproducts, or waste that is smaller than 1mm in size. These small size materials will pass through the 1mm capture containment system required by Water Code section 13367. Plastics facilities with sub-1mm materials must design a containment system to capture the smallest size material onsite with a 1-year 1-hour storm flow requirement, or propose alternative BMPs for Regional Water Board approval that meet the same requirements.

The remaining BMPs required by Water Code section 13367 are consistent with recommendations for handling and clean-up of preproduction plastics in the American Chemistry Council publication, *Operation Clean Sweep* and U.S. EPA's publication *Plastic Pellets in the Aquatic Environment: Sources and Recommendations*. The State Water Board believes that the entire approach in this General Permit for plastic materials is consistent with Water Code section 13367.

R. Regional Water Board Authorities

The Regional Water Boards retain discretionary authority over many issues that may arise from industrial discharges within their respective regions. This General Permit

emphasizes the authority of the Regional Water Boards over specific requirements of this General Permit that do not meet region-specific water quality protection regulatory needs.

S. Special Conditions: Requirements for Dischargers Claiming the "No Discharge" Option in the Notice of Non-Applicability

1. General

   Entities that operate facilities generating storm water associated with industrial activities that is not discharged to waters of the United States are not required to obtain General Permit coverage. Entities that have contacted the Water Boards to inquire what is necessary to avoid permit coverage have received inconsistent guidance. This has resulted in regulatory inconsistency and uncertainty as to whether they are in compliance if their industry operates without General Permit coverage. Depending upon how each Regional Water Board handles "No Discharge" claims, some facilities with advanced containment design may be required to obtain General Permit coverage while other facilities with less advanced containment design may be allowed to operate without General Permit coverage. Some stakeholders have complained that this type of regulatory inconsistency puts some facilities at an economically-competitive disadvantage given the costs associated with permit compliance.

   U.S. EPA regulations do not provide a design standard, definition, or guidance as to what constitutes "No Discharge." Unlike Conditional Exclusion requirements, U.S. EPA regulations do not require an entity to submit technical justification or certification that a facility does not discharge to waters of the United States (U.S.). Therefore entities have previously been allowed to self-determine that their facility does not discharge to water of the U.S. when using any containment design standard. The State Water Board does not have available information showing that most entities have adequately performed hydraulic calculations to determine the frequency of discharge corresponding to their containment controls or have had these hydraulic calculations reviewed or completed by a California licensed professional engineer. Although U.S. EPA makes clear that an unpermitted discharge to waters of the U.S. is a violation of the CWA, this leaves regulatory agencies with the very difficult task of knowing when any given facility discharges in order to carry-out enforcement actions.

   In 1998, the Water Code was amended to require entities who are requested by the Water Boards to obtain General Permit coverage, but that have a valid reason to not obtain General Permit coverage, to submit a Notice of Non-Applicability (NONA). (Wat. Code, § 13399.30, subd. (a)(2)). The NONA covers multiple reasons why an entity is not required to be permitted including (1) facility closure, (2) not the legal owner, (3) incorrect SIC code, (4) eligibility for the Conditional Exclusion (No Exposure Certification), and (5) the facility not discharging to water of the U.S. ("No Discharge"). The previous permit contained definitions, requirements, and guidance that entities may reference to determine whether they are eligible to select any of the first four NONA reasons for not obtaining General Permit coverage. However, neither the previous permit nor the Water Code provide definitions, requirements,

and guidance for entities to determine whether they are eligible to indicate "No Discharge" on the NONA as a reason for not obtaining General Permit coverage.

This General Permit addresses and resolves the issues discussed above by establishing consistent, statewide eligibility requirements in Section XX.C for entities submitting NONAs indicating "No Discharge." When requested by the Water Boards to obtain General Permit coverage, entities must meet these "No Discharge" eligibility requirements or obtain General Permit coverage. The Water Boards retain enforcement authority if a facility subsequently discharges.

2. "No Discharge" Eligibility Requirements

The entity must certify submit in SMARTS a NONA Technical Report signed (wet signature and license number) by a California licensed professional engineer that contains the analysis and details of the containment design supporting the "No Discharge" eligibility determination. Because containment design will require hydraulic calculations, soil permeability analysis, soil stability calculations, appropriate safety factor consideration, and the application of other general engineering principles, state law requires the technical report to be signed (wet signature and license number) by a California licensed professional engineer.

The State Water Board has selected a containment design target that, as properly applied will result in few, if any, discharges. The facility must either be:

a. Engineered and constructed to contain all storm water associated with industrial activities from discharging to waters of the United States. (The determination of what is a water of the United States can be complicated, and in certain circumstances, a discharge to groundwater that has a direct hydrologic connection to waters of the United States may constitute a discharge to a water of the United States.) Dischargers must base their information upon maximum historic precipitation event data (or series of events) from the nearest rain gauges as provided by the National Oceanic and Atmospheric Administration's (NOAA) website, or other nearby precipitation data available from other government agencies. At a minimum, Dischargers must ensure that the containment design addresses maximum 1-hour, 24-hour, weekly, monthly, and annual precipitation data for the duration of the exclusion.

   Design storm events are generally specified as a one-time expected hydraulic failure over a reoccurrence of years for a specified storm event. For example, if a design storm standard is a 100 year 24-hour event, then a facility's containment system designed to contain the maximum volume of water would be expected to fall in 24 hours once every 100 years. Design standards vary dependent upon the regulatory program and the level of protection needed. Since California has considerable variations in climate/topography/soil conditions across the state, the "No Discharge" NONA eligibility requirements have been created so that each facility's containment design can incorporate unique site specific circumstances to meet the requirement that discharges will not occur based upon past historical precipitation data. Facilities that are not designed to not meet the "No Discharge" eligibility requirements must obtain General Permit coverage.

b. Located in basins or other physical locations that are not hydrologically connected to waters of the United States.

   The State Water Board considered allowing Entities to review United States Army Corp of Engineer maps to determine, without a California licensed professional engineer, whether their facility location is within a basin and/or other physical location that is not hydrologically connected to waters of the United States. The State Water Board believes that this determination can be difficult in some cases, or is likely to be performed incorrectly. In addition, there may be areas of the state that are not hydrologically connected to waters of the United States, but are not on United States Army Corps of Engineer maps. Therefore, all "No Discharge" Technical Reports must be signed (wet signature and license number) by a California licensed professional engineer.

3. Additional Considerations

   The "No Discharge" determination does not cover storm water containment systems that transfer industrial pollutants to groundwater. Entities must determine whether designs that incorporate infiltration may discharge to and contaminate groundwater. If there is a threat to groundwater, Entities must contact the Regional Water Boards prior to construction of infiltration design elements.

   Entities that have not eliminated all discharges that are subject to General Permit coverage (NOI Coverage or NEC Coverage) are ineligible to submit NONAs indicating "No Discharge."

ATTACHMENT A

FACILITIES COVERED BY NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES (GENERAL PERMIT)

1. Facilities Subject To Storm Water Effluent Limitations Guidelines, New Source Performance Standards, or Toxic Pollutant Effluent Standards Found in 40 Code of Federal Regulations, Chapter I, Subchapter N (Subchapter N):

   Cement Manufacturing (40 C.F.R. Part 411); Feedlots (40 C.F.R. Part 412); Fertilizer Manufacturing (40 C.F.R. Part 418); Petroleum Refining (40 C.F.R. Part 419), Phosphate Manufacturing (40 C.F.R. Part 422), Steam Electric (40 C.F.R. Part 423), Coal Mining (40 C.F.R. Part 434), Mineral Mining and Processing (40 C.F.R. Part 436), Ore Mining and Dressing (40 C.F.R. Part 440), Asphalt Emulsion (40 C.F.R. Part 443), Landfills (40 C.F.R. Part 445), and Airport Deicing (40 C.F.R. Part 449).

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2. Manufacturing Facilities:

   Facilities with Standard Industrial Classifications (SICs) 20XX through 39XX, 4221 through 4225. (This category combines categories 2 and 10 of the previous general permit.)

3. Oil and Gas/Mining Facilities:

   Facilities classified as SICs 10XX through 14XX, including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 Code of Federal Regulations. 434.11(1) because the performance bond issued to the facility by the appropriate Surface Mining Control and Reclamation Acts authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, by-products, or waste products located on the site of such operations. Inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator. Inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined material; or sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim.

4. Hazardous Waste Treatment, Storage, or Disposal Facilities:

   Hazardous waste treatment, storage, or disposal facilities, including any facility operating under interim status or a general permit under Subtitle C of the Federal Resource, Conservation, and Recovery Act.

5. Landfills, Land Application Sites, and Open Dumps:

   Landfills, land application sites, and open dumps that receive or have received industrial waste from any facility within any other category of this Attachment; including facilities subject to regulation under Subtitle D of the Federal Resource, Conservation, and Recovery Act, and facilities that have accepted wastes from construction activities (construction activities include any clearing, grading, or excavation that results in disturbance).

6. Recycling Facilities:

   Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093.

7. Steam Electric Power Generating Facilities:

   Any facility that generates steam for electric power through the combustion of coal, oil, wood, etc.

8. Transportation Facilities:

   Facilities with SICs 40XX through 45XX (except 4221-25) and 5171 with vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication) or other operations identified under this Permit as associated with industrial activity.

9. Sewage or Wastewater Treatment Works:

   Facilities used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge, that are located within the confines of the facility, with a design flow of one million gallons per day or more, or required to have an approved pretreatment program under 40 Code of Federal Regulations part 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and are not physically located in the confines of the facility, or areas that are in compliance with Section 405 of the Clean Water Act.

ATTACHMENT B

ACRONYM LIST

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

ASBS	Areas of Special Biological Significance
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD	Biochemical Oxygen Demand
BPT	Best Practicable Control Technology Currently Available
CBPELSG	California Board for Professional Engineers, Land Surveyors and Geologists
DWQ	Division of Water Quality
ELGs	Effluent Limitations Guidelines and New Source Performance Standards
ERA	Exceedance Response Action
MS4	Municipal Separate Storm Sewer System
MSGP	Multi Sector General Permit
NAL	Numeric Action Level
NAICS	North American Industrial Classification System
NEC	No Exposure Certification
NEL	Numeric Effluent Limitation
NOI	Notice of Intent
NONA	Notice of Non Applicability
NOT	Notice of Termination
NPDES	National Pollutant Discharge Elimination System
NSPS	New Source Performance Standards
NSWD	Non Storm Water Discharges
O&G	Oil and Grease
PRDs	Permit Registration Documents
QA/QC	Quality Assurance/Quality Control
QISP	Qualified Industrial Storm water Practitioner
QSE	Qualifying Storm Event
SIC	Standard Industrial Classification
SMARTS	Storm Water Multiple Application and Report Tracking System
SWPPP	Storm Water Pollution Prevention Plan
TBEL	Technology Based Effluent Limitation
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TSS	Total Suspended Solids
U.S. EPA	United States Environmental Protection Agency
WDID	Waste Discharge Identification Number
WQBEL	Water Quality Based Effluent Limitation

ATTACHMENT C

GLOSSARY

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

Adoption Date April 1, 2014

Aerial Deposition
Total suspended particulate matter found in the atmosphere as solid particles or liquid droplets. Chemical composition of particulates varies widely, depending on location and time of year. Sources of airborne particulates include but are not limited to: dust, emissions from industrial processes, combustion products from the burning of wood and coal, combustion products associated with motor vehicle or non-road engine exhausts, and reactions to gases in the atmosphere. Deposition is the act of these materials being added to a landform.

Beneficial Uses
As defined in the California Water Code, beneficial uses of the waters of the state that may be protected against quality degradation, include but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

Best Available Technology Economically Achievable (BAT)
As defined by United States Environmental Protection Agency (U.S. EPA), BAT is a technology-based standard established by the Clean Water Act (CWA) as the most appropriate means available on a national basis for controlling the direct discharge of toxic and nonconventional pollutants to navigable waters. The BAT effluent limitations guidelines, in general, represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Best Conventional Pollutant Control Technology (BCT)
As defined by U.S. EPA, BCT is a technology-based standard for the discharge from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), total suspended sediment (TSS), fecal coliform, pH, oil and grease.

Best Professional Judgment (BPJ)
The method used by permit writers to develop technology-based NPDES permits conditions on a case-by-case basis using all reasonably available and relevant data.

GLOSSARY

Best Management Practices (BMPs)
Scheduling of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Chain of Custody
Form used to track sample handling as samples progress from sample collection to the laboratory. The chain of custody is also used to track the resulting analytical data from the laboratory to the client. Chain of custody forms can be obtained from an analytical laboratory upon request.

Debris
Litter, rubble, discarded refuse, and remains of destroyed inorganic anthropogenic waste.

Detected Not Quantifiable
A sample result that is between the Method Detection Limit (MDL) and the Minimum Level (ML).

Discharger
A person, company, agency, or other entity that is the operator of the industrial facility covered by this General Permit.

Drainage Area
The area of land that drains water, sediment, pollutants, and dissolved materials to a common discharge location.

Effective Date
The date, set by the State Water Resources Control Board (State Water Board), when at least one or more of the General Permit requirements take effect and the previous permit expires. This General Permit requires most of the requirements (such as SMARTs submittals, minimum BMPs, sampling and analysis requirements) to take effect on July 15, 2015.

Effluent
Any discharge of water either to the receiving water or beyond the property boundary controlled by the Discharger.

Effluent Limitation
Any numeric or narrative restriction imposed on quantities, discharge rates, and concentrations of pollutants that are discharged from point sources into waters of the United States, waters of the contiguous zone, or the ocean.

GLOSSARY

Erosion
The process by which soil particles are detached and transported by the actions of wind, water or gravity.

Erosion Control BMPs
Vegetation, such as grasses and wildflowers, and other materials, such as straw, fiber, stabilizing emulsion, protective blankets, etc., placed to stabilize areas of disturbed soils, reduce loss of soil due to the action of water or wind, and prevent water pollution.

Facility
A collection of industrial processes discharging storm water associated with industrial activity within the property boundary or operational unit.

Field Measurements
Testing procedures performed in the field with portable field-testing kits or meters.

Good Housekeeping BMPs
BMPs designed to reduce or eliminate the addition of pollutants through analysis of pollutant sources, implementation of proper handling/disposal practices, employee education, and other actions.

Industrial Materials
Includes, but is not limited to: raw materials, recyclable materials, intermediate products, final products, by product, waste products, fuels, materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERLCA); any chemical the facility is required to report pursuant to Section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge and that are used, handled, stored, or disposed in relation to a facility's industrial activity.

Method Detection Limit
The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero.

Minimum Level
The lowest level at which the entire analytical system must give a recognizable signal and acceptable calibration point for the analyte. It is equivalent to the concentration of the lowest calibration standard, assuming that all method-specified sample weights, volumes, and cleanup procedures have been employed.

Monitoring Implementation Plan
Planning document included in the Storm Water Pollution Prevention Plan (SWPPP). Dischargers are required to record information on the implementation of the monitoring requirements in this General Permit. The MIP should include relevant information on:

the Monthly Visual Observation schedule, Sampling Parameters, Representative Sampling Reduction, Sample Frequency Reduction, and Qualified Combined Samples.

Monitoring Requirements
Includes sampling and analysis activities as well as visual observations.

Natural Background
Pollutants including substances that are naturally occurring in soils or groundwater. Natural background pollutants do not include legacy pollutants from previous activity at a facility, or pollutants in run-on from neighboring sources which are not naturally occurring.

New Discharge(r)
A facility from which there is a discharge, that did not commence the discharge at a particular site prior to August 13, 1979, which is not a new source as defined in 40 Code of Federal Regulations 122.29, and which has never received a finally effective NPDES permit for discharges at that site. See 40 Code of Federal Regulations 122.2.

Numeric Action Level (NAL) Exceedance
Annual NAL exceedance - the Discharger shall determine the average concentration for each parameter using the results of all the sampling and analytical results for the entire facility for the reporting year (i.e., all "effluent" data) and compare this to the corresponding Annual NAL values in Table 2. For Dischargers using composite sampling or flow measurement in accordance with standard practices, the average concentrations shall be calculated in accordance with the U.S. EPA Guidance Manual for the Monitoring and Reporting Requirements of the NPDES Multi-Sector Storm Water General Permit.[1] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value for that parameter listed in Table 2 (or is outside the NAL pH range);

Instantaneous maximum NAL exceedance - the Discharger shall compare all sampling and analytical results from each distinct sample (individual or composite) to the corresponding Instantaneous maximum NAL values in Table 2. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (for TSS and O&G), or are outside of the instantaneous maximum NAL range (for pH).

Non Detect
Sample result is less than Method Detection Limit; Analyte being tested cannot be detected by the equipment or method.

[1] U.S. EPA. NPDES Storm Water Sampling Guidance Document. <http://www.epa.gov/npdes/pubs/owm0093.pdf >. [as of July 3, 2013]

Non-Storm Water Discharges (NSWDs)
Discharges that do not originate from precipitation events. Including but not limited to, discharges of process water, air conditioner condensate, non-contact cooling water, vehicle wash water, sanitary wastes, concrete washout water, paint wash water, irrigation water, or pipe testing water.

Numeric Action Level (NAL)
Pollutant concentration levels used to evaluate if best management practices are effective and if additional measures are necessary to control pollutants. NALs are not effluent limits. The exceedance of an NAL is not a permit violation.

Operator
In the context of storm water associated with industrial activity, any party associated with an industrial facility that meets either of the following two criteria:

a. The party has operational control over the industrial SWPPP and SWPPP specifications, including the ability to make modifications to those plans and specifications

b. The party has day-to-day operational control of activities at the facility which are necessary to ensure compliance with a SWPPP for the facility or other permit conditions (e.g., authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions).

pH
Unit universally used to express the intensity of the acid or alkaline condition of a water sample. The pH of natural waters tends to range between 6.0 and 9.0, with neutral being 7.0.

Plastic Materials
Plastic Materials are virgin and recycled plastic resin pellets, powders, flakes, powdered additives, regrind, dust, and other similar types of preproduction plastics with the potential to discharge or migrate off-site.

Qualified Industrial Storm Water Practitioner (QISP)
Only required once a Discharger reaches Level 1 status, a QISP is the individual assigned to ensure compliance with this General Permit or to assist New Dischargers with determining coverage eligibility for discharges to an impaired water body. A QISP's responsibilities include implementing the SWPPP, performing the Annual Comprehensive Facility Compliance Evaluation (Annual Evaluation), assisting in the preparation of Annual Reports, performing ERAs, and training appropriate Pollution Prevention Team members. The individual must take the appropriate state approved or sponsored training to be qualified. Dischargers shall ensure that the designated QISP is geographically located in an area where they will be able to adequately perform the permit requirements at all of the facilities they represent.

Qualifying Storm Event (QSE)
A precipitation event that:

a. Produces a discharge for at least one drainage area; and
b. Is preceded by 48 hours with no discharge from any drainage area.

Regional Water Board
Includes the Executive Officer and delegated Regional Water Board staff.

Runoff Control BMPs
Measures used to divert run-on from offsite and runoff within the site.

Run-on
Discharges that originate offsite and flow onto the property of a separate facility or property or, discharges that originate onsite from areas not related to industrial activities and flow onto areas on the property with industrial activity.

Scheduled Facility Operating Hours
The time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

Sediment
Solid particulate matter, both mineral and organic, that is in suspension, is being transported, or has been moved from its origin by air, water, gravity, or ice and has come to rest on the earth's surface either above or below sea level.

Sedimentation
Process of deposition of suspended matter carried by water, wastewater, or other liquids that flow by gravity. Control of sedimentation is accomplished by reducing the velocity of the liquid below the point at which it can transport the suspended material.

Sediment Control BMPs
Practices that trap soil particles after they have been eroded by rain, flowing water, or wind. Includes those practices that intercept and slow or detain the flow of storm water to allow sediment to settle and be trapped (i.e., silt fence, sediment basin, fiber rolls, etc.).

Sheet Flow
Flow of water that occurs overland in areas where there are no defined channels and where the water spreads out over a large area at a uniform depth.

Source
Any facility or building, property, road, or area that causes or contributes to pollutants in storm water.

Storm Water
Storm water runoff, snowmelt runoff, and storm water surface runoff and drainage.

Storm Water Discharge Associated With Industrial Activity
The discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant as identified in Attachment A of this General Permit. The term does not include discharges from facilities or activities excluded from the NPDES program. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials; manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process wastewaters (as defined at 40 C.F.R. section 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 C.F.R. section 122.

Material handling activities include the: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities listed in this paragraph) include those facilities designated under 40 C.F.R. section122.26(a)(1)(v).

Structural Controls
Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution.

Total Suspended Solids (TSS)
The measure of the suspended solids in a water sample including inorganic substances such as soil particles, organic substances such as algae, aquatic plant/animal waste, and particles related to industrial/sewage waste, etc. The TSS test measures the concentration of suspended solids in water by measuring the dry weight of a solid material contained in a known volume of a sub-sample of a collected water sample. Results are reported in mg/L.

Toxicity
The adverse response(s) of organisms to chemicals or physical agents ranging from mortality to physiological responses, such as impaired reproduction or growth anomalies.

Trade Secret
Information, including a formula, pattern, compilation, program, device, method, technique, or process, that: (1) derives independent economic value, actual or potential, from not being generally known to the public or to other persons who can obtain economic value from its disclosure or use; and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.

Turbidity
The cloudiness of water quantified by the degree to which light traveling through a water column is scattered by the suspended organic and inorganic particles it contains. The turbidity test is reported in Nephelometric Turbidity Units (NTU) or Jackson Turbidity Units (JTU).

Waters of the United States
Generally refers to surface waters, as defined for the purposes of the federal Clean Water Act.

Water Quality Objectives
Defined in the California Water Code as limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

Water Quality Standards
Consists of beneficial uses, water quality objectives to protect those uses, an antidegradation policy, and policies for implementation. Water quality standards are established in Regional Water Quality Control Plans (Basin Plans) and statewide Water Quality Control Plans. U.S. EPA has also adopted water quality criteria (the same as objectives) for California in the National Toxics Rule and California Toxics Rule.

ATTACHMENT D

PERMIT REGISTRATION DOCUMENTS (PRDs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

This Attachment provides an example of the information Dischargers are required to submit in the PRDs via the Storm Water Multiple Application and Report Tracking System (SMARTS). The actual PRD requirements are in Section II of this General Permit.

A. Who Must Submit PRDs

All Dischargers that operate facilities as described in Attachment A of this General Permit are subject to either Notice of Intent (NOI) or No Exposure Certification (NEC) Coverage and shall comply with the PRD requirements in this General Permit.

B. Who Is Not Required to Submit PRDs

Dischargers that operate facilities described below are not required to submit PRDs:

1. Facilities that are not described in Attachment A;

2. Facilities that are described in Attachment A but do not have discharges of storm water associated with industrial activity to waters of the United States; or,

3. Facilities that are already covered by an NPDES permit for discharges of storm water associated with industrial activity.

C. Annual Fees for NOI and NEC Coverage

Annual Fees for NOI and NEC coverage are established through regulations adopted by the State Water Board and are subject to change (see California Code of Regulations, title 23, section 2200 et seq.).

D. When and How to Apply

Dischargers proposing to conduct industrial activities subject to this General Permit must electronically certify and submit PRDs via the Storm Water Multiple Application

Reporting and Tracking System (SMARTS)[1] no less than seven (7) days prior to the commencement of industrial activity. Existing Dischargers must submit PRDs for NOI coverage by July 1, 2015 or for NEC coverage by October 1, 2015.

E. PRD Requirements for NOI Coverage

1. Notice of Intent (NOI) and Signed Electronic Authorization Form.

2. Site Map (Section X.E of this General Permit).

3. Storm Water Pollution Prevention Plan (see Section X of this General Permit).

F. Description of PRDs for NOI Coverage

1. The Notice of Intent (NOI) requires the following information:

   a. Operator/Owner Information

      Operator/Owner Company or Organization Name
      Contact First Name
      Contact Last Name
      Title
      Street Address
      Address Line 2
      City/State/Zip
      Phone (e.g. 999-999-9999)
      E-mail (e.g. abc@xyz.com)
      Federal Tax ID

   b. Facility Information

      Facility Name
      WDID Number (if applicable)
      Contact First Name
      Contact Last Name
      Title
      Street Address
      Address Line 2
      City
      County
      Phone (e.g. 999-999-9999)

[1] The State Water Board has developed the SMARTS online database system to handle registration and reporting under this General Permit. More information regarding SMARTS and access to the database is available online at <https://smarts.waterboards.ca.gov>. [as of June 26, 2013].

Emergency Phone (e.g. 999-999-9999)
E-mail (abc@xyz.com)
State/Zip CA
Total Site Size (Acres)
Latitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
Longitude (Decimal degrees only, minimum 5 significant digits, e.g. 99.99999)
Total Percentage Site Imperviousness Area of Facility (Acres)
Total Areas of Industrial Activities and Materials Exposed to Precipitation
Primary SIC Code
Secondary SIC Code
Tertiary SIC Code
Regional Water Board

c. Billing Information

Billing Name
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City/State/Zip
Phone (e.g. 999-999-9999)
E-mail (e.g. abc@xyz.com)

d. Receiving Water Information

Does your facility's storm water flow directly or indirectly into waters of the US such as river, lake, ocean, etc. (check box for directly or indirectly)

i. Indirectly to waters of the US

ii. Storm drain system - Enter owner's name:

iii. Directly to waters of the US (e.g., river, lake, creek, stream, bay, ocean, etc.)

iv. Name of the receiving water: _____

2. The Site Map(s) shall include the following Information:

   a. The facility boundary;

   b. Storm water drainage areas within the facility boundary;

   c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;

   d. On-facility surface water bodies;

   e. Areas of soil erosion;

   f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);

   g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized Non-Storm Water Discharges (NSWDs);

   h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;

   i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);

   j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

   k. Locations where materials are directly exposed to precipitation;

   l. Locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;

   m. Areas of industrial activity subject to this General Permit;

   n. All storage areas and storage tanks;

   o. Shipping and receiving areas;

   p. Fueling areas;

q. Vehicle and equipment storage/maintenance areas;

r. Material handling and processing areas;

s. Waste treatment and disposal areas;

t. Dust or particulate generating areas;

u. Cleaning and material reuse areas; and,

v. Any other areas of industrial activity which may have potential pollutant sources.

3. The Storm Water Pollution Prevention Plan (SWPPP) must be prepared in accordance with Section X of this General Permit.

4. A NOI Certification by the Discharger that all PRDs submitted are correct and true.

5. SMARTS Electronic Authorization Form (Signed by any user authorized to certify and submit data electronically).

G. PRD Requirements for NEC Coverage

1. No Exposure Certification and Signed Electronic Authorization Form.

2. No Exposure Certification Checklist Consistent with Requirements in Section XVII.F.2 of this General Permit.

3. Current Site Map Consistent with Requirements in Section X.E of this General Permit.

H. Description of PRDs for NEC Coverage

1. The No Exposure Certification requires the following information:

   a. Operator/Owner Information

      Operator/Owner Name
      Contact First Name
      Contact Last Name
      Title

Street Address
Address Line 2
City/State/Zip
Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
Federal Tax ID

b. Facility Information

Facility Name
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City
County
Phone Ex (999-999-9999)
Emergency Phone Ex (999-999-9999)
E-mail (abc@xyz.com)
State/Zip CA
Total Site Size (Acres)
Latitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Longitude (Decimal degrees only, minimum 5 significant digits, Ex 99.99999)
Percent of Site Imperviousness (%)
Primary SIC Code
Secondary SIC Code
Tertiary SIC Code
Regional Water Board

c. Billing Information

Billing Name (if different than Operator/Owner)
Contact First Name
Contact Last Name
Title
Street Address
Address Line 2
City/State/Zip
Phone E.g. (999-999-9999)
E-mail (e.g. abc@xyz.com)

d. SMARTS Electronic Authorization Form - Signed by any user authorized to certify and submit data electronically.

e. Certification by the Discharger that all PRDs submitted are correct and true and that the conditions of no-exposure have been met.

2. The NEC Checklist (Section XVII.F.2 of this General Permit) must be prepared to demonstrate that, based upon a facility inspection and evaluation, none of the following industrial materials or activities are, or will be in the foreseeable future, exposed to precipitation:

   a. Activities such as using, storing, or cleaning industrial machinery or equipment, and areas with materials or residuals from these activities;

   b. Materials or residuals on the ground or in storm water inlets from spills/leaks;

   c. Materials or products from past industrial activity;

   d. Material handling equipment (except adequately maintained vehicles);

   e. Materials or products during loading/unloading or transporting activities;

   f. Materials or products stored outdoors (except final products intended for outside use, e.g., new cars, where exposure to storm water does not result in the discharge of pollutants);

   g. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

   h. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;

   i. Waste material (except waste in covered, non-leaking containers, e.g., dumpsters). Application or disposal of processed wastewater (unless already covered by an NPDES permit); and,

   j. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

3. The Site Map(s) shall include the following information (see Section X.E of this General Permit):

   a. The facility boundary;

   b. Storm water drainage areas within the facility boundary;

   c. Portions of any drainage area impacted by discharges from surrounding areas and flow direction of each drainage area;

d. On-facility surface water bodies;

e. Areas of soil erosion;

f. Location(s) of nearby water bodies (such as rivers, lakes, wetlands, etc.);

g. Location(s) of municipal storm drain inlets that may receive the facility's industrial storm water discharges and authorized NSWDs;

h. Locations of storm water collection and conveyance systems and associated points of discharge, and direction of flow;

i. Any structural control measures (that affect industrial storm water discharges, authorized NSWDs, and run-on);

j. All impervious areas of the facility, including paved areas, buildings, covered storage areas, or other roofed structures;

k. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks identified (Section X.G.1.d of this General Permit) have occurred;

l. Areas of industrial activity subject to this General Permit;

m. All storage areas and storage tanks;

n. Shipping and receiving areas;

o. Fueling areas;

p. Vehicle and equipment storage/maintenance areas;

q. Material handling and processing areas;

r. Waste treatment and disposal areas;

s. Dust or particulate generating areas;

t. Cleaning and material reuse areas; and,

u. Any other areas of industrial activity which may have potential pollutant sources.

PERMIT REGISTRATION DOCUMENTS (PRDS)

I. Obtaining Coverage

To obtain coverage under this General Permit PRDs must be included and completed. If any of the required items are missing, the PRD submittal is considered incomplete and will be rejected. Upon receipt of a complete PRD submittal, the State Water Board will process the application package in the order received and assign a (WDID) number.

J. Additional Information

The Water Board may require the submittal of additional information in SMARTS if required to determine the appropriate fee for the facility as specified by the fee regulations.

K. Questions

If you have any questions on completing the PRDs or about SMARTS, please email stormwater@waterboards.ca.gov or call (866) 563-3107.

ATTACHMENT E

LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO INDUSTRIAL STORM WATER DISCHARGERS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The following table contains a list of Regional Water Board adopted and/or U.S. EPA established/approved TMDLs, as of the adoption date of this General Permit, that are applicable to industrial storm water Dischargers. TMDLs adopted/established after the effective date of the General Permit may, at the Water Boards discretion, be included in this General Permit. This General Permit may be reopened to amend TMDL-specific permit requirements in this Attachment E, or to incorporate new TMDLs adopted during the term of this General Permit that include requirements applicable to Dischargers covered by this General Permit.

Water Body	Pollutant
San Francisco Bay Regional Water Quality Control Board	
Napa River	Sediment
Sonoma Creek	Sediment
Los Angeles Regional Water Quality Control Board	
Santa Clara River Reach 3	Chloride
Santa Clara River	Nutrients
Los Angeles River	Metals
Los Angeles River	Nutrients
San Gabriel River	Metals and Selenium
Santa Monica Bay	Nearshore Debris
Machado Lake	Nutrient
Harbor Beaches of Ventura	Bacteria
Ballona Creek	Metals
Ballona Creek Estuary	Toxic Pollutants
Los Angeles Harbor	Bacteria
Marina del Rey Back Basins	Bacteria
Santa Clara River	Bacteria
Walker Creek,	Mercury
Oxnard Drain No. 3	Pesticides, PCBs[1] and Sediment Toxicity
Long Beach City Beaches and Los Angeles River Estuary	Indicator Bacteria
Los Angeles and Long Beach Harbors	Toxic and Metals

[1] Polychlorinated biphenyls

LIST OF TOTAL MAXIMUM DAILY LOADS (TMDLS) APPLICABLE TO INDUSTRIAL STORM WATER DISCHARGERS

Los Angeles Area Lakes	Nitrogen, Phosphorus, Mercury, Trash, Organochlorine Pesticides and PCBs
Santa Monica Bay	DDTs and PCBs
Machado Lake	Toxics
Colorado Lagoon	Pesticides, Polycyclic aromatic hydrocarbons, PCBs, and Metals
Calleguas Creek Watershed	Salts
Calleguas Creek Watershed	Metals and Selenium
Ballona Creek, Ballona Estuary, and Sepulveda Channel	Bacteria
Marina Del Rey Harbor-Back Basins	Copper, Lead, Zinc, and Chlordane, and Total PCBs
Los Cerritos Channel	Metals
Santa Ana Regional Water Quality Control Board	
San Diego Creek and Newport Bay	Toxic Pollutants
San Diego Regional Water Quality Control Board	
Chollas Creek	Diazinon
Chollas Creek	Copper, Lead, and Zinc
Los Peñasquitos Lagoon	Sediment
Rainbow Creek	Total Nitrogen and Total Phosphorus
Shelter Island Yacht Basin	Dissolved Copper
Baby Beach in Dana Point Harbor and Shelter Island Shoreline Park in SD Bay	Indicator Bacteria
Twenty Beaches and Creeks	Indicator Bacteria

ATTACHMENT F

EFFLUENT LIMITATION GUIDELINES (ELGs)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The following Parts of federal regulations at 40 Code of Federal Regulations Chapter I Subchapter N (Subchapter N) contain ELGs approved by US EPA for specific categories of industrial storm water discharges:

Point Source Category	ELGs[1]
Part 411 - Cement Manufacturing	411.pdf
Part 418 - Fertilizer Manufacturing	418.pdf
Part 419 - Petroleum Refining	419.pdf
Part 422 - Phosphate Manufacturing	422.pdf
Part 423 - Steam Electric Power Generating	423.pdf

[1] The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

Point Source Category	ELGs[2]
Part 429 - Wetting of logs at wet deck storage areas	429.pdf
Part 434 - Coal Mining	434.pdf
Part 436 - Mineral Mining And Processing	436.pdf
Part 440 - Ore Mining And Dressing	440.pdf
Part 443 - Paving And Roofing Materials (Tars And Asphalt)	443.pdf
Part 445 - Landfills	445.pdf
Part 449 - Airport Deicing	449.pdf

2 The applicable ELGs are attached to this Attachment F. To view the attachments from an electronic (pdf) version of this Attachment F, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icons of the attached pdf files. The attachments are also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (www.waterboards.ca.gov).

EFFLUENT LIMITATION GUIDELINES (ELGs)

New Source Performance Standards

New source performance standards (NSPS) represent the best available demonstrated control technology standards. US EPA has established NSPS guidelines for the industries found in the Table below. The intent of NSPS guidelines is to set effluent limitations that represent state-of-the-art treatment technology for new sources.[3]

Table 1 - Storm Water Specific NSPS Effluent Limitation Guidelines

Regulated Discharge	40 CFR Section	Multi Sector General Permit Sector	NSPS	Date New Source Data Established
Discharge resulting from spray down or intentional wetting of logs as wet deck storage areas	Part 429, Subpart I	A	Yes	1/26/81
Runoff from phosphate fertilizer manufacturing facilities that comes into contact with any raw materials, finished products, by-products or waste products (SIC 2874)	Part 418, Subpart A	C	Yes	4/8/74
Runoff from asphalt emulsion facilities	Part 443, Subpart A	D	Yes	7/28/75
Runoff from materials storage piles at cement manufacturing facilities	Part 411, Subpart C	E	Yes	2/20/74
Mine dewatering discharges at crushed stone, construction sand and gravel, or industrial sand mining facilities	Part 436, Subparts B, C, D	J	No	N/A
Runoff from hazardous waste and non-hazardous waste landfills	Part 445, Subparts A and B	K, L	Yes	2/2/00
Runoff from coal storage piles at steam electric generating facilities	Part 423	O	Yes	11/19/82 & 10/8/74
Discharges from primary airports with over 1,000 annual jet departures that conduct deicing operations.	Part 449, Subpart A	S	Yes	NA

[3] New source means any building, structure, facility, or installation from which there is or may be a "discharge of pollutants," the construction of which commenced: (1) After promulgation of standards of performance under section 306 of CWA which are applicable to such source, or (2) After proposal of standards of performance in accordance with section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with section 306 within 120 days of their proposal as defined in 40 C.F.R section 122.26.

ATTACHMENT G

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED
WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

A. Areas of Special Biological Significance (ASBS)

1. ASBS are defined in the California Ocean Plan as "those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable."

2. The California Ocean Plan prohibits the discharge of waste to ASBS.

3. The California Ocean Plan authorizes the State Water Board to grant an exception to Ocean Plan provisions where the board determines that the exception will not compromise protection of ocean waters for beneficial uses and the public interest will be served.

4. On March 20, 2012, the State Water Board adopted Resolution 2012-0012 (amended by Resolution 2012-0031 on June 19, 2012) which contained a general exception to the California Ocean Plan for discharges of storm water and non-point sources (ASBS Exception). This resolution also contains the Special Protections that are to be implemented for direct discharges to ASBS. Resolution 2012-0012 is hereby incorporated by reference and its requirements must be complied with by industrial storm water Dischargers discharging directly to ASBS.

5. This General Permit requires Dischargers who have been granted an Ocean Plan exception for discharges to ASBS to comply with the requirements contained in the Special Protections. These requirements are contained below.

B. ASBS Non-Storm Water Discharges

1. The term "ASBS Non-Storm Water Discharges" means any waste discharges from a municipal separate storm sewer system (MS4) or other NPDES permitted storm drain system to an ASBS that are not comprised entirely of storm water.

2. Only the following ASBS Non-Storm Water Discharges are allowed, provided that the discharges are essential for emergency response purposes, structural stability, slope stability or occur naturally:

a. Discharges associated with emergency fire fighting operations.

b. Foundation and footing drains.

c. Water from crawl space or basement pumps.

d. Hillside dewatering.

e. Naturally occurring groundwater seepage via a storm drain.

f. Non-anthropogenic flows from a naturally occurring stream via a culvert or storm drain, as long as there are no contributions of anthropogenic runoff.

3. Authorized ASBS Non- Storm Water Discharges shall not cause or contribute to a violation of the water quality objectives in Chapter II of the Ocean Plan nor alter natural ocean water quality in an ASBS.

4. At the San Clemente Island ASBS, discharges incidental to military training and research, development, test, and evaluation operations are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed in the two military closure areas in the vicinity of Wilson Cove and Castle Rock. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

5. At the San Nicolas Island and Begg Rock ASBS, discharges incidental to military research, development, testing, and evaluation of, and training with, guided missile and other weapons systems, fleet training exercises, small-scale amphibious warfare training, and special warfare training are allowed. Discharges incidental to underwater demolition and other in-water explosions are not allowed. Discharges must not result in a violation of the water quality objectives, including the protection of the marine aquatic life beneficial use, anywhere in the ASBS.

C. ASBS Compliance Plan

1. State Water Board Resolution 2012-0012 grants an exception to the Ocean Plan's prohibition on discharges to ASBS (ASBS Exception) to applicants who were identified as Dischargers of industrial storm water to ASBS (ASBS Dischargers). Each ASBS Discharger shall specifically address the prohibition of ASBS Non-Storm Water Discharges and the requirement to maintain natural water quality for industrial storm water discharges to an ASBS in an ASBS Compliance Plan to be included in the ASBS Discharger's SWPPP. The ASBS Compliance Plan is subject to approval by the Executive Director of the State Water Board. The ASBS Compliance Plan shall include:

a. A map of surface drainage of storm water runoff, showing areas of sheet runoff and priority discharges, and a description of any structural Best Management Practices (BMPs) already employed and/or BMPs to be employed in the future. Priority discharges are those that pose the greatest water quality threat and which are identified as requiring installation of structural BMPs. The map shall also show the storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion, and waste and hazardous material storage areas, if applicable. The SWPPP shall also include a procedure for updating the map and plan when changes are made to the storm water conveyance facilities.

b. A description of the measures by which all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flows) has been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented.

c. A description of how pollutant reductions in storm water runoff, that are necessary to comply with these special conditions, will be achieved through BMPs. Structural BMPs need not be installed if the Discharger can document to the satisfaction of the Executive Director that such installation would pose a threat to health or safety. BMPs to control storm water runoff discharges (at the end-of-pipe) during a design storm shall be designed to achieve on average the following target levels:

   1) Table B Instantaneous Maximum Water Quality Objectives in Chapter II of the Ocean Plan; or

   2) A 90% reduction in pollutant loading during storm events, for the applicant's total discharges.

      The baseline date for the reduction is March 20, 2012 (the effective date of the ASBS Exception), except for those structural BMPs installed between January 1, 2005 and the adoption of these special protections. The reductions must be achieved and documented by March 20, 2018.

d. A description of how the ASBS Discharger will address erosion and the prevention of anthropogenic sedimentation in the ASBS. The natural habitat conditions in the ASBS shall not be altered as a result of anthropogenic sedimentation.

e. A description of the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. The ASBS Compliance Plan shall also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an

implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, ASBS Dischargers must first consider using LID practices to infiltrate, use, or evapotranspiration storm water runoff on-site. The BMPs and implementation schedule shall be designed to ensure that natural water quality conditions in the receiving water are achieved and maintained by either reducing flows from impervious surfaces or reducing pollutant loading, or some combination thereof.

D. Reporting

If the results of the receiving water monitoring described in Section F. below (Sampling and Analysis Requirements) indicate that the storm water runoff is causing or contributing to an alteration of natural ocean water quality in the ASBS, the ASBS Discharger shall submit a report to the State Water Board within 30 days of receiving the results.

1. The report shall identify the constituents in storm water runoff that alter natural ocean water quality and the sources of these constituents.

2. The report shall describe BMPs that are currently being implemented, BMPs that are identified in the SWPPP for future implementation, and any additional BMPs that may be added to the SWPPP to address the alteration of natural water quality. The report shall include a new or modified implementation schedule for the BMPs.

3. Within 30 days of the approval of the report by the Executive Director, the ASBS Discharger shall revise its ASBS Compliance Plan to incorporate any new or modified BMPs that have been or will be implemented, the implementation schedule, and any additional monitoring required.

4. As long as the ASBS Discharger has complied with the procedures described above and is implementing the revised SWPPP, the Discharger does not have to repeat the same procedure for continuing or recurring exceedances of natural ocean water quality conditions due to the same constituent.

5. Compliance with this section does not excuse violations of any term, prohibition, or special condition contained in the Special Protections of the ASBS Exception.

E. Compliance Schedule

1. As of March 20, 2012, all unauthorized ASBS Non-Storm Water Discharges (e.g., dry weather flow) were effectively prohibited.

2. By September 20, 2013, the Discharger shall submit a draft written ASBS Compliance Plan to the Executive Director that describes its strategy to comply with these special conditions, including the requirement to maintain natural water

quality in the affected ASBS. The ASBS Compliance Plan shall include a description of appropriate non-structural controls and a time schedule to implement structural controls (implementation schedule) to comply with these special conditions for inclusion in the Discharger's SWPPP.

3. By September 20, 2014, the Discharger shall submit the final ASBS Compliance Plan, including a description and final schedule for structural controls based on the results of runoff and receiving water monitoring.

4. By September 20, 2013, any non-structural controls that are necessary to comply with these special conditions shall be implemented.

5. By March 20, 2018, any structural controls identified in the ASBS Compliance Plan that are necessary to comply with these special conditions shall be operational.

6. By March 20, 2018, all Dischargers must comply with the requirement that their discharges into the affected ASBS maintain natural ocean water quality. If the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the Discharger must re-sample the receiving water, pre- and post-storm. If after re-sampling the post-storm levels are still higher than the 85th percentile threshold of reference water quality data, and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is exceeded. See Flowchart at the end of this Attachment.

7. The Executive Director may only authorize additional time to comply with the special conditions 5 and 6, above if good cause exists to do so. Good cause means a physical impossibility or lack of funding

   If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in 5. or 6. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of these requirements. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality.

   The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

a. for municipalities, a demonstration of significant hardship to Discharger ratepayers, by showing the relationship of storm water fees to annual household income for residents within the Discharger's jurisdictional area, and the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate; or

b. for other governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

F. Additional Requirements – Waterfront and Marine Operations

In addition to the above provisions, a Discharger with waterfront and marine operations shall comply with the following:

1. For discharges related to waterfront and marine operations, the Discharger shall develop a Waterfront and Marine Operations Management Plan (Waterfront Plan). This plan shall contain appropriate Management Measures/Practices to address nonpoint source pollutant discharges to the affected ASBS.

   a. The Waterfront Plan shall contain appropriate Management Measures/Practices for any waste discharges associated with the operation and maintenance of vessels, moorings, piers, launch ramps, and cleaning stations in order to ensure that beneficial uses are protected and natural water quality is maintained in the affected ASBS.

   b. For discharges from marinas and recreational boating activities, the Waterfront Plan shall include appropriate Management Measures, described in The Plan for California's Nonpoint Source Pollution Control Program, for marinas and recreational boating, or equivalent practices, to ensure that nonpoint source pollutant discharges do not alter natural water quality in the affected ASBS.

   c. The Waterfront Plan shall include Management Practices to address public education and outreach to ensure that the public is adequately informed that waste discharges to the affected ASBS are prohibited or limited by special conditions in these Special Protections. The management practices shall include appropriate signage, or similar measures, to inform the public of the ASBS restrictions and to identify the ASBS boundaries.

   d. The Waterfront Plan shall include Management Practices to address the prohibition against trash discharges to ASBS. The Management Practices shall include the provision of adequate trash receptacles for marine recreation areas, including parking areas, launch ramps, and docks. The plan shall also include appropriate Management Practices to ensure that the receptacles are

adequately maintained and secured in order to prevent trash discharges into the ASBS. Appropriate Management Practices include covering the trash receptacles to prevent trash from being windblown, staking or securing the trash receptacles so they don't tip over, and periodically emptying the receptacles to prevent overflow.

e. The Discharger shall submit its Waterfront Plan to the State Water Board Executive Director by September 20, 2012. The Waterfront Plan is subject to approval by the State Water Board Executive Director. The plan must be fully implemented within by September 20, 2013.

2. The discharge of chlorine, soaps, petroleum, other chemical contaminants, trash, fish offal, or human sewage to ASBS is prohibited. Sinks and fish cleaning stations are point source discharges of wastes and are prohibited from discharging into ASBS. Anthropogenic accumulations of discarded fouling organisms on the sea floor must be minimized.

3. Limited-term activities, such as the repair, renovation, or maintenance of waterfront facilities, including, but not limited to, piers, docks, moorings, and breakwaters, are authorized only in accordance with Chapter III.E.2 of the Ocean Plan.

4. If the Discharger anticipates that the Discharger will fail to fully implement the approved Waterfront Plan within the 18 month deadline, the Discharger shall submit a technical report as soon as practicable to the Executive Director. The technical report shall contain reasons for failing to meet the deadline and propose a revised schedule to fully implement the plan.

5. The State Water Board may, for good cause, authorize additional time to comply with the Waterfront Plan. Good cause means a physical impossibility or lack of funding.

   If a Discharger claims physical impossibility, it shall notify the Board in writing within thirty (30) days of the date that the Discharger first knew of the event or circumstance that caused or would cause it to fail to meet the deadline in Section F.1.e above. The notice shall describe the reason for the noncompliance or anticipated noncompliance and specifically refer to this Section of this Attachment. It shall describe the anticipated length of time the delay in compliance may persist, the cause or causes of the delay as well as measures to minimize the impact of the delay on water quality, the measures taken or to be taken by the Discharger to prevent or minimize the delay, the schedule by which the measures will be implemented, and the anticipated date of compliance. The Discharger shall adopt all reasonable measures to avoid and minimize such delays and their impact on water quality. The Discharger may request an extension of time for compliance based on lack of funding. The request for an extension shall require:

a. a demonstration of significant hardship by showing that the Discharger has made timely and complete applications for all available bond and grant funding, and either no bond or grant funding is available, or bond and/or grant funding is inadequate.

b. for governmental agencies, a demonstration and documentation of a good faith effort to acquire funding through that agency's budgetary process, and a demonstration that funding was unavailable or inadequate.

G. Sampling and Analysis Requirements

1. Monitoring is mandatory for all ASBS Dischargers to assure compliance with the Ocean Plan. Monitoring requirements include both: (1) Core Discharge Monitoring and (2) Ocean Receiving Water Monitoring (see Sections H. and I. below). The State and Regional Water Boards must approve sampling site locations and any adjustments to the monitoring programs. All ocean receiving water and reference area monitoring must be comparable with the Water Boards' Surface Water Ambient Monitoring Program (SWAMP).

2. Safety concerns: Sample locations and sampling periods must be determined considering safety issues. Sampling may be postponed upon notifying the Executive Director that hazardous conditions prevail.

3. Analytical Chemistry Methods: All constituents must be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, must be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

H. Core Discharge Monitoring Program

1. General sampling requirements for timing and storm size:

   Runoff must be collected during a storm event that is greater than 0.1 inch and generates runoff, and at least 72 hours from the previously measurable storm event. Runoff samples shall be collected during the same storm and at approximately the same time when post-storm receiving water is sampled, and analyzed for the same constituents as receiving water and reference site samples as described in Section I. below.

2. Runoff flow measurements

   a. For industrial storm water outfalls in existence as of December 31, 2007, 18 inches (457mm) or greater in diameter/width (including multiple outfall pipes in combination having a width of 18 inches, runoff flows must be

measured or calculated, using a method acceptable to and approved by the Executive Director.

b. This will be reported annually for each precipitation season to the Executive Director.

3. Runoff samples – storm events

a. For outfalls equal to or greater than 18 inches (0.46m) in diameter or width: 1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and 2) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

b. For outfalls equal to or greater than 36 inches (0.91m) in diameter or width:

1) samples of storm water runoff shall be collected during the same storm as receiving water samples and analyzed for oil and grease, total suspended solids, and, if within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination; and

2) samples of storm water runoff shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates); and

3) samples of storm water runoff shall be collected and analyzed for critical life stage chronic toxicity (one invertebrate or algal species) at least once during each storm season when receiving water is sampled in the ASBS.

4) if an ASBS Discharger has no outfall greater than 36 inches, then storm water runoff from the applicant's largest outfall shall be further collected during the same storm as receiving water samples and analyzed for Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan polynuclear aromatic hydrocarbons (PAHs), current use pesticides (pyrethroids and OP pesticides), and nutrients (ammonia, nitrate and phosphates).

c. For an applicant not participating in a regional integrated monitoring program [see below in Section I.3.] in addition to the sampling requirements in Section H.3.a. and b. above, a minimum of the two largest outfalls or 20 percent of the

larger outfalls, whichever is greater, shall be sampled (flow weighted composite samples) at least three times annually during wet weather (storm event) and analyzed for all Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end of this Attachment) for marine aquatic life protection (except for toxicity, only chronic toxicity for three species shall be required), DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, and Ocean Plan indicator bacteria. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one (the largest) such discharge shall be sampled annually in each Region.

d. The Executive Director may reduce or suspend core monitoring once the storm runoff is fully characterized. This determination may be made at any point after the discharge is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

I. Ocean Receiving Water and Reference Area Monitoring Program

1. In addition to performing the Core Discharge Monitoring Program in Section H. above, all ASBS Dischargers must perform ocean receiving water monitoring. In order to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS, ASBS Dischargers may choose either (1) an individual monitoring program, or (2) participation in a regional integrated monitoring program.

2. Individual Monitoring Program: The requirements listed below are for those ASBS Dischargers who elect to perform an individual monitoring program to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within the affected ASBS. In addition to Core Discharge Monitoring, the following additional monitoring requirements shall be met:

   a. Three times annually, during wet weather (storm events), the receiving water at the point of discharge from the outfalls described in Section H.3. above shall be sampled and analyzed for Ocean Plan Table A constituents, Table B constituents (Table A and B constituents are provided at the end if this Attachment) for marine aquatic life, DDT, PCBs, Ocean Plan PAHs, OP pesticides, pyrethroids, nitrates, phosphates, salinity, chronic toxicity (three species), and Ocean Plan indicator bacteria.

      The sample location for the ocean receiving water shall be in the surf zone at the point of discharges; this must be at the same location where storm water runoff is sampled. Receiving water shall be sampled prior to (pre-storm), and during (or immediately after) the same storm (post-storm). Post-storm sampling shall be during the same storm and at approximately the same time as when the runoff is sampled. Reference water quality shall also be

sampled three times annually and analyzed for the same constituents pre-storm and post-storm, during the same storm seasons when receiving water is sampled. Reference stations will be determined by the State Water Board's Division of Water Quality and the applicable Regional Water Board(s).

b. Sediment sampling shall occur at least three times during every five (5) year period. The subtidal sediment (sand or finer, if present) at the discharge shall be sampled and analyzed for Ocean Plan Table B constituents (provided at the end of this Attachment) for marine aquatic life, DDT, PCBs, PAHs, pyrethroids, and OP pesticides. For sediment toxicity testing, only an acute toxicity test using the amphipod Eohaustorius estuarius must be performed.

c. A quantitative survey of intertidal benthic marine life shall be performed at the discharge and at a reference site. The survey shall be performed at least once every five (5) year period. The survey design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The results of the survey shall be completed and submitted to the State Water Board and Regional Water Board at least six months prior to the end of the permit cycle.

d. Once during each five (5) year period, a bioaccumulation study shall be conducted to determine the concentrations of metals and synthetic organic pollutants at representative discharge sites and at representative reference sites. The study design is subject to approval by the Regional Water Board and the State Water Board's Division of Water Quality. The bioaccumulation study may include California mussels (Mytilus californianus) and/or sand crabs (Emerita analoga or Blepharipoda occidentalis). Based on the study results, the Regional Water Board and the State Water Board's Division of Water Quality, may adjust the study design in subsequent permits, or add or modify additional test organisms (such as shore crabs or fish), or modify the study design appropriate for the area and best available sensitive measures of contaminant exposure.

e. Marine Debris: Representative quantitative observations for trash by type and source shall be performed along the coast of the ASBS within the influence of the ASBS Discharger's outfalls. The design, including locations and frequency, of the marine debris observations is subject to approval by the Regional Water Board and State Water Board's Division of Water Quality.

f. The monitoring requirements of the Individual Monitoring Program in this Section are minimum requirements. After a minimum of one (1) year of continuous water quality monitoring of the discharges and ocean receiving waters, the Executive Director of the State Water Board may require additional monitoring, or adjust, reduce or suspend receiving water and reference station monitoring. This determination may be made at any point

after the discharge and receiving water is fully characterized, but is best made after the monitoring results from the first permit cycle are assessed.

3. Regional Integrated Monitoring Program: ASBS Dischargers may elect to participate in a regional integrated monitoring program, in lieu of an individual monitoring program, to fulfill the requirements for monitoring the physical, chemical, and biological characteristics of the ocean receiving waters within their ASBS. This regional approach shall characterize natural water quality, pre- and post-storm, in ocean reference areas near the mouths of identified open space watersheds and the effects of the discharges on natural water quality (physical, chemical, and toxicity) in the ASBS receiving waters, and should include benthic marine aquatic life and bioaccumulation components. The design of the ASBS stratum of a regional integrated monitoring program may deviate from the otherwise prescribed individual monitoring approach (in Section I.2.) if approved by the State Water Board's Division of Water Quality and the Regional Water Boards.

   a. Ocean reference areas shall be located at the drainages of flowing watersheds with minimal development (in no instance more than 10% development), and shall not be located in CWA Section 303(d) listed waterbodies or have tributaries that are 303(d) listed. Reference areas shall be free of wastewater discharges and anthropogenic non-storm water runoff. A minimum of low threat storm runoff discharges (e.g. stream highway overpasses and campgrounds) may be allowed on a case-by-case basis. Reference areas shall be located in the same region as the ASBS receiving water monitoring occurs. The reference areas for each Region are subject to approval by the participants in the regional integrated monitoring program, the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean reference water samples must be collected from each station, each from a separate storm during the same storm season that receiving water is sampled. A minimum of one reference location shall be sampled for each ASBS receiving water site sampled per responsible party. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

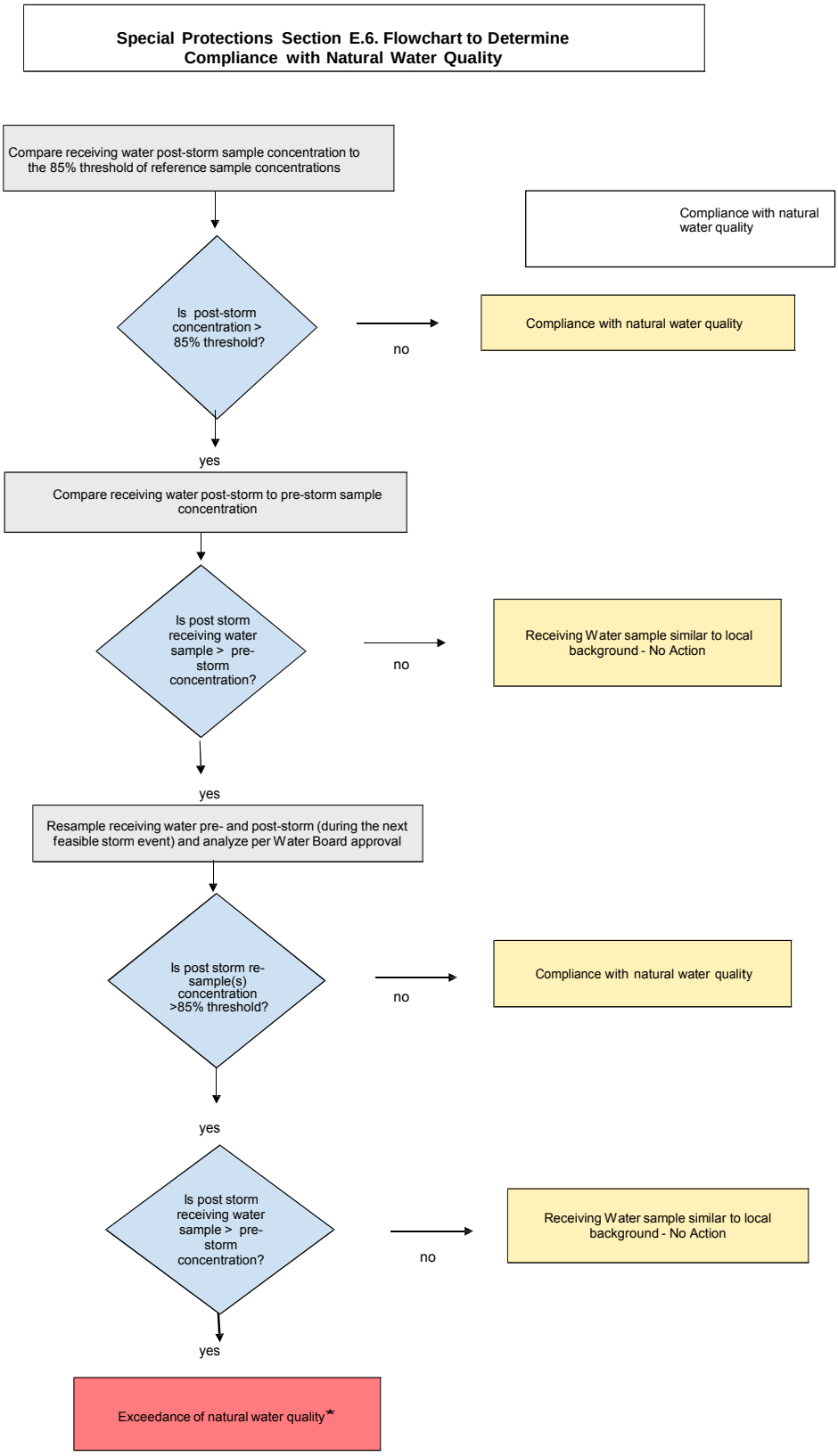
   b. ASBS ocean receiving water must be sampled in the surf zone at the location where the runoff makes contact with ocean water (i.e. at "point zero"). Ocean receiving water stations must be representative of worst-case discharge conditions (i.e. co-located at a large drain greater than 36 inches, or if drains greater than 36 inches are not present in the ASBS then the largest drain greater than18 inches.) Ocean receiving water stations are subject to approval by the participants in the regional monitoring program and the State Water Board's Division of Water Quality and the applicable Regional Water Board(s). A minimum of three ocean receiving water samples must be collected during each storm season from each station, each from a separate

storm. A minimum of one receiving water location shall be sampled in each ASBS per responsible party in that ASBS. For parties discharging to ASBS in more than one Regional Water Board region, at a minimum, one reference station and one receiving water station shall be sampled in each region.

c. Reference and receiving water sampling shall commence during the first full storm season following the adoption of these special conditions, and post-storm samples shall be collected during the same storm event when storm water runoff is sampled. Sampling shall occur in a minimum of two storm seasons. For those ASBS Dischargers that have already participated in the Southern California Bight 2008 ASBS regional monitoring effort, sampling may be limited to only one storm season.

d. Receiving water and reference samples shall be analyzed for the same constituents as storm water runoff samples. At a minimum, constituents to be sampled and analyzed in reference and discharge receiving waters must include oil and grease, total suspended solids, Ocean Plan Table B metals (provided at the end of this Attachment) for protection of marine life, Ocean Plan PAHs, pyrethroids, OP pesticides, ammonia, nitrate, phosphates, and critical life stage chronic toxicity for three species. In addition, within the range of the southern sea otter, indicator bacteria or some other measure of fecal contamination shall be analyzed.

REQUIREMENTS FOR DISCHARGERS WHO HAVE BEEN GRANTED AN OCEAN PLAN EXCEPTION FOR DISCHARGES TO ASBS



* When an exceedance of natural water quality occurs, the Discharger must comply with Section D. Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.

ASBS Monitoring

TABLE A
Monitoring Constituent List
(excerpted from California Ocean Plan dated 2009)

Constituent	Units
Grease and Oil	mg/L
Suspended Solids	Mg/L
Settleable Solids	mL/L
Turbidity	NTU
PH	

TABLE B
Monitoring Constituent List
(Excerpted from California Ocean Plan dated 2009)

Constituent	Units
Arsenic	µg/L
Cadmium	µg/L
Chromium	µg/L
Copper	µg/L
Lead	µg/L
Mercury	µg/L
Nickel	µg/L
Selenium	µg/L
Silver	µg/L
Zinc	µg/L
Cyanide	µg/L
Total Chlorine Residual	µg/L
Ammonia (as N)	µg/L
Acute Toxicity	TUa
Chronic Toxicity	TUc
Phenolic Compounds (non-chlorinated)	µg/L
Chlorinated Phenolics	µg/L
Endosulfan	µg/L
Endrin	µg/L
HCH	µg/L

Analytical Chemistry Methods: All constituents shall be analyzed using the lowest minimum detection limits comparable to the Ocean Plan water quality objectives. For metal analysis, all samples, including storm water effluent, reference samples, and ocean receiving water samples, shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry) described in the Ocean Plan.

ATTACHMENT H

SAMPLE COLLECTION AND HANDLING INSTRUCTIONS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

For more detailed guidance, Dischargers should refer to the U.S. EPA's "Industrial Stormwater Monitoring and Sampling Guide," dated March 2009, available at: http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf and the "NPDES Storm Water Sampling Guidance Document," dated July 1992, available at: http://www.epa.gov/npdes/pubs/owm0093.pdf .

1. Identify the sampling parameters required to be tested and the number of storm water discharge points that will be sampled. Request the analytical testing laboratory to provide the appropriate number and type of sample containers, sample container labels, blank chain of custody forms, and sample preservation instructions.

2. Determine how samples will be transported to the laboratory. The testing laboratory should receive samples within 48 hours of the physical sampling (unless otherwise required by the laboratory). The Discharger may either deliver the samples to the laboratory, arrange for the laboratory to pick up the samples, or overnight ship the samples to the laboratory. All sample analysis shall be done in accordance with 40 Code of Federal Regulations part 136. Samples for pH have a holding time of 15 minutes.[1]

3. Qualified Combined Samples shall be combined by the laboratory and not by the Discharger. Sample bottles must be appropriately labeled to instruct the laboratory on which samples to combine.

4. Unless the Discharger can provide flow weighted information, all combined samples shall be volume weighted.

5. For grab samples, use only the sample containers provided by the laboratory to collect and store samples. Use of any other type of containers may contaminate samples.

6. For automatic samplers that are not compatible with bottles provided by the laboratory, the Discharger is required to send the sample container included with the automatic sampler to the laboratory for analysis.

[1] 40 C.F.R. section 136.3, Table II - Required Containers, Preservation Techniques, and Holding Times.

7. The Discharger can only use automatic sampling device to sample parameters that the device is designed to. For pH, Dischargers can only use automatic sampling devices with the ability to read pH within 15 minutes of sample collection.

8. The Discharger is prohibited from using an automatic sampling device for Oil and Grease, unless the automatic sampling device is specifically designed to sample for Oil and Grease.

9. To prevent contamination, do not touch inside of sample container or cap or put anything into the sample containers before collecting storm water samples.

10. Do not overfill sample containers. Overfilling can change the analytical results.

11. Tightly screw on the cap of each sample container without stripping the threads of the cap.

12. Complete and attach a label for each sample container. The label shall identify the date and time of sample collection, the person taking the sample, and the sample collection location or discharge point. The label should also identify any sample containers that have been preserved.

13. Carefully pack sample containers into an ice chest or refrigerator to prevent breakage and maintain temperature during shipment. Remember to place frozen ice packs into shipping containers. Samples should be kept as close to 4 degrees Celsius (39 degrees Fahrenheit) as possible until arriving to the laboratory. Do not freeze samples.

14. Complete a Chain of Custody form for each set of samples. The Chain of Custody form shall include the Discharger's name, address, and phone number, identification of each sample container and sample collection point, person collecting the samples, the date and time each sample container was filled, and the analysis that is required for each sample container.

15. Upon shipping/delivering the sample containers, obtain both the signatures of the persons relinquishing and receiving the sample containers.

16. Dischargers shall designate and train personnel to collect, maintain, and ship samples in accordance with the sample protocols and laboratory practices.

17. Refer to Table 1 in the General Permit for test methods, detection limits, and reporting units.

18. All sampling and sample preservation shall be in accordance with 40 Code of Federal Regulations part 136 and the current edition of "Standard Methods for

the Examination of Water and Wastewater" (American Public Health Association). All monitoring instruments and equipment (including Discharger field instruments for measuring pH or specific conductance if identified as an additional sampling parameter) shall be calibrated and maintained in accordance with manufacturers' specifications to ensure accurate measurements. All laboratory analyses shall be conducted according to approved test procedures under 40 Code of Federal Regulations part 136, unless other test procedures have been specified by the Regional Water Quality Control Board. All metals shall be reported as total metals. Dischargers may conduct their own field analysis of pH (or specific conductance if identified as an additional sampling parameter) if the Discharger has sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform the field analysis. With the exception of field analysis conducted by Dischargers for pH (or specific conductance if identified as an additional sampling parameter), all analyses shall be sent to and conducted at a laboratory certified for such analyses by the California Department of Public Health. Dischargers are required to report to the Water Board any sampling data collected more frequently than required in this General Permit (Section XXI.J.2)

APPENDIX 1

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

NATIONAL POLLUTION DISCHARGE ELIMINTATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

FACILITY NAME:_____

Waste Discharge Identification (WDID) #:_____

	FACILITY CONTACT	Consultant/Qualified Industrial Storm Water Practitioner (QISP)
Name		
Title		
Company		
Street Address		
City, State		
Zip		

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification (Section II.A)			
Pollution Prevention Team (Section X.D.1)			
Existing Facility Plans (Section X.D.2)			
Site Map(s) (Section X.E)			
Facility boundaries (Section X.E.3.a)			
Drainage areas (Section X.E.3.a)			
Direction of flow (Section X.E.3.a)			
On-facility water bodies (Section X.E.3.a)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Areas of soil erosion (Section X.E.3.a)			
Nearby water bodies (Section X.E.3.a)			
Municipal storm drain inlets (Section X.E.3.a)			
Points of discharge (Section X.E.3.b)			
Sampling Locations (Section X.E.3.b)			
Structural control measures (Section X.E.3.c)			
Impervious areas (Section X.E.3.d)			
Location of Directly Exposed Materials (Section X.E.3.e)			
Locations of significant spills and leaks (Section X.E.3.e)			
Areas of Industrial Activity (Section X.E.3.f)			
Areas of industrial activity (Section X.E.3.f)			
Storage areas/storage tanks (Section X.E.3.f)			
Shipping and receiving areas (Section X.E.3.f)			
Fueling areas (Section X.E.3.f)			
Vehicle and equipment storage/maintenance (Section X.E.3.f)			
Material handling/processing (Section X.E.3.f)			
Waste treatment/disposal (Section X.E.3.f)			
Dust or particulate generation (Section X.E.3.f)			
Cleaning and material reuse (Section X.E.3.f)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Other areas of industrial activities (Section X.E.3.f)			
List of Industrial Materials (Section X.F)			
Storage location			
Quantity			
Frequency			
Receiving and shipping location			
Quantity			
Frequency			
Handling location			
Quantity			
Frequency			
Potential Pollution Sources (Section X.G)			
Description of Potential Pollution Sources (Section X.G.1)			
Industrial processes (Section X.G.1.a)			
Material handling and storage areas (Section X.G.1.b)			
Dust & particulate generating activities (Section X.G.1.c)			
Significant spills and leaks (Section X.G.1.d)			
Non-storm water discharges (Section X.G.1.e)			
Erodible surfaces (Section X.G.1.f)			
Assessment of Potential Pollutant Sources (Section X.G.2)			
Narrative assessment of likely sources of pollutants (Section X.G.2.a)			
Narrative assessment of likely pollutants present in storm water discharges (Section X.G.2.a)			
Identification of additional BMPs Section X.G.2.b)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Identification of drainage areas with no exposure (Section X.G.2.c)			
Identification of additional parameters (Section X.G.2.d)			
Storm Water Best Management Practices (Section X.H)			
Minimum BMPs (Section X.H.1)			
Good housekeeping (Section X.H.1.a)			
Preventative maintenance (Section X.H.1.b)			
Spill response (Section X.H.1.c)			
Material handling and waste management (Section X.H.1.d)			
Erosion and sediment controls (Section X.H.1.e)			
Employee training program (Section X.H.1.f)			
Quality assurance and record keeping (Section X.H.1.g)			
Advanced BMPs (Section X.H.2)			
Implement advanced BMPs at the facility (Section X.H.2.a)			
Exposure Minimization BMPs (Section X.H.2.b.i)			
Storm Water containment and discharge reduction BMPS (Section X.H.2.b.ii)			
Treatment Control BMPs (Section X.H.2.b.iii)			
Other advance BMPs (Section X.H.2.b.iv)			
Temporary Suspension of Activities (Section X.H.3)			
BMPs necessary for stabilization of the facility (Section X.H.3)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
BMP Descriptions (Section X.H.4)			
Pollutant that a BMP reduces or prevents (Section X.H.4.a.i)			
Frequency of BMP implementation (Section X.H.4.a.ii)			
Location of BMP (Section X.H.4.a.iii)			
Person implementing BMP (Section X.H.4.a.iv)			
Procedures/maintenance/ instructions for BMP implementation (Section X.H.4.a.v)			
Equipment and tools for BMP implementation (Section X.H.4.a.vi)			
BMPs needing more frequent inspections (Section X.H.4.a.vii)			
Minimum BMP/applicable advanced BMPs not implemented at the facility (Section X.H.4.b)			
BMPs implemented in lieu of minimum or applicable advanced BMPs (Section X.H.4.c)			
BMP Summary Table (Section X.H.5)			
Monitoring Implementation Plan (Section X.I)			
Team members assisting in developing the MIP (Section X.I.1)			
Summary of visual observation procedures, locations, and details (Section X.I.2)			
Justifications if applicable for: Alternative discharge locations, Representative Sampling Reduction or, Qualified Combined Samples (Section X.I.3)			
Procedures for field instrument calibration (Section X.I.4)			

STORM WATER POLLUTION PREVENTION PLAN (SWPPP) CHECKLIST

SWPPP (General Permit Section)	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Example of Chain of Custody (Section X.I.5)			
Annual Comprehensive Facility Compliance Evaluation (Section XV)			
Review of all visual inspection and monitoring records and sampling and analysis results conducted during the previous reporting year (Section XV.A)			
Visual inspection of all areas of industrial activity and associated potential pollutant sources (Section XV.B)			
Visual inspection of all drainage areas previously identified as having no-exposure to industrial activities and materials in accordance with the definitions in Section XVII (Section XV.C)			
Visual inspection of equipment needed to implement the BMPs (Section XV.D)			
Visual inspection of any structural and/or treatment control BMPs (Section XV.E)			
Review and assessment of all BMPs for each area of industrial activity and associated potential pollutant sources (Section XV.F)			
Assessment of other factors needed to complete the information described in Section XVI.B (Section XV.G)			

APPENDIX 2

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES

(GENERAL PERMIT)

This Attachment provides general guidance instructions and guidance for obtaining NEC coverage. The actual NEC requirements are primarily contained in Section XVII of this General Permit.

A. INSTRUCTIONS:

Who May File for NEC Coverage

Sections 301 and 402(p) of the Clean Water Act (CWA), and Sections 1311 and 1342(p) of 33 United States Code prohibit the discharge of storm water associated with industrial activity to waters of the United States without a National Pollutant Discharge Elimination System (NPDES) permit. However, NPDES permit coverage is "conditionally excluded" for discharges of storm water associated with industrial activities (industrial storm water discharges) if the Discharger can certify that a condition of "No Exposure" exists at the industrial facility. A condition of "No Exposure" means that a Discharger's industrial activities and materials are not exposed to storm water. Industrial storm water discharges from construction and land disturbance activities are ineligible for the NEC coverage. Dischargers who file valid NECs in accordance with these instructions are not required to implement Best Available Technology Economically Achievable /Best Conventional Pollutant Control Technology and comply with the Storm Water Pollution Prevention Plan (SWPPP) and monitoring requirements of this General Permit.

Obtaining and Maintaining NEC Coverage

A Discharger must electronically certify and submit NEC Permit Registration Documents (PRDs) via State Water Resources Control Board's (State Water Board's) Storm Water Multi-Application and Report Tracking System (SMARTS) to obtain NEC coverage. This conditional exclusion does not become effective until the PRDs are submitted and the annual fee is paid. Upon receipt of the annual fee, the Discharger will electronically receive an NEC acceptance notification via SMARTS, which will include a Waste Discharge Identification (WDID) number. A Discharger must maintain a condition of "No Exposure" at the facility for the conditional exclusion to remain applicable. The Discharger must annually electronically re-certify the NEC via SMARTS to confirm that the conditions of "no exposure" are being maintained. If conditions change resulting in the exposure of materials and activities to storm water, the Discharger must electronically certify and submit PRDs via SMARTS for Notice of Intent (NOI) coverage under the General Permit for Storm Water Discharges Associated with Industrial Activities (General Permit).

Fees

First time NEC coverage PRDs and the annual re-certification require a fee. Fees may be changed by State Water Board regulation, independent of this General Permit.

How to Prepare and Submit PRDs for NEC Coverage

A Discharger must electronically certify and submit PRDs for NEC coverage in accordance with the instructions provided at the State Water Board web site for SMARTS:

https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp

A Discharger with multiple facilities that satisfy the conditions of "No Exposure" must certify and submit PRDs for each facility. The Discharger is required to inspect and evaluate each individual facility to determine the condition of No-Exposure. The Discharger must retain an electronic or paper copy of the NEC coverage acceptance notification for their records.

The following information is required in the PRDs:

Discharger Information

1. The legal business name of the business entity, public organization, or any other entity that operates the facility described in the certification. The name of the operator may or may not be the same as the name of the facility. The operator is the legal entity that controls the facility operations, not the plant or site manager.

2. The mailing address of the facility operator, including the city, state, and zip code.

3. The facility operator contact person, telephone number and e-mail address.

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

Facility Information

4. The legal business name of the facility.

5. The total acreage of the facility associated with industrial activity. (Facility size in acres is calculated by taking the square feet and dividing by 43,560.)

6. The complete physical street address (e.g. the street address used for express deliveries), including the city, State, and zip code. Do not use a P.O. Box number. If a physical street address does not exist, describe the location or provide the latitude and longitude of a point within the facility boundary. Latitude and longitude are available from United States Geological Survey quadrangle or topographic maps, or may be found using a mapping site on the internet.

7. The facility contact person, telephone number, and e-mail address.

8. The 4-digit Standard Industrial Classification (SIC) code that represents the facility primary industrial activity. Provide a brief description of the primary industrial activity. If applicable, enter other significant SIC codes and descriptions. To obtain these codes, see the 1987 SIC Manual or the Occupational Health and Safety Administration's site:

   http://www.osha.gov/pls/imis/sicsearch.html

9. If the facility is currently covered under the General Permit, include the WDID number. The WDID number will be used at a later date to terminate the facility's coverage under the General Permit as necessary.

Facility Mailing or Billing Address

Completion of this item is required the facility mailing address or billing address differs from the physical facility address provided above. The Discharger must indicate which address the annual fee invoice must be sent to if the State Water Board is unable to transmit the invoice electronically.

Site Maps

Site maps must be prepared and submitted in accordance with the requirements in Section X.E of this General Permit.

NEC Checklist

The Discharger must evaluate the eleven major areas that storm water exposure may occur, per the listing at the end of this appendix. The Discharger must be able to certify that none of these major areas have potential for exposure. If the Discharger cannot certify that every one of the eleven major areas do not have exposure, a potential for exposure exists at the facility and the facility is not eligible for NEC coverage. The Discharger must obtain (or continue) NOI coverage under this General Permit if the facility is not eligible for NEC coverage. After obtaining NOI coverage, the Discharger may implement facility modifications to eliminate the potential for a discharge of storm water exposed to industrial activity, and then change their NOI coverage to NEC coverage by certifying the conditions of "No Exposure" are met.

Certification

Federal and state statutes provide for severe penalties for Dischargers that submit false information on the PRDs. Dischargers shall certify and submit PRDs via SMARTS for NEC coverage in accordance with Electronic Signature and Certification Requirements in Section XXI.K of this General Permit.

B. GUIDANCE:

Contact your local Regional Water Quality Control Board (Regional Water Board) office with questions regarding this guidance.

1. Who is Eligible to Qualify for the No Exposure Certification (NEC) - Conditional Exclusion?

All industrial categories listed in Attachment A of this General Permit (excluding construction) are eligible to apply for the NEC coverage.

2. Limitations on Eligibility for NEC coverage

In addition to construction projects not being eligible, the following situations limit the applicability of NEC coverage:

a. NEC coverage is available on a facility-wide basis only, not for individual drainage areas or discharge locations. Generally, if any exposed industrial materials or activities exist, or have a potential to exist, anywhere at a facility, NEC coverage is not applicable to the facility. If the Regional Water Board determines that a facility does have exposure or the facility's storm water discharges have a reasonable potential to cause or contribute to an exceedance of applicable water quality objectives/standards, the Regional Water Board can deny NEC coverage.

b. If changes at a facility result in potential exposure of industrial activities or materials, the facility is no longer eligible for NEC coverage. Dischargers

shall register for NOI coverage under this General Permit prior to a planned facility change that will cause exposure, or within seven (7) calendar days after unplanned exposure occurs. If an unplanned exposure occurs due to an emergency response or one-time event that is unlikely to re-occur, a Discharger may contact the Regional Water Board to discuss whether the requirement to obtain NOI coverage can be waived. Unless the Discharger receives a written waiver from the Regional Water Board, the Discharger shall electronically certify and submit PRDs to obtain NOI coverage.

c. Current contamination resulting from historic industrial practices at the facility (e.g., soil contamination, groundwater contamination, etc.) represents a condition of exposure to waters of the United State; therefore a facility with historic contamination is not eligible for NEC coverage.

3. What is the Definition of No Exposure?

a. No Exposure means all industrial materials and activities are protected by a storm-resistant shelter to prevent exposure to rain, snow, snowmelt and/or runoff.

b. Industrial materials and activities include, but are not limited to, material-handling equipment or activities; industrial machinery; raw materials, intermediate products, by-products, and final products; or waste products.

c. Material handling activities include storage, loading and unloading, transport, or conveyance of any raw material, intermediate product, by-product, final product, or waste product.

d. Final products intended to be used outdoors (e.g., automobiles) typically pose little risk of polluting storm water since not typically contaminated with pollutants that become mobilized by contact with storm water. Final products are exempt from the requirement for protection by a storm-resistant shelter to qualify for no exposure. Similarly, containers, racks, and other transport platforms (e.g., wooden pallets) used for the storage or conveyance of final products may also be stored outside if pollutant-free or pollutants do not mobilize via contact with storm water.

e. Storm-resistant shelters include: (1) completely roofed and walled buildings or structures, (2) structures with only a top cover (no side coverings) supported by permanent supports, provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.) or being tracked out of the facility, and is not a source of pollutants in the industrial storm water discharges.

4. Industrial Materials/Activities Not Requiring a Storm-Resistant Shelter

The intent of the "No Exposure" exclusion is to maintain a condition of permanent "No Exposure". A storm-resistant shelter is not required for the following industrial materials and activities:

a. Drums, Barrels, Tanks, and Similar Containers that are sealed ("sealed" means banded or otherwise secured and without operational taps or valves), are not exposed provided those containers are not deteriorated, do not contain residual materials on the outside surfaces, and do not leak. Drums, barrels, etc., that are not opened while outdoors, or are not deteriorated or leaking, and that do not pose a risk of contaminating storm water runoff. Consider the following when making a "No Exposure" determination:

i. Materials shall not be added or withdrawn to/from containers while outdoors

ii. Simply moving containers while outside does not create exposure unless exposure occurs when pollutants are "tracked out" by the container handling equipment or vehicles.

iii. All outdoor containers shall be inspected to ensure they are not open, deteriorated, or leaking. When an outdoor container is observed as opened, deteriorated, or leaking, the container must immediately be closed, replaced, or sheltered. Frequent detection of open, deteriorated, or leaking containers, or failure to immediately close, replace, or shelter opened, deteriorated or leaking containers will cause a condition of exposure.

iv. Containers, racks, and other transport platforms (e.g., wooden pallets) used with drums, barrels, etc., can be stored outside providing they are contaminant-free and in good repair.

b. Above Ground Storage Tanks (ASTs) In addition to generally being considered as not exposed, ASTs may also be exempt from the prohibition against adding or withdrawing material to/from external containers. ASTs typically use transfer valves to dispense materials that support facility operations (e.g., heating oil, propane, butane, chemical feedstock) or fuel for delivery vehicles (gasoline, diesel, compressed natural gas). For operational

ASTs to qualify for "No Exposure", the following must be satisfied:

i. The tank(s) shall be physically separated from and not associated with vehicle maintenance operations.

ii. There shall be no leaks from piping, pumps, or other equipment that has the potential to come in contact with storm water.

iii. Wherever feasible, the tank(s) shall have secondary containment (e.g., an impervious dike, berm or concrete retaining structure) to prevent runoff in the event of a structural failure or leaking transfer valve. Note: any resulting unpermitted discharge is in violation of the CWA.

c. Lidded Dumpsters. Lidded dumpsters containing waste materials, providing the containers are completely covered and nothing can drain out holes in the bottom, spilled when loaded into the dumpster, or spilled in loading into a garbage truck. Industrial waste materials and trash that is stored uncovered is considered exposed.

d. Adequately maintained vehicles, such as trucks, automobiles, forklifts, trailers or other general-purpose vehicles found onsite - but not industrial machinery that are not leaking, are in good repair or are not otherwise a potential source of contaminants:

i. Vehicles passing between buildings may be exposed to storm water, however if the vehicles are adequately maintained, a condition of exposure may not exist. Similarly, non-leaking vehicles awaiting maintenance at vehicle maintenance facilities are not considered as potential exposure. However, vehicles that have been washed or rinsed that are not completely dry prior to outside exposure have the potential to cause a condition of exposure. Vehicles that track materials out of the facility are considered to be mobilizing pollutants. Vehicles that exit maintenance bays are also considered to cause exposure.

ii. The mere conveyance between buildings of materials / products that are otherwise not allowed to be stored outdoors, does not create a condition of exposure, provided the materials/products are adequately protected from storm water and do not have the potential to be released as a result of a leak or spill.

e. Final products built and intended for use outdoors (e.g., new cars), provided the final products have not deteriorated, are not contaminated, or are not otherwise potential sources of contaminants.

Types of final products not qualifying for a certification of "No Exposure":

i. Products that may be mobilized in storm water discharges (e.g., rock salt).

ii. Products, which may, when exposed, oxidize, deteriorate, leak, or otherwise be a potential source of contaminants (e.g., junk cars, stockpiled train rails).

iii. "Final" products that are, in actuality, "intermediate" products. Intermediate products are those used in the composition of yet another product (i.e., sheet metal, tubing, and paint used in making tractors).

iv. Even if the intermediate product is "final" for a manufacturer and destined for incorporation in a "final product intended for use outdoors," the product is not allowed to be exposed because they may be chemically treated or are insufficiently impervious to weathering.

f. Special Conditions for Construction Activities
Permanent, uninterrupted sheltering of industrial activities or materials may not always be possible during facility renovation or construction. When such circumstances exist, the Discharger is not required to obtain coverage under an NPDES permit as long as the following conditions are met:

i. Materials and activities are protected with temporary covers or shelters (i.e. tarpaulins);

ii. Temporary covers or shelters prevent the contact of storm water to materials and activities;

iii. Materials are subject to wind dispersion are not stored under temporary sheltering;

iv. Temporary shelters are only used when necessary during facility renovation or construction and until permanent storm-resistant shelters as described above are available; and,

v. Temporary shelters are only used for a single period of ninety days or less. (Facilities with construction and renovation projects that will need the use of temporary shelters beyond 90 days, or that will require multiple periods of ninety

days or less, are required to be covered by an NPDES permit.)

5. Other Potential Sources of Contaminants

a. Particulate Emissions from Roof Stacks and/or Vents: Deposits of particles or residuals from roof stacks/vents that have the potential to be mobilized by storm water runoff are considered exposed.

b. Pollutants Potentially Mobilized by Wind Windblown materials cause a condition of exposure. Materials sheltered from precipitation are be deemed exposed if the materials has a potential to be mobilized by wind.

6. Certifying a Condition of "No Exposure"

To obtain the NEC coverage, the Discharger must electronically certify and submit PRDs via SMARTS that the facility meets the definition of "No Exposure" and pay an annual fee. The Discharger must **submit PRDs for NEC coverage even if the Discharger was not previously required to file for NEC coverage under the previous General Permit**. These PRDs include a checklist requiring the Discharger to evaluate eleven major areas to determine whether there is exposure of industrial activities and materials at the facility. To qualify for NEC coverage the Discharger must satisfy all the NEC coverage conditions in this General Permit and certify that there is "No Exposure". The checklist: 1) aids the Discharger in determining if its facility is eligible for NEC coverage, and 2) furnishes the necessary documentation supporting relief from the General Permit's requirement of NOI coverage. Additionally, Dischargers with NEC coverage are not required to develop and implement SWPPPs or comply with the monitoring requirements.

If a Discharger cannot certify that there is "No Exposure" at the facility, the Discharger must make appropriate changes at the facility to eliminate exposure prior to registering for future NEC coverage. Facility changes must remove all potential for pollutant exposure to storm water.

An annual inspection and evaluation, re-certification and fee are required thereafter.

7. Other NEC coverage Facts:

a. NEC coverage is only valid if the condition of "No Exposure" exists and is reasonably expected to continue to exist. Dischargers shall electronically certify and submit PRDs for NOI coverage when the condition of "No Exposure" is no longer expected to exist.

b. Dischargers must file PRDs for NEC coverage for each qualifying facility.

c. An NEC must be submitted for each separate facility qualifying for the "No Exposure" conditional exclusion.

d. An NEC is non-transferable. If a new operator takes over facility operations, the new operator shall electronically certify and submit PRDs and applicable fees for new NEC coverage via SMARTS prior to the operations transfer. NEC coverage cannot be transferred from one physical location to another regardless of ownership.

8. Operators May Be Required to Obtain NOI Coverage Based on the Protection Of Water Quality?

Operators who certified that their facilities qualify for NEC coverage may, nonetheless, be required by the Regional Water Board to obtain NOI coverage if the Regional Water Board determines that the facility's discharge has the potential to cause or contribute to an exceedance of applicable water quality objectives/standards or determines that exposure exists at the facility. The Regional Water Board may request information and/or inspect the facility to assess potential water quality impacts and to determine if NOI coverage is required. The Discharger shall take appropriate actions to ensure compliance with the General Permit.

9. Steps to Obtain NEC coverage

This section will walk you through the process of obtaining NEC coverage.

Step 1: Determine if your facility is subject to this General Permit (refer to Attachment A of this General Permit). If yes, proceed to Step 2. If not, stop here.

If your facility is included in Attachment A and conducts industrial activities, you are required to **either** register for NOI coverage or NEC coverage.

Step 2: Determine if your regulated industrial activity meets the definition of "No Exposure" and qualifies for the exclusion from permitting. If yes, proceed to Step 3. If no, stop here and obtain NOI coverage. An

evaluation of the facility must be conducted by facility personnel familiar with the facility and its operations. Inspect all facility areas and potential pollutant sources to determine whether the facility satisfies the "No Exposure" conditions.

Step 3: Electronically certify and submit the PRDs for NEC coverage via SMARTS and mail the annual fee to the State Water Board at the following address:

SWRCB
Surface Water Permitting Section
PO Box 1977
Sacramento, CA 95812-1977

To maintain NEC coverage, the NEC must re-certify and pay a fee annually. This may only be done if the condition of "No Exposure" continues to exist at the facility.

Step 4: If requested, staff from the Water Boards, local Municipal Separate Storm Sewer System (MS4), or United States Environmental Protection Agency must be allowed to inspect your facility. All inspection reports will be made publicly available.

Step 5: Maintain a condition of "No Exposure".

- NEC coverage is not a blanket exemption. Therefore, if facility physical or operational changes occur which cause exposure of industrial activities or materials to storm water, the Discharger must then immediately comply with all the requirements of this General Permit, including obtaining NOI coverage as applicable.

- To maintain the condition of "No Exposure", the Discharger shall annually evaluate the facility to assure that the conditions of "No Exposure" still exist. More frequent evaluations may be necessary in circumstances when facility operations are rapidly changing.

- Failure to maintain the condition of "No Exposure" or otherwise obtain NOI coverage may lead to the unauthorized discharge of storm water associated with industrial activity to waters of the United States, resulting in penalties under the CWA and Water Code.

C. Frequently Asked Questions:

Q1. Who is eligible for NEC Coverage?

A. Any Discharger operating a facility described in Attachment A may register for NEC coverage if their facility has a condition of "No Exposure".

Q2. How does an eligible Discharger file for NEC coverage and where is the annual fee sent?

A. The PRDs for NEC coverage shall be electronically certified and submitted in accordance with the instructions provided in SMARTS at the State Water Board website at: https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp. The fee is currently $242, but may be changed by regulation. Once NEC coverage is accepted, an invoice will be electronically sent to the Discharger. The annual fee and invoice shall be sent to:

State Water Resources Control Board
Division of Water Quality
Attention: Industrial Storm Water Unit
P.O. Box 1977
Sacramento, CA 95812-1977

Q3. If my facility's storm water discharges are covered by an individual permit, can I file for NEC coverage?

A. Yes. Storm water discharges covered by an individual permit are eligible for NEC coverage if the conditions at the facility satisfy the definition of "No Exposure" and you obtain approval to terminate individual permit coverage from the local Regional Water Board prior to PRD submittal. Approval from the Regional Water Board is mandatory. Many individual permits, for example, contain numeric storm water effluent limitations ("antibacksliding" provisions may prevent these facilities from qualifying for the "No Exposure" conditional exclusion).

Q4. My facility was originally excluded from the Phase I regulations because it was classified as a "light industrial facility". The facility has never had any exposure to storm water runoff. Do I now need to certify that the facility meets the No Exposure Exclusion from NPDES Storm Water Permitting?

A. Yes. See answer provided to question number 9, "What is the exclusion "conditional" upon?"

Q5. Do I have to file a Notice of Termination (NOT) and a register for NEC coverage if my facility has NOI coverage and qualifies for NEC coverage?

A. No. You are only required to register for NEC coverage. You must provide the WDID# in your NEC coverage PRDs in order for the State Water Board to change permit coverage status.

Q6. When and how often is a NEC coverage re-certification required?

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

A. Re-certification of NEC coverage is required annually (assuming the facility maintains its "No Exposure" status). The State Water Board will electronically transmit an NEC re-certification and annual fee notification to each facility operator who has filed for NEC coverage.

New Dischargers must register for NEC coverage before the commencement of facility operations. Dischargers that fail to file for NEC coverage or apply for NOI coverage before the commencement of facility operations will be out of compliance and subject to enforcement.

Existing Dischargers have two options for submitting NECs:

1. Facility operators of "light industrial" facilities who have been operating under their original, no-certification-required permitting exemption must submit the NEC at any time prior to October 1, 2015. Dischargers who have not submitted an NEC or applied for permit coverage by this due date will be considered out of compliance and subject to Water Board enforcement.

2. Dischargers who have NOI coverage may register for NEC coverage at any time following completion of facility changes that result in the condition of "No Exposure".

Q7. What happens if I know of changes that may cause exposure?

A. If exposure has the potential to occur in the near future due to some anticipated change at the facility, the Discharger must obtain NOI coverage to avoid potential enforcement for violations of this General Permit.

Q8. Is the NEC coverage transferable to a new Discharger?

A. No. If a new operator takes over your facility, the new operator must register for new NEC coverage prior to the transfer. A new application fee is required.

Q9. What is the exclusion "conditional" upon?

A. The exclusion from permit coverage requirements is "conditional" upon the certification of the Discharger that the facility does not have exposure of materials or activities to storm water. PRDs for NEC coverage shall be electronically submitted to the State Water Board and will not be accepted if incomplete. The Regional Water Board may review the information, contact and/or inspect the facility, and invalidate the NEC and require the Discharger to obtain NOI coverage. PRDs are public documents and will be available for public review via SMARTS.

Q10. Can secondary containment around an outdoor exposed area qualify for a condition of "No Exposure"?

A. If secondary containment is engineered to always prevent a discharge of collected rainfall (based on the historical rainfall record) and a simultaneous spill of any other industrial materials or liquids, the "No Exposure" condition may be claimed. Note that there must be proper disposal of any water or liquids collected from the containment (i.e., discharged in compliance with another NPDES permit, treated and discharged to the sanitary sewer, or trucked offsite to an appropriate disposal/treatment facility).

D. NEC Checklist

An NEC Checklist must be prepared by the Discharger demonstrating that: (1) the facility has been evaluated, (2) none of the following materials or activities are, or will be in the foreseeable future, exposed to precipitation, and (3) all unauthorized NSWDs have been eliminated:

1. Using, storing or cleaning industrial machinery or equipment, and areas where residuals from using, storing or cleaning industrial machinery or equipment remain and are exposed;

2. Materials or residuals on the ground or in storm water inlets from spills/leaks;

3. Materials or products from past industrial activity;

4. Material handling equipment (except adequately maintained vehicles);

5. Materials or products during loading/unloading or transporting activities;

6. Materials or products stored outdoors (except final products intended for outside use, i.e., new cars, where exposure to storm water does not result in the discharge of pollutants);

7. Materials contained in open, deteriorated or leaking storage drums, barrels, tanks, and similar containers;

8. Materials or products handled/stored on roads or railways owned or maintained by the Discharger;

9. Waste material (except waste in covered, non-leaking containers, i.e., dumpsters);

INSTRUCTIONS FOR NO EXPOSURE CERTIFICATION (NEC)

10. Application or disposal of processed wastewater (unless already covered by an NPDES permit); and

11. Particulate matter or visible deposits of residuals from roof stacks/vents evident in the storm water outflow.

APPENDIX 3

WATERBODIES WITH CLEAN WATER ACT SECTION 303(D) LISTED IMPAIRMENTS

NATIONAL POLLUTION DISCHARGE ELIMINTATION SYSTEM (NPDES)
GENERAL PERMIT FOR STORM WATER DISCHARGES
ASSOCIATED WITH INDUSTRIAL ACTIVITIES
(GENERAL PERMIT)

The 303(d) impairments below are sourced from the 2010 Integrated Report. The rows in red are impairments for which industrial storm water Dischargers subject to this General Permit are not required to analyze for additional parameters unless directed by the Regional Water Board, because these parameters are typically not associated with industrial storm water. Test methods with substantially similar or more stringent method detection limits may be used if approved by the staff of the State Water Board prior to sampling and analysis and upon approval, will be added into SMARTS. The rows that are not in red are impairments for which Dischargers in the 303(d) impaired watershed are required to analyze for additional parameters, if applicable, because these parameters are more likely to be associated with industrial storm water. See General Permit Section XI.B.6.e. In the event that any of the impairments in this appendix are subsequently delisted, the Dischargers with discharges to that watershed are no longer required to analyze for the additional parameters for those impairments, and the provisions for new Dischargers with discharges to 303(d) impaired water bodies contained in Section VII.B of this General Permit no longer apply for those impairments.

The Excel spreadsheet containing the water bodies with 303(d) impairments is an attachment to this Appendix 3. To view the attachment from an electronic (pdf) version of this Appendix 3, left-click on the paper clip icon to the left of this pdf file to make the attachment window appear, then double-click on the icon of an Excel spreadsheet. The Excel spreadsheet is also available on the Industrial Storm Water program pages of the State Water Resources Control Board's website (http://www.waterboards.ca.gov/).

ATTACHMENT
25

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

RESOLUTION NO. R9-2010-0001

A RESOLUTION AMENDING THE *WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN (9)* TO INCORPORATE REVISED TOTAL MAXIMUM DAILY LOADS FOR INDICATOR BACTERIA, PROJECT I - TWENTY BEACHES AND CREEKS IN THE SAN DIEGO REGION (INCLUDING TECOLOTE CREEK)

WHEREAS, The California Regional Water Quality Control Board, San Diego Region (hereinafter, San Diego Water Board), finds that:

1. **Water Quality Control Plan**: The federal Clean Water Act[1] and state Porter-Cologne Water Quality Control Act[2] requires the San Diego Water Board to establish water quality standards for each waterbody within its region. The water quality standards for the inland and coastal waters in the San Diego Region are established in the *Water Quality Control Plan for the San Diego Basin (9)* (Basin Plan) and in the *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan). Water quality standards include beneficial uses, water quality objectives (WQOs) that are established at levels sufficient to protect those beneficial uses, and an antidegradation policy to prevent degrading waters that are better than the quality established as WQOs. Waterbodies that do not meet water quality standards are considered impaired.

2. **Clean Water Act Section 303(d) List of Water Quality Limited Segments:** Pursuant to Section 303(d) of the Clean Water Act, each state is required to identify waters within its boundaries that do not meet water quality standards. Specifically, the states must identify those waters for which technology-based effluent limitations are not stringent enough to implement any water quality standard applicable to such waters and establish a priority ranking for such waters.[3] For those waters identified as not meeting water quality standards, each state must establish the total maximum daily load (TMDL) at a level necessary to implement the applicable water quality standards with seasonal variations and a margin of safety.[4] Each state is required to develop a list that identifies and establishes a priority ranking for those waters requiring TMDLs.[5] The list is known as the Clean Water Act Section 303(d) List of Water Quality Limited Segments or more commonly, the 303(d) List. For the specific purpose of developing information, states are also required to estimate TMDLs for all other waters that are not identified on the 303(d) List. [6]

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[1] Clean Water Act section 303; U.S. Code section 1313
[2] California Water Code section 13240
[3] Clean Water Act section 303(d)(1)(A); U.S. Code section 1313(d)(1)(A)
[4] Clean Water Act section 303(d)(1)(C); U.S. Code section 1313(d)(1)(C)
[5] Code of Federal Regulations Title 40 section 130.7(b)(1)
[6] Clean Water Act section 303(d)(3) states that "For the specific purpose of developing information, each State shall identify all waters within its boundaries, which is has not identified under paragraph (1)(A) and (1)(B) of this subsection and estimate for such waters the total maximum daily load with seasonal variations and margin of safety…"

For TMDLs that are developed, USEPA regulations require states to incorporate TMDLs into the Basin Plans along with adequate implementation measures to implement all aspects of the plan.[7] TMDLs that are incorporated into the Basin Plan are required to include implementation plans under State law. Basin Plans must have a program of implementation to achieve WQOs.[8] The implementation plan must include a description of actions that are necessary to achieve the objectives, a time schedule for these actions, and a description of surveillance to determine compliance with the WQOs.[9]

3. **Definition of Total Maximum Daily Load (TMDL)**: A TMDL is defined as the sum of the individual wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources and natural background.[10] TMDLs must be established at levels necessary to attain and maintain the applicable narrative and numerical water quality standards with seasonal variations and a margin of safety which takes into account any lack of knowledge between effluent limitations and water quality.[11] TMDLs must be established for waterbodies identified on the 303(d) List.[12] For the purpose of developing information for all waters not identified on the 303(d) List, states are also required to estimate the TMDLs with seasonal variations and margin of safety.[13]

4. **Water Quality Standards Interpreted in TMDLs with Numeric Targets**: One or more numeric targets are typically required to calculate TMDLs at levels necessary to attain and maintain applicable narrative and numerical water quality standards. Numeric targets interpret the existing water quality standards (i.e., beneficial uses and the WQOs established at levels sufficient to support those uses). In California, numeric targets are often based on the WQOs in the Basin Plan. The Basin Plan contains numeric and narrative WQOs. If applicable WQOs are numeric, the numeric WQOs can be used as numeric targets. If applicable WQOs are narrative, one or more quantifiable target values or measurable indicators must be selected to measure progress and evaluate final attainment and maintenance of the narrative WQOs. In impaired waters requiring TMDLs, when numeric targets are met in the waterbody, the water quality standards should be attained and restored. While numeric targets and TMDLs interpret water quality standards, *numeric targets and TMDLs are not water quality standards*. The water quality standards, TMDLs, WLAs, LAs, receiving water limits, numeric targets, and/or WQBELs developed in this project become enforceable requirements after they have been incorporated into the regulatory orders issued by the San Diego Water Board and/or State Water Board (e.g., waste discharge requirements, conditional waivers, etc.).

5. **TMDL Basin Plan Amendment**: Upon establishment of TMDLs by the state or U.S. Environmental Protection Agency (USEPA), the state is required to incorporate TMDLs into

[7] Code of Federal Regulations Title 40 section 130.6 [40CFR130.6]
[8] See Water Code section 13050(j). A "Water Quality Control Plan" or "Basin Plan" consists of a designation or establishment for the waters within a specified area of all of the following: (1) Beneficial uses to be protected, (2) Water quality objectives and (3) A program of implementation needed for achieving water quality objectives.
[9] See Water Code section 13242.
[10] Code of Federal Regulations Title 40 section 130.2(i)
[11] Code of Federal Regulations Title 40 section 130.7(c)(1)
[12] Clean Water Act section 303(d)(1)(C); U.S. Code section 1313(d)(1)(c)
[13] Clean Water Act section 303(d)(3); U.S. Code section 1313(d)(3)

the state water quality management plan.[14] The Basin Plan and applicable statewide plans serve as the water quality management plan for the watersheds under the jurisdiction of the San Diego Water Board. Incorporating TMDLs into the Basin Plan requires an amendment to the Basin Plan.[15] Because TMDLs are established based on numeric targets that interpret existing water quality standards (i.e., beneficial uses and WQOs), and do not constitute the establishment of new water quality objectives, an amendment to the Basin Plan to incorporate TMDLs is not subject to the requirements of Water Code section 13241, which only apply when "establishing water quality objectives". Instead, TMDLs are programs for the implementation of existing water quality standards, and are established in the Basin Plan subject to the requirements of Water Code section 13242, which requires a description of the actions necessary to achieve the objectives, a time schedule for the actions to be taken, and a description of the surveillance to be undertaken to determine compliance with objectives.

6. **Waterbodies with Bacteria Impairments Made Highest Regional Priority for TMDLs**: In late 2003, when this TMDL project was first initiated, the 2002 303(d) List indicated that the greatest cause of waterbody impairments in the San Diego Region was due to elevated bacteria levels. Postings and closures of local beaches due to elevated bacteria levels were regularly making headlines; the State Water Resources Control Board (State Water Board) was convening the Southern California Beach Water Quality Task Force to address the problem; Assembly Bill 411(focused on beach contamination and monitoring) was making its way through the legislature; and the voters had just approved millions of dollars in grant funding for beach cleanups. For all of these reasons, the San Diego Water Board prioritized waterbodies with bacteria impairments as one of its highest regional priorities for the development of TMDLs. The initial bacteria TMDL project attempted to develop a single region-wide set of TMDLs to address all of the bacteria impaired waters in the San Diego Region. As the project developed, however, it became necessary to separate the project by waterbody types due to modeling and resource constraints. The first bacteria TMDL project was developed to address the beaches and creeks listed on the 2002 303(d) List, known as Total Maximum Daily Loads for Indicator Bacteria, Project I – Beaches and Creeks in the San Diego Region, or Bacteria TMDLs Project I.

7. **Relationship Between Bacteria and Pathogens:** Fecal indicator bacteria originate from the intestinal biota of warm-blooded animals, including humans, and their presence in surface water is used as an indicator of the possible presence of human sewage and associated pathogens (*i.e.*, organisms that cause illness, including protozoans, bacteria, and viruses). Humans may be exposed to these waterborne pathogens through recreational water use or by harvesting and consuming filter-feeding shellfish. Bacteria have been historically used as indicators of human sewage and associated pathogens because 1) the presence of pathogens and the probability of disease are directly correlated with the density of indicator bacteria in waters used for recreation or shellfish harvesting,[16] and 2) these indicator bacteria are easier and less costly to measure than the pathogens themselves. When TMDLs for indicator bacteria are attained, the health risks associated with pathogens are expected to be minimal.

[14] Code of Federal Regulations Title 40 section 130.6(c)(1)
[15] Pursuant to the requirements of Article 3, commencing with section 13240, of Chapter 4 of the Porter-Cologne Water Quality Control Act, as amended, codified in Division 7, commencing with section 13000, of the Water Code
[16] BEACH Act Rule (USEPA 2004); Health effects criteria for fresh recreational waters (USEPA 1984)

8. **Exceedances of the Contact Water Recreation (REC-1) WQOs**:[17] The REC-1 beneficial use is particularly sensitive to, and subject to impairment by, pathogens when elevated densities of indicator bacteria exist in the water. REC-1 is a beneficial use of the Pacific Ocean beaches and in creeks that discharge to those beaches, where several of these waterbodies are listed as impaired by bacteria. Several available studies support the finding that amongst southern California beaches, the highest number of exceedances of the bacteria REC-1 WQOs occurs during wet weather and in the vicinity of major storm water outlets and creek mouths. Persons who ingest water during recreational activities in waters containing indicator bacteria at densities in excess of REC-1 WQOs are significantly more likely to incur infections or illness caused by waterborne pathogens than when indicator bacteria occur at densities consistent with the applicable WQOs.

9. **Adoption of Bacteria TMDLs Project I Basin Plan Amendment (Resolution No. R9-2007-0044):** On December 12, 2007, the San Diego Water Board adopted Resolution No. R9-2007-0044 to amend the Basin Plan to incorporate Bacteria TMDLs Project I. Bacteria TMDLs Project I was developed to establish TMDLs and restore the REC-1 beneficial use for nineteen (19) bacteria impaired beaches and creeks in the San Diego Region that were listed on the 2002 303(d) List. The Administrative Record for Resolution No. R9-2007-0044 was transmitted to the State Water Board on March 21, 2008 to begin the State Water Board, Office of Administrative Law (OAL), and USEPA approval processes.

10. **Adoption of Bacteria TMDLs Project I Basin Plan Amendment Contingent Upon Adoption of Reference System Approach Basin Plan Amendment:** The bacteria TMDLs adopted under Resolution No. R9-2007-0044 included "interim" and "final" wet weather TMDLs. The "interim" wet weather TMDLs were calculated to include an allowance for exceedances of REC-1 WQOs due to bacteria loads from natural sources based on the exceedances in a reference system.[18] The "final" wet weather TMDLs that were calculated did not allow for exceedances of REC-1 WQOs due to bacteria loads from natural sources. At the time Resolution No. R9-2007-0044 was adopted, allowing exceedances of the REC-1 WQOs during wet weather was not authorized by the Basin Plan. The San Diego Water Board, however, recognized that exceedances of the REC-1 WQOs during either wet or dry weather was likely, and may be partially due to bacteria loads contributed from natural sources. Therefore, the San Diego Water Board agreed to develop a Reference System Approach Basin Plan Amendment, which would authorize an allowance for exceedances of the REC-1 WQOs based on the exceedance frequencies observed in a reference system.

    For this reason, adoption of the Bacteria TMDLs Project I Basin Plan amendment was made contingent upon the future consideration of a separate Reference System Approach Basin Plan amendment by the San Diego Water Board. It was assumed that upon the subsequent adoption

[17] The Ocean Plan and Basin Plan also contain Shellfish Harvesting (SHELL) and Non-contact Water Recreation (REC-2) water quality objectives. Waterbodies with SHELL beneficial use impaired by bacteria will be addressed in a separate TMDL project and/or standards action. Water quality objectives for REC-2 are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori,* provide the requisite water quality for REC-2.

[18] A reference system is a watershed and the beach to which the watershed discharges that is minimally impacted by anthropogenic activities that can affect bacterial densities in the waterbody.

of the Reference System Approach Basin Plan amendment, Bacteria TMDLs Project I would be appropriately revised and brought back to the San Diego Water Board for re-adoption. The key revision would include incorporation of the reference system approach into the final wet weather TMDLs. Specifically, the previously established "interim" wet weather TMDLs, which were calculated based on the reference system approach, would become the only wet weather TMDLs. The previously established "final" TMDLs, which did not use the reference system approach, would be removed.

11. **Adoption and Approval of Reference System Approach Basin Plan Amendment (Resolution No. R9-2008-0028):** On May 14, 2008, the San Diego Water Board adopted Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL.* This Basin Plan Amendment contains "implementation provisions" which provide the San Diego Water Board with flexibility in implementing its bacteria WQOs in the context of certain TMDLs. Specifically, it authorizes the San Diego Water Board to develop bacteria TMDLs that allows exceedances of the WQOs for the purpose of accounting for natural, uncontrollable sources of bacteria (e.g., birds, wildlife, soil, etc.). Such sources, by themselves and in the absence of human activities, have been found to cause exceedances of the WQOs. The Administrative Record for Resolution No. R9-2008-0028 was transmitted to the State Water Board on July 25, 2008. Resolution No. R9-2008-0028 was approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009. Approval of Resolution No. R9-2008-0028 allows the San Diego Water Board to revise the Bacteria TMDLs Project I Basin Plan amendment adopted under Resolution No. R9-2007-0044.

12. **Request to Withdraw Bacteria TMDLs Project I Basin Plan Amendment (Resolution No. R9-2007-0044):** By letter dated December 17, 2008, the San Diego Water Board submitted a request to withdraw the Bacteria TMDLs Project I Basin Plan amendment adopted under Resolution No. R9-2007-0044 from State Water Board consideration for approval. The withdrawal request was made in order to address concerns expressed by the State Water Board that 1) the adoption of Bacteria TMDLs Project I was contingent upon the adoption of a subsequent Basin Plan amendment, and 2) Bacteria TMDLs Project I did not include sufficient guidance on how compliance with the TMDLs, WLAs, and LAs would be evaluated. Additionally, the San Diego Water Board needed to make the revisions that had been committed to upon adoption of the Reference System Approach Basin Plan amendment, as described in finding 10.

13. **Establishment of Bacteria TMDLs for Tecolote Creek:** Bacteria TMDLs were also being developed for Tecolote Creek a part of a separate TMDL project. Bacteria TMDLs Project I and the Bacteria TMDLs for Tecolote Creek are based on the same modeling approaches. Because the same modeling approaches are used, and the resources available for the development of TMDLs have been greatly reduced, the bacteria TMDLs for Tecolote Creek have been included in the revisions to the Bacteria TMDLs Project I Basin Plan amendment.

14. **Revisions Made to the Bacteria TMDLs Project I Basin Plan Amendment:** Revisions to the original Bacteria TMDLs Project I Basin Plan amendment include: 1) finalizing the

TMDLs to include allowable exceedances of the REC-1 WQOs using the reference system approach authorized by the Basin Plan amendment adopted under Resolution No. R9-2008-0028 (see finding 11), 2) providing specific guidance on how compliance with the TMDLs, WLAs, and LAs will be evaluated, and 3) establishing TMDLs for Tecolote Creek. None of the revisions have changed the scientific basis or approach used to calculate the TMDLs, WLAs, and LAs. This TMDL project and its Basin Plan amendment have been revised to establish bacteria TMDLs for a total of twenty (20) bacteria impaired beaches and creeks in the San Diego Region that were listed on the 2002 303(d) List, and will be referred to hereafter as Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek), or Revised Bacteria TMDLs Project I.

15. **Bacteria Impaired Waters Included in Revised Bacteria TMDLs Project I** : Twenty (20) waterbodies (12 segments of the Pacific Ocean shoreline,[19] 2 creek mouths, and 6 creeks) in the San Diego Region were placed on the 2002 303(d) List because levels of total coliform, fecal coliform, and/or enterococci at those locations exceeded the REC-1 WQOs.[20]. The bacteria impaired waters listed on the 2002 303(d) List included in Revised Bacteria TMDLs Project I are specified below.

Watershed	Type of Listing	Waterbody Name [a,c]	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA [b]	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA [b]	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA [b]	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA [b]	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA [b]	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA [b]	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU [b]	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA [b]	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU [b]	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA [b]	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA [b]	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU [b]	
Chollas HSA (908.22)	Creek	Chollas Creek	1

[19] The Pacific Ocean shoreline consists of a zone extending seaward from the shoreline a distance of 1,000 feet or to the 30-foot depth contour, whichever is further from the shoreline.

[20] The Basin Plan and Ocean Plan also contains SHELL objectives for total coliform. SHELL impairments for total coliform are being developed in a separate TMDL and/or standards action.

Watershed	Type of Listing	Waterbody Name [a,c]	Number of Listings
Total Number of Listings on 2002 303(d) LIST in Revised Bacteria TMDLs Project I			**20**

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit
[a] Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.
[b] On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.
[c] Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually. The TMDLs that have been developed for the Pacific Ocean shorelines are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above.

16. **Bacteria Water Quality Objectives for REC-1 Beneficial Use**:[21] Water quality objectives (WQOs) for bacteria in the waters of the Pacific Ocean shoreline, expressed as the most probable number of bacteria colonies per 100 mL of water sample (MPN/100 mL), are contained in the Ocean Plan. The water quality objectives for bacteria in the inland surface waters are contained in the Basin Plan.

(a) The WQOs, as established in the Ocean Plan,[22] for indicator bacteria in waters of the Pacific Ocean shoreline designated as having REC-1 beneficial use are as follows:

Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., areas designated as REC-1), but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column:

30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:

i. Total coliform density shall not exceed 1,000 per 100 mL
ii. Fecal coliform density shall not exceed 200 per 100mL; and
iii. Enterococcus density shall not exceed 35 per 100 ml.

Single Sample Maximum:

i. Total coliform density shall not exceed 10,000 per 100 mL
ii. Fecal coliform density shall not exceed 400 per 100mL;
iii. Enterococcus density shall not exceed 104 per 100 mL; and

[21] Water quality objectives for indicator bacteria in waters with non-water-contact recreation (REC-2) are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori,* provide the requisite water quality for REC-2.
[22] As adopted by the State Water Board on January 20, 2005 and April 21, 2005, approved by OAL on October 12, 2005, and approved by USEPA on February 14, 2006.

iv. Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/ total coliform ratio exceeds 0.1.

(b) The WQOs, as established in the Basin Plan,[23] for indicator bacteria in inland surface waters, enclosed bays and estuaries, and coastal lagoons designated as having the REC-1 beneficial use are as follows:

Fecal Coliform Water Quality Objective for Contact Recreation:

The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, shall not exceed a log mean of 200 organisms per 100 ml.

In addition, the fecal coliform concentration shall not exceed 400 organisms per 100 ml for more than 10 percent of the total samples during any 30-day period.

Enterococci and E. Coli Water Quality Objectives for Contact Recreation:

The USEPA published E. coli and enterococci bacteriological criteria applicable to waters designated for contact recreation (REC-1) in the Federal Register, Vol. 51, No. 45, Friday, March 7, 1986, 8012-8016.

USEPA BACTERIOLOGICAL CRITERIA FOR WATER CONTACT RECREATION (in colonies per 100 ml)

	Freshwater		**Saltwater**
	Enterococci	**E. coli**	**Enterococci**
Steady State			
(all areas)	33	126	35
Maximum			
(designated beach)	61	235	104
(moderately or lightly used area)	108	406	276
(infrequently used area)	151	576	500

Total Coliform Water Quality Objective for Contact Recreation for Bays and Estuaries:

In bays and estuaries, the most probable number of total coliform organisms in the upper 60 feet of the water column shall be less than 1,000 organisms per 100 ml (10 organisms per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 organisms per 100 ml (10 per ml); and provided further that no single sample as described below is exceeded.

[23] As amended in Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL,* adopted by the San Diego Water Board on May 14, 2008, approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009.

The most probable number of total coliform organisms in the upper 60 feet of the water column in no single sample when verified by a repeat sample taken within 48 hours shall exceed 10,000 organisms per 100 ml (100 organisms per ml).

17. **Allowable Exceedances of REC-1 Water Quality Objectives:** It is not the intent of these bacteria TMDLs to require treatment or diversion of natural waterbodies or to require treatment of natural sources of indicator bacteria. A Basin Plan amendment was adopted by the San Diego Water Board authorizing the development of indicator bacteria TMDLs that account for exceedances of bacteria REC-1 WQOs due to bacteria loads from natural uncontrollable sources.[24] Exceedances of bacteria REC-1 WQOs may be allowed within the context of bacteria TMDLs using a reference system approach or natural sources exclusion approach.

18. **Numeric Targets Selected for Bacteria TMDLs**: One or more quantitative numeric targets are required to calculate a TMDL. Numeric targets are selected based on the water quality standards (i.e., beneficial uses, WQOs, and the antidegradation policy) that are applicable to the waterbody. The selected numeric target(s) must be able to interpret and implement the water quality standards. When the numeric targets are met in the impaired waterbody, the WQOs will be met and the water quality standards should be restored. The numeric targets selected for these bacteria TMDLs are based primarily on the REC-1 WQOs for indicator bacteria contained in the Ocean Plan and/or Basin Plan (finding 16), and allowable exceedance frequencies using a reference system approach (findings 11 and 17). Because the REC-1 WQOs are numeric, the numeric WQOs were used in the numeric targets. Different numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) were used to calculate dry weather TMDLs and wet weather TMDLs. The numeric targets were selected based on the applicability of the Ocean Plan and/or Basin Plan REC-1 WQOs (i.e., Pacific Ocean shoreline or inland surface water) and the allowable exceedance frequencies of the REC-1 WQOs in available reference systems for the different weather conditions (i.e. wet weather[25] or dry weather[26]).

19. **Sources of Bacteria**: Bacteria build up on the land surface as a result of various anthropogenic land uses (e.g., urban development and agriculture) and natural processes (e.g., birds and wildlife). In urban areas, bacteria are washed off the land surface by dry weather and wet weather flows and transported through pipes and conveyance channels of the municipal separate storm sewer systems (MS4s) to surface waters. Other significant point sources of bacteria include municipal wastewater treatment plants and industrial waste treatment facilities. In rural and undeveloped areas, bacteria are washed off the land surface primarily by wet weather flows directly to surface waters. These diffuse nonpoint sources (e.g., undeveloped land, agriculture, livestock, and horse ranch facilities) have multiple routes of entry into surface waters.

[24] Resolution No. R9-2008-0028, *Implementation Provisions for Indicator Bacteria Water Quality Objectives to Account for Loading from Natural Uncontrollable Sources Within the Context of a TMDL,* was adopted by the San Diego Water Board on May 14, 2008, approved by the State Water Board on March 17, 2009, approved by OAL on June 25, 2009, and approved by USEPA on September 16, 2009.
[25] Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours
[26] Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.

In order to quantify bacteria loading from these various sources and transport mechanisms, 13 land-use types were identified in the technical TMDL analysis: Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, Open Recreation, Agriculture, Dairy/Intensive Livestock, Horse Ranches, Open Space, Water, and Transitional (Construction Activities). In the technical TMDL analysis for this project, the 13 land use types were grouped into the following four land use categories: 1) owners/operators of municipal separate storm sewers (Municipal MS4s); 2) Caltrans (separated from other Municipal MS4s); 3) Agriculture; and 4) Open Space. Land uses associated with the Municipal MS4s and Caltrans have discharges that are considered point sources. Agriculture and Open Space land uses have discharges that are considered nonpoint sources. Discharges of bacteria from the Municipal MS4s, Caltrans, and Agriculture land use categories are assumed to be anthropogenic in origin and considered controllable. Discharges of bacteria from the Open Space land use category are assumed to be natural, and hence are considered uncontrollable. Quantification of the bacteria loads from these land use categories is used to identify controllable bacteria sources that need to reduce their bacteria loads so the TMDLs can be attained in the receiving waters.

20. **Calculation of Total Maximum Daily Loads (TMDLs)**: These TMDLs for bacteria are equal to the total assimilative or loading capacities of the waterbodies for total coliform, fecal coliform, and enterococci bacteria and represent the maximum amount of each indicator bacteria that each waterbody can receive and still protect the REC-1 beneficial use. As required, each TMDL accounts for all known sources of bacteria (point, nonpoint, and natural background), includes a margin of safety, accounts for seasonal variations, is calculated at critical conditions (worst loading scenario), and was developed in a manner consistent with the guidelines published by USEPA. Separate dry weather and wet weather TMDLs were calculated for each indicator bacteria.

21. **Technical TMDL Analysis**: A Technical Report entitled "Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)" was prepared with the details of the technical TMDL analysis. The technical TMDL analysis includes a description of the bacteria impairments, selection of numeric targets (interpretation of the existing numeric water quality objectives used to calculate the TMDLs), source analysis, linkage analysis (calculation of "existing" bacteria loads and "allowable" bacteria loads [or TMDLs]), method for allocating the TMDLs to the identified point sources and nonpoint sources, and calculation of load reductions required from identified controllable sources (difference between "existing" and "allowable" bacteria loads for each source).

22. **Allocation of TMDLs to Point Sources and Nonpoint Sources:** A TMDL is divided, or allocated, among the sources that contribute or may contribute pollutant loads to a waterbody. If there are point sources that contribute or may contribute pollutant loads to a waterbody, they are assigned portions of the TMDL as wasteload allocations (WLAs). For nonpoint sources and natural background sources that contribute or may contribute pollutant loads to a waterbody, they are assigned portions of the TMDL as load allocations (LAs). The TMDL is expressed mathematically as the sum of all the WLAs and LAs and margin of safety (i.e., TMDL = ΣWLAs + ΣLAs + MOS). For these bacteria TMDLs, the Municipal MS4s and

Caltrans land use categories are assigned WLAs, and the Agriculture and Open Space land use categories are assigned LAs. Sources that are not identified cannot be assigned a WLA or LA and are assumed to have a zero allowable load (i.e., WLA = 0 or LA = 0). Identified sources may also be assigned a zero allowable load (i.e., WLA = 0 or LA = 0). Sources that are assigned a zero allowable load are not expected or allowed to discharge the specific pollutant to the waterbody as part of the TMDL.

For the dry weather TMDLs, a major underlying assumption is that there is no discharge of surface runoff, thus no discharge of bacteria, expected from land uses associated with the Caltrans, Agriculture, and Open Space land use categories during dry weather. Because no discharge is expected from these land use categories during dry weather, they were assigned dry weather WLAs and LAs of zero. The dry weather TMDLs were assigned entirely to the Municipal MS4s land use category as dry weather WLAs, meaning only discharges of bacteria loads to the receiving waters are expected or allowed from the Municipal MS4s land use category during dry weather.

For the wet weather TMDLs, discharges of surface runoff are expected from all land use types, thus allocations were assigned to each land use category (i.e., Municipal MS4s, Caltrans, Agriculture, Open Space). Allocations were assigned based on discharges of "existing" bacteria loads predicted with a wet weather watershed model. In general, the Caltrans WLAs, Agriculture LAs (in all but 4 of the modeled watersheds), and Open Space LAs were set equal to the "existing" bacteria loads predicted by the wet weather watershed model. The remainder of allowable bacteria load that can be discharged to the receiving waters as part of the TMDL was assigned as the Municipal MS4s WLAs (or proportionally divided between the Municipal MS4s and Agriculture land use categories in 4 of the modeled watersheds).

23. **Load Reductions Required to Attain Dry Weather TMDLs:** According to the dry weather TMDLs, the Municipal MS4s land use category is the only source of bacteria that has been assigned a WLA or LA. Discharges of bacteria loads from any other controllable sources must be reduced to zero. Thus, only Municipal MS4s are expected or allowed to discharge bacteria to the impaired receiving waters. Based on the technical TMDL analysis, bacteria load reductions are required in the discharges from the Municipal MS4s land use category to attain the dry weather TMDLs in the receiving waters.

24. **Load Reductions Required to Attain Wet Weather TMDLs**: According to the wet weather TMDLs, allowable bacteria loads have been assigned to the Municipal MS4s and Caltrans land use categories as WLAs, and the Agriculture and Open Space land use categories as LAs. Based on the technical TMDL analysis, bacteria load reductions are required in the discharges from the Municipal MS4s land use category (and Agriculture land use category in 4 watersheds) to attain the wet weather TMDLs in the receiving waters.

25. **TMDL Implementation Plan:** TMDLs are not self-implementing or directly enforceable for sources in the watershed. Instead, TMDLs must be implemented through the programs or authorities of the San Diego Water Board and/or other entities to compel dischargers responsible for controllable sources to achieve the pollutant load reductions identified by a TMDL analysis to restore and protect the designated beneficial uses of a waterbody. Federal

regulations require TMDLs to be incorporated into the Basin Plan.[27] Because TMDLs must be incorporated into the Basin Plan, and are developed to implement previously established water quality standards (i.e., beneficial uses and WQOs), state statute requires the Basin Plan amendment to include a program of implementation (or Implementation Plan) for achieving water quality objectives.[28]

The amendment of the Basin Plan, in Attachment A, to establish and implement TMDLs for the waters of the beaches and creeks listed in finding 15, includes a TMDL Implementation Plan that contains (1) the actions that the San Diego Water Board and/or other entities can take to implement the TMDLs, (2) a compliance schedule by which the TMDLs, and thereby the restoration of the recreational beneficial uses in the receiving waters, are to be achieved, and (3) a description of the minimum components for a monitoring program that is required to assess compliance with the TMDLs, WLAs, and LAs.

26. **Implementation of TMDLs**: Because the Phase I MS4s are located at the base of the watersheds and have been identified as the most significant controllable source of bacteria discharging to the receiving waters, these TMDLs will be implemented primarily through the revision of the National Pollutant Discharge Elimination System (NPDES) discharge requirements regulating discharges from the Phase I MS4s. The Caltrans NPDES requirements will also be revised. Federal regulations require that NPDES requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available WLAs.[29] WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored BMPs.[30] The WQBELs will likely need to include a BMP program to achieve the load reductions required to attain the TMDLs in the receiving waters. The Phase I MS4s and Caltrans will be required to submit Bacteria or Comprehensive Load Reduction Plans outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving water. The Phase I MS4s and Caltrans will be responsible for reducing their bacteria loads and/or demonstrating that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters. Other dischargers identified as significant sources of bacteria will also be responsible for reducing their bacteria loads and/or demonstrating that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters.

27. **TMDL Compliance Schedule**: Full implementation of the TMDLs for indicator bacteria shall be completed within 10 to 20 years from the effective date[31] of the Basin Plan amendment. The compliance schedule for implementing the load and wasteload reductions required to achieve the wet weather and dry weather TMDLs is phased in over time.

[27] Code of Federal Regulations Title 40 section 130.6(c)(1)
[28] Water Code section 13242
[29] Code of Federal Regulations Title 40 section 122.44(d)(1)(vii)(B)
[30] Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)
[31] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

The dry weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years from the effective date of the Basin Plan amendment that establishes the TMDLs. For dischargers that undertake wet weather load reduction programs only for bacteria, the wet weather TMDLs must be achieved in the receiving waters as soon as possible, but no later than 10 years from the effective date.

For dischargers in watersheds that undertake concurrent wet weather load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, an alternative compliance schedule may be proposed and incorporated by the San Diego Water Board into the implementing orders. The wet weather TMDL compliance schedules may be extended, but no more than a total of 20 years from the effective date of the Basin Plan amendment. The dry weather TMDL compliance schedule cannot be extended to be more than 10 years from the effective date of the Basin Plan amendment.

28. **TMDL Compliance Monitoring**: An essential component of implementation is water quality monitoring. Monitoring is needed to evaluate the progress toward attainment of the TMDLs and restoring the beneficial uses in the receiving waters. When all discharges from controllable sources meet their assigned WLAs and LAs, and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) are also met in the receiving waters, compliance with the TMDLs will be achieved. Compliance with the TMDLs will be assessed by monitoring the receiving waters and comparing the results to the numeric WQOs and allowable exceedance frequencies. At the end of the dry weather TMDL compliance schedule, the 30-day geometric mean REC-1 WQOs for dry weather days must be met 100 percent of the time in the receiving waters. At the end of the wet weather TMDL compliance schedule, the single sample maximum and 30-day geometric mean REC-1 WQOs must not be exceeded in the receiving waters more frequently than the allowable exceedance frequencies.

29. **Compliance with WLAs and LAs**: Ultimately, the TMDLs in the receiving waters will be met when the dischargers responsible for controllable sources meet their assigned WLAs and LAs. When all discharges from controllable sources meet their assigned WLAs and LAs, the beneficial uses in the receiving waters should be restored and compliance with the TMDLs should be achieved. The TMDLs are calculated based on numeric targets consisting of the numeric bacteria REC-1 WQOs and allowable exceedance frequencies. Discharges from controllable sources that can meet the numeric bacteria REC-1 WQOs and allowable exceedance frequencies in their effluent are not expected to cause exceedances of the numeric targets in the receiving waters. If the TMDLs are attained in the receiving waters, the assumption will be that the controllable sources are in compliance with their assigned WLAs and LAs. Otherwise, the dischargers responsible for controllable sources of bacteria must provide evidence and demonstrate to the San Diego Water Board that their discharges are not causing exceedances of the numeric WQOs and allowable exceedance frequencies in the receiving waters.

30. **Scientific Peer Review**: The scientific basis for these TMDLs has undergone external peer review pursuant to Health and Safety Code section 57004. The San Diego Water Board has considered and responded to all comments submitted by the peer review panel, and has

enhanced the Technical Report appropriately. Because the same modeling approaches are used in calculating the bacteria TMDLs for Tecolote Creek, the original Bacteria TMDLs Project I external peer review comments are also applicable. No change to the fundamental approach to TMDL calculation was necessary as a result of this process.

31. **CEQA Requirements:** Pursuant to Public Resources Code section 21080.5, the Resources Agency has approved the Regional Water Boards' basin planning process as a "certified regulatory program" that adequately satisfies the California Environmental Quality Act (CEQA)[32] requirements for preparing environmental documents.[33] As such, the documents supporting the San Diego Water Board's proposed basin planning action contain the required environmental documentation under CEQA and serve as "substitute documents".[34] The substitute documents for this project include the environmental checklist, the detailed Technical Report, responses to comments submitted during the public participation phase in the development of the TMDLs, and this resolution to adopt Basin Plan amendment. The project itself is the establishment of TMDLs for indicator bacteria at beaches and creeks where water quality has been listed as "impaired" by the State Water Board pursuant to Clean Water Act section 303(d), as required by that section. While the San Diego Water Board has no discretion to not establish the TMDLs (the TMDLs are required by federal law), the Board does exercise discretion in assigning WLAs and LAs, and determining the program of implementation, which includes setting monitoring requirements and a compliance schedule with various milestones for restoring the beneficial uses at the affected beaches and creeks.

32. **Project Impacts:** The accompanying CEQA substitute documents satisfy the requirements of substitute documents for a Tier 1 environmental review under CEQA.[35] Nearly all of the compliance measures anticipated to be necessary to implement the TMDLs for indicator bacteria will be undertaken by public agencies that will have their own obligations under CEQA for implementation projects that could have significant environmental impacts (*e.g.*, installation and operation of structural BMPs). Project level impacts will need to be considered in any subsequent environmental analysis performed by other public agencies.[36]

    If not properly mitigated at the project level, implementation and compliance measures undertaken have the potential to result in significant adverse environmental impacts. The substitute documents for this TMDL, and in particular the environmental checklist and responses to comments, identify broad mitigation approaches that should be considered at the project level. The San Diego Water Board does not engage in speculation or conjecture regarding the projects that may be used to implement the TMDLs and only considers the reasonably foreseeable alternative methods of compliance, the reasonably foreseeable feasible environmental impacts of the these methods of compliance, and the reasonably foreseeable mitigation measures which would avoid or eliminate the identified impacts, all from a broad general perspective consistent with the uncertainty regarding how the TMDLs, ultimately, will be implemented. The lengthy implementation period allowed by the TMDLs will allow

[32] Public Resources Code, section 21000 et seq.
[33] California Code of Regulations Title 14 section 15251(g); California Code of Regulations Title 23 section 3782
[34] California Code of Regulations Title 23 section 3777
[35] Pursuant to Public Resources Code section 21159 and California Code of Regulations Title 14 section 15187
[36] Pursuant to Public Resources Code section 21159.2

persons responsible for compliance with TMDLs, WLAs, or LAs to develop and pursue many compliance approaches and mitigation measures.

33. **Project Mitigation:** The proposed amendment to the Basin Plan to establish TMDLs for indicator bacteria in beaches and creeks has the potential to result in significant adverse effects on the environment. However, there are feasible alternatives, feasible mitigation measures, or both, that should substantially reduce those adverse impacts to less than significant. The public agencies responsible for implementation measures needed to comply with the TMDLs can and should incorporate such alternatives and mitigation into any projects or project approvals that they undertake for the impaired beaches and creeks. Possible alternatives and mitigation are described in the CEQA substitute documents, specifically the Technical Report and the environmental checklist. To the extent the alternatives, mitigation measures, or both, are not deemed feasible by those agencies, the necessity of implementing the TMDLs that is mandated by the federal Clean Water Act and removing the bacteria impairments on beaches and creeks in the San Diego Region (an action required to achieve the express, national policy of the Clean Water Act) outweigh the unavoidable adverse environmental effects identified in the substitute documents.

34. **Department of Fish and Game Filing Fee**: Considering the record as a whole, the Department of Fish and Game determined that for purposes of the assessment of CEQA filing fees[37] Bacteria TMDLs Project I adopted under Resolution No. R9-2007-0044 had no potential effect on fish, wildlife, and habitat and the project as described does not require payment of a CEQA filing fee. The environmental analysis and potential project impacts have not changed for the Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creek in the San Diego Region (Including Tecolote Creek).

35. **Economic Analysis**: The San Diego Water Board has considered the costs of the reasonably foreseeable methods of compliance with the load and wasteload allocations specified in these TMDLs. These compliance methods involve implementation of structural and non-structural controls. Surface water monitoring to evaluate the effectiveness of these controls will also be necessary.

36. **Stakeholder & Public Participation**: Interested persons and the public have had reasonable opportunity to participate in review of the proposed bacteria TMDLs. For the bacteria TMDLs adopted under Resolution No. R9-2007-0044, efforts to solicit public review and comment included a public workshop and CEQA scoping meeting in March 2003, a public workshop in March 2004, eleven meetings with the Stakeholder Advisory Group, four public review and comment periods consisting of 62 days, 45 days, 47 days, and 30 days respectively, a public workshop on January 11, 2006, and public hearings on February 8, 2006, April 25, 2007, and December 12, 2007. Notices for all meetings were sent to interested parties including cities and counties with jurisdiction in watersheds draining to the bacteria impaired beaches and creeks. All of the written comments submitted to the San Diego Water Board during the review and comment periods for Resolution No. R9-2007-0044 have been considered were included in Appendix S and Appendix U to the Technical Report.

[37] Fish and Game Code section 711.4(c)

Interested persons and the public have also been provided a reasonable opportunity to participate in the review of Revised Bacteria TMDLs Project I. Efforts to solicit public review and comment included a public review and comment period consisting of 78 days, meetings with the Stakeholder Advisory Group in December 2009 and January 2010, and a public hearing on February 10, 2010. Notices for all meetings were sent to interested parties including cities and counties with jurisdiction in watersheds draining to the bacteria impaired beaches and creeks. All of the written comments submitted to the San Diego Water Board up to January 25, 2010 for the revised bacteria TMDLs have been considered responded to in writing in a response to comments document (Responses to Comments Part III), which has been appended to the Technical Report as Appendix V. Written comments and oral testimony received after January 25, 2010 were considered and responded to during the February 10, 2010 public hearing.

37. **Necessity Standard**:[38] Amendment of the Basin Plan to establish and implement Total Maximum Daily Loads (TMDLs) for the waters of the beaches and creeks listed in finding 15 is necessary because the existing water quality at the beaches and creeks listed in finding 15 does not meet applicable REC-1 WQOs for total coliform, fecal coliform, and/or enterococci bacteria. Clean Water Act section 303(d) requires the establishment and implementation of TMDLs under the water quality conditions that exist at these beaches and creeks. TMDLs for total coliform, fecal coliform, and/or enterococci bacteria are necessary to restore the water quality needed to support the beneficial uses designated for the beaches and creeks.

38. **Public Notice**: The San Diego Water Board has notified all known interested parties and the public of its intent to consider adoption of this Basin Plan amendment in accordance with Water Code section 13244.

NOW, THEREFORE, BE IT RESOLVED THAT

1. **Environmental Documents Certification**: The substitute environmental documents prepared pursuant to Public Resources Code section 21080.5 are hereby certified, and the Executive Officer is directed to file a Notice of Decision with the Resources Agency after State Water Board and Office of Administrative Law (OAL) approval of the Basin Plan Amendment, in accordance with section 21080.5(d)(2)(E) of the Public Resources Code and the California Code of Regulations, Title 23, section 3781.

2. **Amendment Adoption**: The San Diego Water Board hereby adopts the attached Basin Plan amendment as set forth in Attachment A hereto to establish TMDLs for indicator bacteria at twenty impaired beaches and creeks in the San Diego Region.

3. **Technical Report Approval:** The San Diego Water Board hereby approves the Technical Report entitled *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)*, dated February 10, 2010.

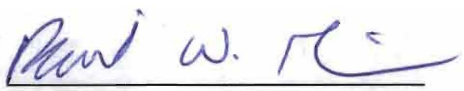
[38] Pursuant to Government Code section 11353(b)

4. **Certificate Of Fee Exemption**: The Executive Officer is authorized to request a "No Effect Determination" *in lieu* of payment of the California Department of Fish and Game filing fee, or transmit payment of the applicable filing fee to the California Department of Fish and Game.

5. **Agency Approvals**: The Executive Officer is directed to submit this Basin Plan amendment to the State Water Board in accordance with Water Code section 13245.

6. **Non-Substantive Corrections**: If, during the approval process for this amendment, the San Diego Water Board, the State Water Board, or the OAL determines that minor, non-substantive corrections to the language of the amendment are needed for clarity or consistency, the Executive Officer may make such changes, and shall inform the San Diego Water Board of any such changes.

I, David W. Gibson, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, San Diego Region, on February 10, 2010.



David W. Gibson
Executive Officer

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ATTACHMENT A
TO RESOLUTION NO. R9-2010-0001

AMENDMENT TO THE *WATER QUALITY CONTROL PLAN FOR THE SAN DIEGO BASIN (9)* TO INCORPORATE REVISED TOTAL MAXIMUM DAILY LOADS FOR INDICATOR BACTERIA, PROJECT I – TWENTY BEACHES AND CREEKS IN THE SAN DIEGO REGION (INCLUDING TECOLOTE CREEK)

This Basin Plan amendment establishes Total Maximum Daily Loads (TMDLs) and associated load and wasteload allocations for total coliform, fecal coliform, and enterococci bacteria in the 20 beach and creek segments listed in the following table.

Watershed	Type of Listing	Waterbody Name [a,c]	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA [b]	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA [b]	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA [b]	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA [b]	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA [b]	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA [b]	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU [b]	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA [b]	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU [b]	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA [b]	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA [b]	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU [b]	
Chollas HSA (908.22)	Creek	Chollas Creek	1
Total Number of Listings on 2002 303(d) LIST in Revised Bacteria TMDLs Project I			**20**

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit

[a] Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.

[b] On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

[c] Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

The TMDLs that have been developed for the Pacific Ocean shorelines are applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above. Beginning with the 2008 303(d) List, specific beach

segments of the Pacific Ocean shoreline are listed individually. Specific beach segments from some of the Pacific Ocean shorelines listed in the above table have been delisted from the 2008 303(d) list that was approved by the San Diego Board on December 16, 2009, and therefore are not subject to any further action as long as monitoring data continues to support compliance with water quality standards.

This amendment also includes the TMDL Implementation Plan, which consists of: (1) the actions that can be taken by the San Diego Water Board and/or other entities to implement the TMDLs, (2) a compliance schedule by which the TMDLs, and thereby the restoration of the recreational beneficial uses in the receiving waters, are to be achieved, and (3) a description of the minimum components for a monitoring program that is required to assess compliance with the TMDLs, WLAs, and LAs.

Chapters 2, 3, 4, 6, and 7 and Appendices E and F of the Basin Plan are amended as follows:

Chapter 2, *Beneficial Uses*

Table 2-2. *Beneficial Uses of Inland Surface Waters*
Consecutively number and add the following footnote to Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek in Table 2-2:

> Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Renumber any footnotes in Table 2-2 displaced by this new footnote. Revise any other footnotes in Table 2-2 referring to TMDLs in Chapter 4 and change reference to Chapter 7.

Table 2-3. *Beneficial Uses of Coastal Waters.*
Consecutively number and add the following footnote to Pacific Ocean in Table 2-3:

> Certain Pacific Ocean shoreline segments of the following Hydrological Units, Areas, and Subareas are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d): San Joaquin Hills HSA 901.11 and Laguna Beach HSA 901.12, Aliso Creek HSA 901.13, Dana Point HSA 901.14, Lower San Juan HSA 901.27, San Clemente HA 901.30, San Luis Rey HU 903.00, San Marcos HA 904.50, San Dieguito HU 905.00, Miramar Reservoir HA 906.10, Scripps HA 906.30, and Mission San Diego HSA 907.11 and Santee HSA 907.12. Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of San Diego River in Table 2-3:

> The mouth of San Diego River is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of San Luis Rey River in Table 2-3:

> The mouth of San Luis Rey River is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of San Juan Creek in Table 2-3:

> The mouth of San Juan Creek is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Consecutively number and add the following footnote to Mouth of Aliso Creek in Table 2-3:

> The mouth of Aliso Creek is designated as a water quality limited segment for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 3, *Water Quality Objectives*, Bacteria - Total and Fecal Coliform, and Bacteria - *E. Coli* and Enterococci, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Renumber any footnotes in Table 2-3 displaced by these new footnotes. Revise any other footnotes in Table 2-3 referring to TMDLs in Chapter 4 and change reference to Chapter 7.

Chapter 3, Water Quality Objectives

***Ocean Waters; Ocean Plan and Thermal Plan*:**
Add a second paragraph as follows:

Certain Pacific Ocean shoreline segments of the following Hydrological Units, Areas, and Subareas are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d): San Joaquin Hills HSA 901.11 and Laguna Beach HSA 901.12, Aliso Creek HSA 901.13, Dana Point HSA 901.14, Lower San Juan HSA 901.27, San Clemente HA 901.30, San Luis Rey HU 903.00, San Marcos HA 904.50, San Dieguito HU 905.00, Miramar Reservoir HA 906.10, Scripps HA 906.30, and Mission San Diego HSA 907.11 and Santee HSA 907.12.

Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 2, Table 2-3, *Beneficial uses of Coastal Waters, Footnotes [insert footnote numbers]*, and Chapter 7, *Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

***Inland Surface Waters, Enclosed Bays and Estuaries, Coastal Lagoons, and Ground Waters; Bacteria – Total and Fecal Coliform*:**
Add a second paragraph as follows:

Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, San Diego River (lower), and Chollas Creek are designated as water quality limited segments for indicator bacteria pursuant to Clean Water Act section 303(d). Total Maximum Daily Loads have been adopted to address these impairments. See Chapter 2, Table 2-2, *Beneficial Uses of Inland Surface Waters, Footnote [insert footnote number]* and Chapter 7*, Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).*

Chapter 4, *Implementation*

Revise Chapter 4 as follows:

Delete the following sections from Chapter 4:

- California Water Quality Assessment
- Clean Water Act Section 303(d) Requirements for Impaired Waterbodies

Replace the sections deleted above with the following:

TOTAL MAXIMUM DAILY LOADS

A total maximum daily load (TMDL) is the amount of a pollutant that can be discharged into a waterbody and still maintain its water quality standards (i.e., the designated beneficial uses and the adopted water quality objectives that support the beneficial uses). A TMDL must account for seasonal variations and include a margin of safety (MOS) to account for any lack of knowledge concerning the relationship between pollutant loadings and receiving water quality.

Pollutant loadings in excess of the TMDL are expected to have an adverse effect on water quality by causing exceedances of the applicable water quality standards. Allowable pollutant loadings are calculated and assigned to all point source and nonpoint source discharges to ensure that the applicable water quality standards are not exceeded in the receiving water.

A portion of the TMDL may be held explicitly in reserve as the MOS (e.g., MOS = 10 percent of TMDL), or the MOS may be implicitly included (i.e., MOS = 0) by incorporating conservative assumptions in the calculation of the TMDL (i.e., assumptions result in a lower calculated TMDL). The portion of the TMDL not in the MOS is assigned to point sources and nonpoint sources.

Point sources are assigned wasteload allocations (WLAs) and nonpoint sources (including natural and background sources) are assigned load allocations (LAs). The WLAs and LAs may differ for each pollutant source, but the TMDL and MOS do not change. The TMDL for a pollutant in the receiving water, and the WLAs and LAs for a pollutant discharged from different sources into a waterbody are calculated at levels that, when each are met, are expected to result in the attainment of the associated water quality objectives for the pollutant and protection of the applicable beneficial uses in the receiving water.

Establishing TMDLs for waters is required under section 303(d) of the Clean Water Act. Clean Water Act section 303(d) requires that the State establish a priority ranking of waters that do not meet water quality standards after application of technology based controls. The USEPA strongly encourages states to include the priority ranking as part of the Biennial Clean Water Act Sections 303(d), 305(b) and 314 Integrated Report, which is discussed in more detail in Chapter 6.

Waters identified under section 303(d) (a.k.a. the 303(d) List) are designated as Water Quality Limited Segments (WQLSs). In accordance with the priority ranking, TMDLs must be established for pollutants suitable for such calculations. For the purpose of developing information for all waters not identified as WQLSs, states are also required to estimate the TMDLs with seasonal variations and margin of safety.

One or more numeric targets are typically required to calculate TMDLs at levels necessary to attain and maintain applicable narrative and numerical water quality standards in WQLSs. Numeric targets interpret the existing water quality standards (i.e., beneficial uses and the water quality objectives established at levels sufficient to support those uses). After identifying the impaired beneficial uses of a waterbody, the numeric targets are often based on the water quality objectives in Chapter 3. Chapter 3 contains numeric and narrative water quality objectives. If applicable water quality objectives are numeric, the numeric water quality objectives can serve as the basis for the numeric targets. If applicable water quality objectives are narrative, one or more quantifiable target values or measurable indicators must be selected to measure progress and evaluate final attainment and maintenance of the narrative water quality objectives. In WQLSs, when numeric targets are met in the waterbody, the water quality standards should be attained and

restored. While numeric targets and TMDLs interpret water quality standards, *numeric targets and TMDLs are not water quality standards*.

TMDLs are not self-implementing or directly enforceable for sources in the watershed. Instead, TMDLs must be implemented through the programs or authorities of the San Diego Water Board and/or other entities to compel dischargers responsible for controllable sources to achieve the pollutant load reductions identified by a TMDL analysis to attain the water quality objectives that will support the designated beneficial uses of a waterbody.

The authorities that are available to the San Diego Water Board to implement TMDLs are given under the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code). The available regulatory authorities include incorporating discharge prohibitions in to the Basin Plan, issuing individual or general waste discharge requirements (WDRs), or issuing individual or general conditional waivers of WDRs. The San Diego Water Board has the authority to enforce Basin Plan prohibitions, WDRs, or conditional waivers of WDRs through the issuance of enforcements actions (e.g., time schedule orders, cleanup and abatement orders, cease and desist orders, administrative civil liabilities). The San Diego Water Board also has the authority to require monitoring and/or technical reports from dischargers, which may be used to support the development, refinement, and/or implementation of TMDLs, WLAs, and/or LAs.

Additionally, the USEPA has delegated responsibility to the State and Regional Boards for implementation of the federal National Pollutant Discharge Elimination System (NPDES) program, which specifically regulates discharges of "pollutants" from point sources to "waters of the United States." The San Diego Water Board regulates discharges from point sources to surface waters with WDRs that implement federal NPDES regulations (NPDES requirements). Federal regulations require that NPDES requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a best management practice (BMP) program of expanded or better-tailored BMPs.

Upon establishment of TMDLs by the state or U.S. Environmental Protection Agency (USEPA), the state is required to incorporate TMDLs into the state water quality management plan. This Basin Plan and applicable statewide plans serve as the water quality management plan for the watersheds under the jurisdiction of the Regional Board. TMDLs are programs for the implementation of existing water quality standards, and are established in the Basin Plan subject to the requirements of Water Code section 13242. TMDLs incorporated into the Basin Plan, therefore, are required to include 1) a description of the actions (i.e., programs or authorities) of the Regional Board and/or other entities necessary to achieve the TMDLs, 2) a compliance time schedule by which the TMDLs, and thereby the restoration of the beneficial uses in the receiving waters, are to be achieved, and 3) a description of the monitoring program that is required to determine compliance with TMDLs, WLAs, and LAs in the receiving waters. These elements are referred to as the TMDL Implementation Plan.

TMDLs that have been established for the San Diego Region are provided in Chapter 7.

Delete the following sections from Chapter 4 and move to Chapter 7:

- Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County
- Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay
- Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed
- Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek
- Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines

Delete the following section from Chapter 4:

- Other Programs, San Diego Bay Total Maximum Daily Load Worksheets

Revise the Chapter 4 Table of Contents to reflect the changes above.

Chapter 6, *Surveillance, Monitoring, and Assessment*

Revise the section titled "Biennial Water Quality Inventory / Water Quality Assessment Report" from Chapter 6 as follows (blue underline indicates added text and red strikeout indicates deleted text):

BIENNIAL ~~WATER QUALITY INVENTORY / WATER QUALITY ASSESSMENT~~ CLEAN WATER ACT SECTIONS 303(d), 305(b) AND 314 INTEGRATED REPORT

Every two years states are required to provide an assessment of the quality of all their waters and a list of those waters that are impaired or threatened, in accordance with the following sections of the Clean Water Act:

Section 303(d): Requires states to identify waters for which technology based effluent limitation are not stringent enough to meet applicable water quality standards. States must establish a priority ranking for such waters and must establish TMDLs for all such waters in accordance with the priority ranking. Waters identified and prioritized for TMDL development under section 303(d) (a.k.a. the 303(d) List) are designated as Water Quality Limited Segments (WQLSs).

Section 305(b): Requires states to prepare a description of the water quality of all navigable waters of the state; an analysis of the extent to which navigable waters provide protection and propagation of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water; an analysis of the extent to which elimination of the discharge of pollutants has been achieved; an estimate of the environmental impact, the economic, and social costs necessary to achieve the objective of

the Clean Water Act, the economic and social benefits of the achievement, and the date of such achievement; and, a description of the nature and the extent of nonpoint sources of pollutants and recommendations as to the programs which must be taken to control them, with estimates of cost.

Section 314: Requires states to identify and classify all publicly owned lakes in the state according to eutrophic condition. States must list and describe those publicly owned lakes known to be impaired and assess the status and trends of water quality. This information is required to be submitted as part of the section 305(b) report.

~~Section 305(b) of the federal Clean Water Act requires all states to prepare and submit a biennial Water Quality Inventory Report, (commonly referred to as a "305(b) Report"). In California, this report is used by the State Board and the USEPA to prioritize funding for water quality programs. As required by the Clean Water Act, section 305(b), the report must contain:~~

- ~~A description of the water quality of the major navigable water bodies in the state;~~
- ~~An analysis of the extent to which significant navigable waters provide for the protection and propagation of a balanced population of shellfish, fish, and wildlife and allow recreational activities in and on the water;~~
- ~~An analysis of the extent to which elimination of the discharge of pollutants has been achieved;~~
- ~~An estimate of the environmental impact, the economic, and social costs necessary to achieve the objective of the Clean Water Act, the economic and social benefits of the achievement, and the date of such achievement; and~~
- ~~A description of the nature and the extent of nonpoint sources of pollutants and recommendations as to the programs which must be taken to control them, with estimates of cost.~~

The USEPA strongly encourages states to submit a single Integrated Report that satisfies the reporting requirements for each of these sections. Each Regional Board prepares ~~a biennial Water Quality Assessment (WQA) Report~~ an Integrated Report for its Region, using data collected by regional planning, permitting, surveillance, and enforcement programs. The regional ~~reports~~ Integrated Reports contain inventories of the major waterbodies in the region, including rivers and streams, lakes and reservoirs, bays and harbors, estuaries, coastal waters, wetlands, and ground water. ~~For each water body, the report identifies the total size and the extent of the water body classified as having "good", "intermediate", "impaired", or "unknown" water quality. The report describes general problems and sources of water quality impairment. Additionally, the data base also indicates if the water body is included on any of the federal "lists". These lists indicate specific types of water quality impairments and are organized by the appropriate sections of the Clean Water Act as follows:~~

~~Section 131.11: Segments which may be affected by toxic pollutants, or segments with concentrations of toxic pollutants that warrant concern.~~

~~Section 303(d): List of Water Quality Limited Segments where objectives or goals of the Clean Water Act are not attainable with the Best Available Treatment/ Best Control Technology (BAT/BCT).~~

~~Section 304(m): So-called "mini-list" of waters not meeting State adopted numeric water quality objectives due to toxic point sources after implementation of BAT/BCT.~~

~~Section 304(s): So-called "short list" of waters not achieving water quality standards due to point source discharges of toxic pollutants after implementation of BAT/BCT.~~

~~Section 304(l): So-called "long list" of waters not meeting the water quality goals of the Clean Water Act after implementation of BAT/BCT.~~

~~Section 314: A list of lake priorities for restoration.~~

~~Section 319: A list of impaired surface water bodies from nonpoint source problems due to both toxic and nontoxic pollutants.~~

The regional Integrated Report presents the results of the assessment of the waterbodies in the Region, and the waters are categorized as one or more of the following:

Category 1: All designated uses are supported, no use is threatened.

Category 2: Available data and/or information indicate that some, but not all of the designated uses are supported.

Category 3: There are insufficient available data and/or information to make a use support determination.

Category 4: Available data and/or information indicate that at least one designated use is not being supported or is threatened, but a TMDL is not needed.

Category 5: Available data and/or information indicate that at least one designated use is not being supported or is threatened and a TMDL is needed.

Upon adoption of the ~~Regional WQA Reports~~ regional Integrated Reports by respective Regional Boards, the reports are compiled into a statewide report ~~entitled California Water Quality Assessment Report~~. Upon adoption of this statewide report by the State Board, the report is submitted to the USEPA to satisfy ~~section 305(b)~~ the reporting requirements of ~~the~~ Clean Water Act sections 303(d), 305(b) and 314. Subsequently, the USEPA submits the Integrated Reports from the states to the United States Congress, which serves as the

primary vehicle for informing Congress and the public about general water quality conditions in the United States.

Chapter 7, *Total Maximum Daily Loads*

Add Chapter 7, Total Maximum Daily Loads to Basin Plan and include the following.

7. TOTAL MAXIMUM DAILY LOADS

INTRODUCTION

This chapter contains the Total Maximum Daily Loads (TMDLs) that have been adopted by the Regional Water Quality Control Board, San Diego Region (RWQCB), approved by the State Water Resources Control Board (SWRCB) and Office of Administrative Law (OAL), and/or adopted/approved by the United State Environmental Protection Agency (USEPA). Table 7-1 lists the adopted and approved TMDLs that have been incorporated into the Basin Plan.

Table 7-1. Adopted and Approved Total Maximum Daily Loads in the San Diego Region

Total Maximum Daily Load	RWQCB Adoption Date	SWRCB Approval Date	OAL Approval Date	USEPA Approval Date
Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County	8/14/02	7/16/03	9/11/03	11/3/03
Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay	2/9/05	9/22/05	12/2/05	2/8/06
Total Maximum Daily Loads for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed	2/9/05	11/16/05	2/1/06	3/22/06
Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek	6/13/07	7/15/08	10/22/08	12/18/08
Total Maximum Daily Loads for Indicator Bacteria, Project I – Beaches and Creeks in the San Diego Region	12/17/07	--[a]	--	--
Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines	6/11/08	6/16/09	9/15/09	10/26/09
Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)	2/10/10	TBD	TBD	TBD

[a] Withdrawn by the RWQCB on December 18, 2008 from SWRCB consideration for revision. See Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).

The text for the TMDLs removed from Chapter 4, above, as well as all the text deleted from Appendix E and Appendix F will be added to the new Chapter 7, in the following order:

1. Total Maximum Daily Load for Diazinon, Chollas Creek Watershed, San Diego County
2. Total Maximum Daily Load for Dissolved Copper, Shelter Island Yacht Basin, San Diego Bay
3. Append the old Appendix E (Method for Recalculation of the Total Maximum Daily Load for Dissolved Copper in the Shelter Island Yacht Basin, San Diego Bay) to the end of the TMDL above.
4. Total Maximum Daily Loads (TMDLs) for Total Nitrogen and Total Phosphorus in the Rainbow Creek Watershed
5. Append the old Appendix F (Method for Recalculation of the Total Maximum Daily Loads for Nitrogen and Phosphorus in Rainbow Creek) to the end of the TMDL above.
6. Total Maximum Daily Loads for Copper, Lead, and Zinc in Chollas Creek
7. Total Maximum Daily Loads for Indicator Bacteria, Baby Beach and Shelter Island Shoreline Park Shorelines

Number any tables from the text listed above in sequential order following Table 7-1 above.

Future TMDL Basin Plan amendments will be added to the end of Chapter 7, and Table 7-1 will be updated accordingly.

Add the following section to the end of Chapter 7:

Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek).

On February 10, 2010, the San Diego Water Board adopted Resolution No. R9-2010-0001, *A Resolution Amending the Water Quality Control Plan for the San Diego Region (9) to Incorporate Revised Total Maximum Daily Loads for Indicator Bacteria, Project I – Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek)* (referred to hereafter as Revised Bacteria TMDLs Project I). The TMDL Basin Plan Amendment was subsequently approved by the State Water Resources Control Board (SWRCB)on [Insert date], the Office of Administrative Law on [Insert date], and the USEPA on [Insert date].

Bacteria TMDLs have been established for the following 20 waterbodies listed on the 2002 Clean Water Act Section 303(d) List of Water Quality Limited Segments:

[Insert Table number]. Beaches and Creeks Addressed by Revised Bacteria TMDLs Project I

Watershed	Type of Listing	Waterbody Name [a,c]	Number of Listings
San Joaquin Hills HSA (901.11)/ Laguna Beach HSA (901.12)	Shoreline	Pacific Ocean Shoreline, San Joaquin Hills HSA [b]	2
	Shoreline	Pacific Ocean Shoreline, Laguna Beach HSA [b]	
Aliso HSA (901.13)	Creek	Aliso Creek	3
	Estuary	Aliso Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Aliso HSA [b]	
Dana Point HSA (901.14)	Shoreline	Pacific Ocean Shoreline, Dana Point HSA [b]	1
Lower San Juan HSA (901.27)	Creek	San Juan Creek	3
	Estuary	San Juan Creek (mouth)	
	Shoreline	Pacific Ocean Shoreline, Lower San Juan HSA [b]	
San Clemente HA (901.30)	Shoreline	Pacific Ocean Shoreline, San Clemente HA [b]	1
San Luis Rey HU (903.00)	Shoreline	Pacific Ocean Shoreline, San Luis Rey HU [b]	1
San Marcos HA (904.50)	Shoreline	Pacific Ocean Shoreline, San Marcos HA [b]	1
San Dieguito HU (905.00)	Shoreline	Pacific Ocean Shoreline, San Dieguito HU [b]	1
Miramar Reservoir HA (906.10)	Shoreline	Pacific Ocean Shoreline, Miramar Reservoir HA [b]	1
Scripps HA (906.30)	Shoreline	Pacific Ocean Shoreline, Scripps HA [b]	1
Tecolote HA (906.50)	Creek	Tecolote Creek	1
Mission San Diego HSA (907.11)/ Santee HSA (907.12)	Creek	Forester Creek	3
	Creek	San Diego River (Lower)	
	Shoreline	Pacific Ocean Shoreline, San Diego HU [b]	
Chollas HSA (908.22)	Creek	Chollas Creek.	1
Total Number of Listings on 2002 303(d) List in Revised Bacteria TMDLs Project I			**20**

Note: HSA = hydrologic subarea; HA = hydrologic area; HU = hydrologic unit

[a] Listed as impaired due to exceedances of REC-1 WQOs for fecal coliform, and/or total coliform, and/or enterococci.

[b] On the 2002 303(d) List, the Pacific Ocean Shoreline for a HSA, HA, or HU is listed, and specific beaches are noted under the listing. Beginning with the 2008 303(d) List, specific beaches are listed.

[c] Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

The TMDLs that have been developed for the Pacific Ocean shorelines are applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above. Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually. Specific beach segments from some of the Pacific Ocean shorelines listed in the above table have been delisted from the 2008 303(d) list that was approved by the San Diego Board on December 16, 2009, and therefore are not subject to any further action as long as monitoring data continues to support compliance with water quality standards.

(a) Problem Statement

Bacteria densities in the Pacific Ocean at various beach and coastal creek mouth segments (referred to hereafter as "beaches") exceed water quality objectives (WQOs) for indicator bacteria. Bacteria densities in ocean water at these beaches unreasonably impair and threaten to impair the water quality needed to support the contact water recreation (REC-1)[1] designated beneficial use.

Bacteria densities in the waters of Aliso Creek, San Juan Creek, Tecolote Creek, Forrester Creek, the (lower) San Diego River, and Chollas Creek exceed WQOs for indicator bacteria. Bacteria densities in these creeks unreasonably impair and threaten to impair the water quality needed to support REC-1.

The federal Clean Water Act requires the establishment of Total Maximum Daily Loads (TMDLs) for pollutants that exceed the WQOs needed to support designated beneficial uses, *i.e.*, that cause or contribute to exceedances of state "water quality standards."

(b) Numeric Target

When calculating TMDLs, one or more numeric targets are required. Numeric targets are typically selected based on water quality standards, which include beneficial uses and the WQOs that are established at levels sufficient to protect those beneficial uses. The numeric targets for these TMDLs are based primarily on the REC-1 WQOs for indicator bacteria contained in the Ocean Plan and/or Basin Plan.

Different REC-1 WQOs were used as the basis for wet weather[2] and dry weather[3] allowable load (i.e., TMDL) calculations because the bacteria transport mechanisms to receiving waters are different under wet and dry weather conditions. Because wet weather conditions, or storm flow, are episodic and short in duration, and characterized by rapid wash-off and transport of high bacteria loads, with short residence times, from all land use types to receiving waters, the single sample maximum WQOs were appropriate for use as wet weather numeric targets. For dry weather conditions, because dry weather runoff is not generated from storm flows, is not uniformly linked to every land use, and is more uniform than stormflow, with lower flows, lower loads, and slower transport, making die-off and/or amplification processes more important, the geometric mean WQOs were appropriate for use as dry weather numeric targets. Wet weather TMDL calculations were based on the REC-1 single sample maximum WQOs while dry weather TMDL calculations were based on REC-1 geometric mean WQOs.

It is not the intent of these TMDLs to require treatment or diversion of natural waterbodies or to require treatment of natural sources of indicator bacteria. The Basin Plan authorizes the use of a reference system and antidegradation approach (RSAA) or natural sources

[1] Water quality objectives for indicator bacteria in waters with non-water-contact recreation (REC-2) are less stringent than the water quality objectives for REC-1, therefore, attainment of REC-1 objectives through the implementation of TMDLs will, *a fortiori,* provide the requisite water quality for REC-2.
[2] Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
[3] Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.

exclusion approach (NSEA) during implementation of indicator bacteria water quality objectives within the context of a TMDL.

For these indicator bacteria TMDLs, the RSAA has been incorporated in the numeric targets as an allowable frequency that the REC-1 WQOs can be exceeded (i.e., allowable exceedance frequency). The purpose of the allowable exceedance frequency is to account for the natural, and largely uncontrollable sources of bacteria (e.g., bird and wildlife feces), which have been shown can, by themselves, cause exceedances of the REC-1 WQOs. The RSAA also incorporates antidegradation principles in that, if water quality is better than that of the reference system in a particular location, no degradation of existing bacteriological water quality is permitted.

Therefore, in addition to the REC-1 WQOs, the numeric targets used to calculate the indicator bacteria TMDLs include an allowable exceedance frequency. The numeric targets used to calculate of the wet weather TMDLs include a 22 percent allowable exceedance frequency of the REC-1 single sample maximum WQOs.[4] The numeric targets used to calculate dry weather TMDLs include a zero percent allowable exceedance frequency of the REC-1 geometric mean WQOs.[5]

The allowable load (i.e., TMDL) that is calculated based on these numeric targets consists of the sum of two parts: 1) the bacteria load that is calculated with the REC-1 WQOs and, 2) the bacteria load that is associated with the allowable exceedance frequency, calculated using the existing load in exceedance of the REC-1 WQOs on the allowable exceedance days. Allowable exceedance days are calculated based on the allowable exceedance frequency and total number of wet days in a year.

Different enterococci REC-1 WQOs were used to calculate TMDLs in watersheds modeled with the inland freshwater creeks (i.e., San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, (lower) San Diego River, and Chollas Creek) and watersheds modeled only with coastal saltwater beaches. The WQOs applicable to ocean waters are provided in the Ocean Plan. The Ocean Plan is applicable only to ocean waters and does not apply to marine bays, estuaries and lagoons. The WQOs applicable to all other surface waters in the San Diego Region (e.g., marine bays, estuaries and lagoons, and freshwater inland surface waters) are contained in the Basin Plan.

There are different enterococci REC-1 WQOs in the Ocean Plan compared to the Basin Plan. Specifically, the Ocean Plan contains REC-1 single sample maximum and 30-day

[4] In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.

[5] Available water quality data from San Diego Region reference systems indicate that exceedances of the single sample WQOs during dry weather conditions are uncommon. Furthermore, if the exceedance of the single sample WQOs during dry weather is unlikely, exceedances of the geometric mean are even more unlikely.

geometric mean WQOs for ocean waters that do not vary. In the Basin Plan, however, the REC-1 single sample maximum WQOs for enterococci are dependent upon the type (e.g., freshwater or saltwater) and usage frequency (e.g., designated beach, moderately or lightly used area, or infrequently used area) of the waterbody, and the REC-1 geometric mean WQOs are dependent of the type (e.g., freshwater or saltwater) of waterbody. The enterococci saltwater REC-1 WQOs in the Basin Plan, for waters designated with "designated beach" usage frequency, are the same as the enterococci REC-1 WQOs in the Ocean Plan.

For the application of the Basin Plan's enterococci REC-1 WQOs, unless otherwise specified in the Basin Plan, all waterbodies in the San Diego Region designated with REC-1 beneficial use are assumed to have a "designated beach" usage frequency. The "designated beach" usage frequency has the lowest and most stringent enterococci REC-1 WQOs in the Basin Plan. The enterococci REC-1 single sample maximum WQOs in the Basin Plan are more stringent for freshwater (61 MPN/100mL) than for saltwater (104 MPN/100mL) waterbodies. The enterococci REC-1 geometric mean WQOs in the Basin Plan are also more stringent for freshwater (33 MPN/100mL) than for saltwater (35 MPN/100mL) waterbodies. Since coastal saltwater beaches are downstream of inland freshwater creeks, TMDLs for coastal saltwater beaches are calculated using the more conservative enterococci REC-1 WQOs applicable to freshwater creeks (i.e., 61 MPN/100mL and 33 MPN/100mL). The numeric targets used in the calculation of the TMDLs for Tecolote Creek and Chollas Creek are also based on the enterococci REC-1 WQOs applicable to freshwater creeks.

In some cases, the "designated beach" category may be over-protective of water quality because of the infrequent recreational use in the impaired freshwater creeks. The recreational usage frequency in these freshwater creeks may correspond to the "moderately to lightly used areas" category, which has an enterococci freshwater REC-1 single sample maximum WQO of 108 MPN/100mL. In such cases, the "designated beach" enterococci saltwater REC-1 single sample maximum WQO (104 MPN/100mL) would also be protective of the "moderately to lightly used area" freshwater creek.

Before the less stringent enterococci single sample maximum saltwater REC-1 WQO may be applied to a freshwater creek, the Basin Plan must be amended to designate a lower usage frequency (i.e., "moderately to lightly used area") for each freshwater creek. If information and evidence are provided to justify the "moderately to lightly used area" usage frequency for a freshwater creek, and the designated usage frequency of the freshwater creek is amended to "moderately to lightly used area" in the Basin Plan, the wet weather TMDLs that were calculated in a watershed that was modeled with a freshwater creek using the enterococci saltwater REC-1 WQOs can be implemented instead.

The numeric targets for the scenarios described above are summarized in the following tables.

[Insert table number]. Wet Weather Numeric Targets

Indicator Bacteria	Numeric Target (MPN/100mL)	Allowable Exceedance Frequency [a]
Fecal coliform	400 [b]	22%
Total coliform	10,000 [c]	22%
Enterococci	104 [d] / 61 [e]	22%

a. Percent of wet days (i.e., rainfall events of 0.2 inches or greater and the following 72 hours) allowed to exceed the wet weather numeric targets. Exceedance frequency based on reference system in the Los Angeles Region.
b. Fecal coliform single sample maximum WQO for REC-1 use in creeks and at beaches.
c. Total coliform single sample maximum WQO for REC-1 use at beaches and the point in creeks that discharges to beaches.
d. Enterococci single sample maximum WQO for REC-1 use in creeks established and designated as "moderately or lightly used" in the Basin Plan and at beaches downstream of those creeks, as well as all other beaches.
e. Enterococci single sample maximum WQO for REC-1 use in creeks not established and designated as "moderately or lightly used" in the Basin Plan and at beaches downstream of those creeks ("designated beach" frequency of use; applicable to San Juan Creek and downstream beach, Aliso Creek and downstream beach, Tecolote Creek, Forrester Creek, San Diego River and downstream beach, and Chollas Creek).

[Insert table number]. Dry Weather Numeric Targets

Indicator Bacteria	Numeric Target (MPN/100mL)	Allowable Exceedance Frequency [a]
Fecal coliform	200 [b]	0%
Total coliform	1,000 [c]	0%
Enterococci	35 [d] / 33 [e]	0%

a. Percent of dry days (i.e., days with less than 0.2 inch of rainfall observed on each of the previous 3 days) allowed to exceed the dry weather numeric targets.
b. Fecal coliform 30-day geometric mean WQO for REC-1 use in creeks and at beaches.
c. Total coliform 30-day geometric mean WQO for REC-1 at beaches and the point in creeks that discharges to beaches.
d. Enterococci 30-day geometric mean WQO for REC-1 at beaches.
e. Enterococci 30-day geometric mean WQO for REC-1 use in impaired creeks and beaches downstream of those creeks (applicable to San Juan Creek and downstream beach, Aliso Creek and downstream beach, Tecolote Creek, Forrester Creek, San Diego River and downstream beach, and Chollas Creek).

(c) Source Analysis

Sources of bacteria are the same under both wet weather and dry weather conditions. Bacteria build up on the land surface as a result of various anthropogenic land uses (e.g., urban development and agriculture) and natural processes (e.g., birds and wildlife). Bacteria are washed off the land surface by surface runoff. In urban areas, bacteria are washed off the land surface by dry weather and wet weather flows and transported through pipes and conveyance channels of the municipal separate storm sewer systems (MS4s) to surface waters. Other significant point sources of bacteria include municipal wastewater treatment plants and industrial waste treatment facilities. In rural and undeveloped areas, bacteria are washed off the land surface primarily by wet weather flows directly to surface waters. Discharges from rural areas are typically considered nonpoint sources. These diffuse nonpoint sources (e.g., undeveloped land, agriculture, livestock, and horse ranch facilities) have multiple routes of entry into surface waters.

Nonpoint sources were separated into controllable and uncontrollable categories. Controllable nonpoint sources are identified by land use types and coverages. Controllable nonpoint sources include land uses associated with agriculture, dairy/intensive livestock, and horse ranches (collectively referred to as agriculture land uses). These were considered controllable because the land uses are anthropogenic in nature, and load reductions can be reasonably expected with the implementation of suitable management measures. Uncontrollable nonpoint sources include loads from open recreation, open space, and water land uses (collectively referred to as open space land uses). Loads from these areas are considered uncontrollable because they come from mostly natural sources (e.g. bird and wildlife feces).

In order to quantify bacteria loading from these various sources and transport mechanisms, 13 land-use types were identified in the TMDL analysis: Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, Open Recreation, Agriculture, Dairy/Intensive Livestock, Horse Ranches, Open Space, Water, and Transitional (Construction Activities). In the technical TMDL analysis, the 13 land use types were grouped into the following four land use categories: 1) owners/operators of municipal separate storm sewers (Municipal MS4s); 2) Caltrans (separated from other Municipal MS4s); 3) Agriculture; and 4) Open Space. Bacteria loads discharged from Low Density Residential, High Density Residential, Commercial/Institutional, Industrial/Transportation, Military, Parks/Recreation, and Transitional land use types are included in the Municipal MS4s category, which is considered a controllable point source. Bacteria loads discharged from the Industrial/Transportation land use type associated with Caltrans were separated into the Caltrans category, which is considered a controllable point source. Bacteria loads discharged from Agriculture, Dairy/Intensive Livestock, and Horse Ranch land use types are included in the Agriculture category, which is considered a controllable nonpoint source. Bacteria loads discharged from Open Recreation, Open Space, and Water land use types are included in the Open Space category, which is associated with natural and undeveloped areas and considered an uncontrollable nonpoint source.

(d) Critical Conditions

The critical conditions are a set of environmental conditions for which controls designed to protect water quality will ensure attainment of the numeric targets for all other conditions. The critical conditions include the location and the period of time in which the waterbody is expected to exhibit the highest vulnerability.

To ensure that numeric targets are met throughout the impaired waterbodies, a critical location consisting of a node at the base of the watershed as it discharges to the ocean or bay was used as the point where the allowable load (i.e., TMDL) is calculated. A critical period associated with extreme rainfall conditions (i.e., critical wet year), and thus the highest potential bacteria load at the critical location, was selected for watershed modeling analysis. The year 1993 was selected as the critical wet period for assessment of extreme wet weather loading conditions because this year was the wettest year of the 12 years of record (1990 through 2002).

(e) Linkage Analysis

The purpose of the linkage analysis is to quantify the "existing" bacteria loads that are currently generated by the pollutant sources in the watershed under the critical conditions, and quantify the maximum allowable bacteria loading to each impaired waterbody that will result in attainment of numeric targets under the same critical conditions. This maximum allowable bacteria loading is, in other words, the TMDL.

The linkage analysis used mathematical modeling approaches to quantify the "existing" and allowable bacteria loadings for each impaired waterbody. Separate modeling approaches were used for the calculation of the wet weather TMDLs and dry weather TMDLs.

For the calculation of the wet weather TMDLs, the wet weather modeling approach chosen for the linkage analysis is based on the application of the USEPA's Loading Simulation Program in C++ (LSPC) model to estimate bacteria loading from streams and assimilation within the waterbodies. LSPC is a recoded C++ version of the USEPA's Hydrological Simulation Program–FORTRAN (HSPF) that relies on fundamental (and USEPA-approved) algorithms. In the wet weather linkage analysis, it is assumed that storm water flows wash off bacteria loads from the surface of all 13 land use types into the receiving waters. The LSPC model was used to predict flows and bacteria densities at the critical location during the wet days of the critical wet year, which were used to calculate the mass-based annual existing wet weather bacteria loads. The LSPC model-predicted wet weather flows at the critical location during the wet days of the critical wet year in combination with the numeric targets were used to calculate the mass-based annual allowable wet weather bacteria loads, or mass-based wet weather TMDLs.

For the calculation of the dry weather TMDLs, the dry weather modeling approach chosen for the linkage analysis consists of a steady-state mass balance model that was developed to simulate transport of bacteria in the impaired creeks and the creeks flowing to impaired shorelines. This predictive model represents the streams as a series of plug-flow reactors, with each reactor having a constant, steady-state flow and bacteria load. In the dry weather linkage analysis, it is assumed that dry weather non-storm water flows generated by anthropogenic activities wash off bacteria loads from the surface of specific land use types into the receiving waters. The dry weather steady-state model was used to predict flows and bacteria densities at the critical location during the dry weather days of the critical wet year, which were used to calculate the mass-based monthly existing dry weather bacteria loads. The dry weather steady-state model-predicted flows at the critical location during the dry days of the critical wet year in combination with the dry weather numeric targets were used to calculate the mass-based monthly allowable dry weather bacteria loads, or mass-based dry weather TMDLs.

(f) Total Maximum Daily Loads and Allocations

TMDLs can be expressed as mass per time (i.e., mass-loading basis), or other appropriate measure (e.g., as a concentration).[6] For these TMDLs, the wet weather and dry weather TMDLs are expressed both in terms of concentration and on a mass loading basis. The

[6] Code of Federal Regulations Title 40 section 130.2(1) [40CFR130.2(i)]

concentration based TMDLs will be used to determine compliance with the TMDLs in the receiving waters. Mass-load based TMDLs were calculated for the impaired waterbodies in each watershed. The mass-load based TMDLs were allocated to the identified point and nonpoint sources and used to identify the controllable sources that need to reduce their bacteria loads in order for the concentration based TMDLs to be met in the receiving waters. The concentration based TMDLs, mass-load based TMDLs, and allocations are discussed below.

(1) Concentration Based TMDLs

The wet weather and dry weather concentration based TMDLs are based on meeting the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) in the receiving waters. The numeric WQOs for REC-1 beneficial uses are the basis of the numeric targets used to calculate the TMDLs, expressed as number of bacteria colonies per volume. An allowable exceedance frequency is included as part of the numeric target to allow for exceedances that may be caused by natural sources, based on a reference system. Tables [Insert first two table numbers] summarize the concentration based TMDLs, which are expressed as numeric objectives and allowable exceedance frequencies in the receiving waters for each watershed, for wet weather and dry weather, respectively. Meeting the concentration based TMDLs in the receiving waters will be used to determine compliance with the TMDLs.

(2) Mass-Load Based TMDLs

The numeric targets were used to calculate the TMDLs on a mass loading basis under a set of critical conditions. The TMDLs that were calculated in terms of mass loading were used to identify the bacteria loads from controllable sources that need to be reduced in order for the numeric targets to be met in the receiving waters.

On a mass loading basis, TMDLs are defined as the maximum mass of a pollutant the waterbody can receive and still protect the designated beneficial uses. Separate mass-load based TMDLs were calculated for wet weather and dry weather conditions to account for seasonal variations, and because the transport mechanism, flow, and bacteria loads are different between dry and wet weather conditions.

On a mass-loading basis, the TMDLs are expressed as number of bacteria colonies per unit time. The wet weather mass-load based TMDLs are expressed as "annual loads" in terms of number of bacteria colonies per year (billion MPN/yr). The dry weather mass-load based TMDLs are expressed as "monthly loads" in terms of number of bacteria colonies per month (billion MPN/mth). In order for bacteria loading to be calculated, both flow rates and bacteria densities must be measured at a point in time and location. When multiplied together, these two parameters result in bacteria mass loading, or the number of bacteria colonies measured per unit time.

$$Bacteria\ Loading = flow\ rate\ (volume / time) \times bacteria\ density (number\ of\ colonies / volume)$$

Calibrated models were used to simulate flow and bacteria densities. This information was used to calculate the "existing" mass of bacteria loads to, and allowable mass of bacteria

loads (i.e., mass-load based TMDLs) for, each impaired segment under critical conditions (i.e., worst case loading conditions). The existing mass loads that were calculated represent the worst case flows and bacteria densities that are expected from the watershed during the critical wet year. The mass-load based TMDLs were calculated with the numeric targets and modeled flows expected during the critical wet year. Existing mass loads were compared to the mass-load based TMDLs. The difference between the existing mass loads and the mass-load based TMDLs is the load reduction required to meet the REC-1 WQOs and allowable exceedance frequencies in the receiving water.

Existing mass loads and mass-load based TMDLs were calculated for wet weather and dry weather. The calculation of the mass-load based TMDLs included the use of an allowable exceedance frequency of the REC-1 WQOs. The purpose of the exceedance frequency is to account for the natural, and largely uncontrollable sources of bacteria (e.g., bird and wildlife feces) generated in the watersheds and at the beaches, which can, by themselves, cause exceedances of WQOs.

All of the wet weather mass-load based TMDLs were calculated using a 22 percent allowable exceedance frequency.[7] All of the dry weather mass-load based TMDLs were calculated using a 0 percent allowable exceedance frequency. These allowable exceedance frequencies were used to calculate the number of wet and dry weather allowable exceedance days during the critical wet year.

The mass-load based TMDLs are calculated as the sum of the allowable load associated with the numeric REC-1 WQO and the allowable load associated with the allowable exceedance frequency during the critical wet year. Tables [Insert first two table numbers] summarize the calculated existing bacteria mass loads, allowable mass loads based on the numeric REC-1 WQOs, allowable exceedance frequencies and days, allowable mass loads based on the allowable exceedance frequencies, and mass-load based TMDLs for each watershed, for wet weather and dry weather, respectively.

(3) Allocation of Mass-Load Based TMDLs

The mass-load based TMDLs were allocated among point sources (WLAs) and nonpoint sources (LAs) in each watershed. WLAs were assigned to discharges originating from urban land use areas (i.e., MS4s and Caltrans), all of which are considered controllable. LAs were assigned to discharges from rural and undeveloped land use areas (i.e., Agriculture and Open Space). Discharges from rural and undeveloped land use areas are separated into controllable and uncontrollable nonpoint sources. Agricultural land uses (e.g., agriculture, horse ranches, and intensive livestock) are considered controllable nonpoint source land use areas. Open space land uses (e.g., open space and open recreation) are considered uncontrollable nonpoint source land use areas.

[7] In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.

Sources that are not identified are assumed to be assigned a zero allowable load as part of the mass-load based TMDL (i.e., WLA = 0 or LA = 0). In other words, discharges of pollutant loads from these sources are not allowed as part of the TMDLs. Sources that are assigned an allowable mass load equal to the existing mass load (i.e., WLA or LA = existing mass load) are not allowed to increase their pollutant loads over time.

Allocations of the mass-load based TMDLs were different for wet weather TMDLs and dry weather TMDLs, as discussed below.

(A) Wet Weather TMDL Allocations

The wet weather mass-load based TMDLs were divided and assigned to point sources as WLAs and nonpoint sources as LAs based on land uses. The portions of the wet weather mass-load based TMDLs assigned to WLAs and LAs were calculated based on the percent of the TMDL mass load generated by the urban, rural, and undeveloped land uses in each watershed as determined by the wet weather models under critical conditions.

The allocation of the wet weather mass-load based TMDLs assumes surface runoff discharge occurs from all land use categories, and allocated according to the following steps:

1) Sources are separated in to controllable and uncontrollable sources. Discharges from Municipal MS4, Caltrans, and Agriculture land use categories are assumed to be controllable (i.e., subject to regulation), and discharges from Open Space land use categories are assumed to be uncontrollable (i.e., not subject to regulation).
2) Because discharges from Open Space land use categories are uncontrollable (i.e., not subject to regulation), the LAs for Open Space land use categories are set equal to the existing mass loads calculated under the critical conditions.
3) For discharges from controllable land use categories that do not contribute more than 5 percent of the total existing mass load for all three indicator bacteria, the WLA or LA is set equal to the existing mass loads from those land uses calculated under the critical conditions.
4) After the WLAs and LAs are assigned based on steps 2 and 3, the remaining portion of the mass-load based TMDL is assigned to discharges from controllable land use categories that contribute more than 5 percent of the total existing mass load for all three indicator bacteria. The allowable mass load for each source (WLA or LA) is calculated based on the ratio of the existing mass loads from those sources relative to each other.

The total watershed wet weather existing mass loads and mass-load based TMDLs, point source existing mass loads and mass-load based WLAs, nonpoint source existing mass loads and mass-load based LAs, and load reductions required to achieve the mass-load based TMDLs, WLAs, and LAs are shown below in [Insert third through fifth table numbers].

In comments, the municipal dischargers pointed out that, for the impaired creeks, the "designated beach" usage frequency WQO for enterococci may be over-protective of water quality because of the infrequent recreational use in the impaired creeks. The dischargers claim that the recreational usage frequency in these inland freshwater creeks more likely corresponds to the "moderately to lightly used area" category in the Basin Plan, which has an enterococci WQO of 108 MPN/100mL. In these cases, using a less stringent numeric target, based on the saltwater enterococci WQO of 104 MPN/100 mL ("designated beaches" usage frequency) would result in wet weather TMDLs protective of REC-1 uses in the inland freshwater creeks and at the downstream coastal saltwater beaches.[8] Therefore, the "moderately to lightly used area" usage frequency may be appropriate for the six impaired creeks, and the enterococci saltwater REC-1 single sample maximum WQO of 104 MPN/100 mL could be used as basis of the numeric target for the enterococci wet weather TMDLs.

The six creeks included in these TMDLs, however, have not been designated in the Basin Plan as "moderately to lightly used area" waterbodies as of the adoption of these TMDLs. If the Basin Plan does not specify the usage frequency of a waterbody, the most stringent and conservative WQOs are appropriate and applicable. For enterococci, the most stringent and conservative WQOs for the freshwater creeks are associated with the "designated beach" usage frequency and freshwater waterbody type. Thus, the enterococci WQOs associated with the freshwater "designated beach" usage frequency are applicable until sufficient evidence is provided to warrant an amendment to the Basin Plan that designates a lower usage frequency to one or more of the six creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and Chollas Creek).

According to the federal regulations,[9] usage frequencies are defined as follows:

- Designated Beach Area: those recreation waters that, during the recreation season, are heavily used (based upon a comparison of use within the state) and may have a lifeguard, bathhouse facilities, or public parking for beach access. States may include any other waters in this category even if the waters do not meet these criteria.

- Moderate Full Body Contact Recreation: those recreation waters that are not designated bathing beach waters but typically, during the recreation season, are used by at least half of the number of people as at typical designated bathing

[8] The enterococci WQOs in the Basin Plan are structured to reflect the frequency of recreational use. The enterococci freshwater REC-1 single sample maximum WQO for a "designated beach" area is 61 MPN/100 mL. For a "moderately or lightly used area," the REC-1 single sample maximum WQO is 108 MPN/100 mL. The saltwater REC-1 single sample maximum WQO for "designated beach" area is 104 MPN/100 mL. Where the "moderately or lightly used area" designation is appropriate for creeks, the saltwater REC-1 single sample maximum WQO of 104 MPN/100 mL could be used as the numeric target because it is also protective of both the freshwater creek and the downstream marine beach.

[9] Code of Federal Regulations Title 40 section 131.41 [40CFR131.41]

beach waters within the state. States may also include light use or infrequent use coastal recreation waters in this category.

- Lightly Used Full Body Contact Recreation: those recreation waters that are not designated bathing beach waters but typically, during the recreation season, are used by less than half of the number of people as at typical designated bathing beach waters within the state, but are more than infrequently used. States may also include infrequent use coastal recreation waters in this category.

- Infrequently Used Full Body Contact: those recreation waters that are rarely or occasionally used.

If sufficient evidence can be provided to the San Diego Water Board that can demonstrate the usage frequency for one or more of the six impaired creeks falls under the "Lightly Used Full Body Contact Recreation" or "Infrequently Used Full Body Contact" usage frequency, the Basin Plan may be amended to designate one or more of the creeks with the "moderately to lightly used area" usage frequency.

If one or more of the six creeks (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) are designated in the Basin Plan with the "moderately to lightly used area" usage frequency, the enterococci wet weather TMDLs, WLAs, and LAs based on the 104 MPN/100mL (Table [Insert sixth table number]) can be implemented. Otherwise, the more stringent and conservative enterococci wet weather TMDLs, WLAs, and LAs based on the freshwater "designated beach" usage frequency WQO of 61 MPN/100mL (Table [Insert fifth table number]) must be implemented.

(B) Dry Weather TMDL Allocations

The dry weather mass-load based TMDLs were assigned entirely to discharges from MS4 land uses because the runoff that transports bacteria loads to surface waters during dry weather are expected to occur only in urban areas. The allocation of the dry weather mass-load based TMDLs assumes that no surface runoff discharge to receiving waters occurs from Caltrans, Agriculture, or Open Space land use categories (i.e., $WLA_{Caltrans} = 0$, $LA_{Agriculture} = 0$, and $LA_{OpenSpace} = 0$), meaning the entire dry weather mass-load based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., $WLA_{MS4} = TMDL$).

The total watershed dry weather existing mass loads and mass-load based TMDLs, point source existing mass loads and mass-load based WLAs, nonpoint source existing mass loads and mass-load based LAs, and load reductions required to achieve the mass-load based TMDLs, WLAs, and LAs are shown below in Tables [Insert seventh through ninth table numbers].

Because the wet weather and dry weather modeling approaches used to calculate the mass-load based TMDLs, WLAs, LAs, and existing mass wasteloads and loads were based on critical conditions (i.e., worst case loading scenario), the mass-loading numbers (i.e.,

existing mass loads, and mass-load based TMDLs, WLAs, and LAs expressed in terms of billion MPN/year for wet weather and billion MPN/month for dry weather) presented in Tables [Insert first through ninth table numbers] represent conservative mass-load estimates expected to be protective of the beneficial uses under extreme conditions. The mass-loading numbers also provide a tool for identifying bacteria sources that need to be controlled and existing bacteria loads that need to be reduced to meet the TMDLs in the receiving waters.

Ultimately, controllable point and nonpoint sources must reduce their anthropogenic loads so the concentration based wet weather and dry weather TMDLs, which are based on the numeric REC-1 WQOs in the Basin Plan and allowable exceedance frequencies, can be met during wet weather and dry weather conditions during each year. Meeting the wet weather and dry weather numeric targets in the discharge and/or receiving water will indicate the TMDLs, WLAs, and/or LAs have been met.

(g) Margin of Safety

The numeric targets used for the mass-load based and concentration based TMDLs are assumed to be conservative by utilizing the most stringent REC-1 WQOs contained in the Ocean Plan and/or Basin Plan. Additionally, the mass-load based TMDLs were calculated under a set of critical conditions that assumed the highest potential mass loading would occur at a critical point during a critical wet year, which is expected to be protective of beneficial uses during extreme conditions. The conservative assumptions that were used result in conservative mass-load based and concentration based TMDLs that are expected to restore and protect the beneficial uses of the receiving waters.

Because bacteria in wet weather runoff and streamflows have a quick travel time, and therefore, a short residence time in the waterbodies, the REC-1 single-sample maximum WQOs were determined to be most appropriate for calculating the wet weather TMDLs. The numeric targets used for the wet weather mass-load based and concentration based TMDLs are assumed to be conservative by utilizing the most stringent REC-1 single sample maximum WQOs contained in the Ocean Plan and/or Basin Plan.

Because dry weather conditions have flows and bacteria loads much smaller in magnitude than wet weather conditions, do not occur from all land use types, and are more uniform than stormflow, the REC-1 30-day geometric mean WQOs were determined to be most appropriate for the dry weather TMDLs. The numeric targets used for the dry weather mass-load based and concentration based TMDLs are assumed to be conservative by utilizing the most stringent REC-1 30 day geometric mean WQOs contained in the Ocean Plan and/or Basin Plan.

Because of the numeric targets and critical conditions that were included in the calculation of the TMDLs, there was no explicit margin of safety included. Instead, the TMDLs include an implicit margin of safety (MOS). The implicit MOS is included via conservative estimates and assumptions (meaning worst-case scenarios were assumed in terms of existing bacteria loading) throughout the calculations and not as a separate, additional factor.

[Insert table number]. Summary of Wet Weather Existing and Allowable Indicator Bacteria Loads

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/year)	Single Sample Maximum Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Wet Days in Critical Year	Allowable Exceedance Frequency	Allowable Wet Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/year)	Total Allowable Load [=TMDL] (Billion MPN/year)
San Joaquin Hills HSA (901.11)	Fecal Coliform	705,015	**400**	16,043				648,591	664,634
and Laguna Hills HSA (901.12)	Total Coliform	8,221,901	**10,000**	401,049	69	**22%**	15	7,044,601	7,445,649
- Pacific Ocean Shoreline	Enterococcus	852,649	**104**	4,175				778,624	782,799
Aliso HSA (901.13)	Fecal Coliform	1,752,096	**400**	84,562				1,494,512	1,579,073
- Pacific Ocean Shoreline	Total Coliform	23,210,774	**10,000**	2,109,600	69	**22%**	15	18,081,198	20,190,798
- Aliso Creek	Enterococcus	2,230,206	**104***	22,682				1,929,834	1,952,517
- Aliso Creek mouth		2,230,206	**61**	13,644				1,937,321	1,950,964
Dana Point HSA (901.14)	Fecal Coliform	403,911	**400**	14,894				362,419	377,313
- Pacific Ocean Shoreline	Total Coliform	6,546,962	**10,000**	372,328	69	**22%**	15	5,659,144	6,031,472
	Enterococcus	501,526	**104**	3,875				458,431	462,306
Lower San Juan HSA (901.27)	Fecal Coliform	15,304,790	**400**	358,410				14,356,423	14,714,833
- Pacific Ocean Shoreline	Total Coliform	130,258,863	**10,000**	8,947,114	76	**22%**	17	113,932,076	122,879,189
- San Juan Creek	Enterococcus	12,980,098	**104***	95,357				12,063,781	12,159,138
- San Juan Creek mouth		12,980,098	**61**	56,119				12,096,327	12,152,446
San Clemente HA (901.30)	Fecal Coliform	1,441,723	**400**	36,481				1,342,450	1,378,931
- Pacific Ocean Shoreline	Total Coliform	16,236,606	**10,000**	911,994	73	**22%**	16	14,235,609	15,147,603
	Enterococcus	1,663,100	**104**	9,491				1,553,696	1,563,187
San Luis Rey HU (903.00)	Fecal Coliform	33,120,012	**400**	640,595				31,803,647	32,444,242
- Pacific Ocean Shoreline	Total Coliform	231,598,677	**10,000**	15,993,384	90	**22%**	20	208,157,151	224,150,535
	Enterococcus	18,439,920	**104**	167,152				17,296,466	17,463,618
San Marcos HA (904.50)	Fecal Coliform	20,886	**400**	1,559				15,665	17,224
- Pacific Ocean Shoreline	Total Coliform	515,278	**10,000**	38,984	49	**22%**	11	386,099	425,083
	Enterococcus	40,558	**104**	406				32,559	32,966
San Dieguito HU (905.00)	Fecal Coliform	21,286,910	**400**	425,968				20,675,680	21,101,649
- Pacific Ocean Shoreline	Total Coliform	163,541,133	**10,000**	10,637,225	98	**22%**	22	149,176,959	159,814,184
	Enterococcus	14,796,210	**104**	113,253				14,193,834	14,307,087
Miramar Reservoir HA (906.10)	Fecal Coliform	10,392	**400**	312				9,943	10,256
- Pacific Ocean Shoreline	Total Coliform	212,986	**10,000**	7,809	94	**22%**	21	202,371	210,180
	Enterococcus	11,564	**104**	81				11,323	11,405

[Insert table number]. Summary of Wet Weather Existing and Allowable Indicator Bacteria Loads (Cont'd)

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/year)	Single Sample Maximum Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/year)	Total Wet Days in Critical Year	Allowable Exceedance Frequency	Allowable Wet Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/year)	Total Allowable Load [=TMDL] (Billion MPN/year)
Scripps HA (906.30)	Fecal Coliform	204,057	**400**	10,329	57	**22%**	13	166,578	176,907
- Pacific Ocean Shoreline	Total Coliform	5,029,519	**10,000**	258,228				4,098,745	4,356,973
	Enterococcus	377,839	**104**	2,686				321,347	324,032
Tecolote HA (906.50)	Fecal Coliform	261,966	**400**	25,080	57	**22%**	13	204,241	229,322
- Tecolote Creek	Total Coliform	7,395,789	**10,000**	626,414				5,753,355	6,379,770
	Enterococcus	708,256	**104***	6,522				597,659	604,180
		708,256	**61**	3,825				599,936	603,761
Mission San Diego HSA (907.11)	Fecal Coliform	4,932,380	**400**	310,820	86	**22%**	19	4,370,018	4,680,838
and Santee HSA (907.12)	Total Coliform	72,757,569	**10,000**	7,752,284				58,352,938	66,105,222
- Forrester Creek - San Diego River (lower) - Pacific Ocean Shoreline	Enterococcus	7,255,759	**104***	80,899				6,514,309	6,595,208
		7,255,759	**61**	47,479				6,543,487	6,590,966
Chollas HSA (908.22)	Fecal Coliform	603,863	**400**	55,516	65	**22%**	14	464,924	520,440
- Chollas Creek	Total Coliform	15,390,608	**10,000**	1,386,037				11,861,589	13,247,626
	Enterococcus	1,371,972	**104***	15,008				1,138,590	1,153,599
		1,371,972	**61**	9,073				1,143,572	1,152,645

* Total Maximum Daily Load calculated using a Enterococcus numeric target of 61 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches. If the usage frequency of the freshwater creeks can be established as "moderately to lightly used" in the Basin Plan, alternative Total Maximum Daily Loads calculated using an Enterococcus numeric target of 104 MPN/ml may be used.

Existing Bacteria Load = Predicted existing bacteria load discharged from the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Single Sample Maximum Objective = Target bacteria densities based on numeric single sample maximum water quality objectives that are protective of REC-1 beneficial uses
Allowable Numeric Objective Load = Allowable load from the watershed calculated by the LSPC model using modeled flows and the numeric single sample maximum water quality objective bacteria densities for all wet days during the critical year 1993

Total Wet Days in Critical Year = Number of wet days (i.e., rainfall events of 0.2 inches or greater and the following 72 hours) in the critical year 1993 (i.e., wettest year between 1990 and 2002)
Allowable Exceedance Frequency = Assumed to be 22 percent exceedance frequency. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
Allowable Wet Exceedance Days = (Total Wet days in Critical Year) X (Allowable Exceedance Frequency)
Allowable Exceedance Load = Sum of exceedance loads from the allowable exceedance days with the highest exceedance loads calculated by the LSPC model using modeled flows and bacteria densities for all wet days during the critical year 1993

Total Allowable Load [i.e. TMDL] = (Allowable Numeric Objective Load) + (Allowable Exceedance Load)

[Insert table number]. Summary of Dry Weather Existing and Allowable Indicator Bacteria Loads

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/mth)	30-Day Geometric Mean Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/mth)	Total Dry Days in Critical Year	Allowable Exceedance Frequency	Allowable Dry Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/mth)	Total Allowable Load [=TMDL] (Billion MPN/mth)
San Joaquin Hills HSA (901.11)	Fecal Coliform	2,741	**200**	227				0	227
and Laguna Hills HSA (901.12)	Total Coliform	13,791	**1,000**	1,134	296	**0%**	0	0	1,134
- Pacific Ocean Shoreline	Enterococcus	2,321	**35**	40				0	40
Aliso HSA (901.13)	Fecal Coliform	5,470	**200**	242				0	242
- Pacific Ocean Shoreline - Aliso Creek	Total Coliform	26,639	**1,000**	1,208	296	**0%**	0	0	1,208
- Aliso Creek mouth	Enterococcus	4,614	**33***	40				0	40
Dana Point HSA (901.14)	Fecal Coliform	1,851	**200**	92				0	92
- Pacific Ocean Shoreline	Total Coliform	9,315	**1,000**	462	296	**0%**	0	0	462
	Enterococcus	1,567	**35**	16				0	16
Lower San Juan HSA (901.27)	Fecal Coliform	6,455	**200**	1,665				0	1,665
- Pacific Ocean Shoreline - San Juan Creek	Total Coliform	30,846	**1,000**	8,342	289	**0%**	0	0	8,342
- San Juan Creek mouth	Enterococcus	5,433	**33***	275				0	275
San Clemente HA (901.30)	Fecal Coliform	3,327	**200**	192				0	192
- Pacific Ocean Shoreline	Total Coliform	16,743	**1,000**	958	292	**0%**	0	0	958
	Enterococcus	2,817	**35**	33				0	33
San Luis Rey HU (903.00)	Fecal Coliform	1,737	**200**	1,058				0	1,058
- Pacific Ocean Shoreline	Total Coliform	8,549	**1,000**	5,289	275	**0%**	0	0	5,289
	Enterococcus	1,466	**35**	185				0	185
San Marcos HA (904.50)	Fecal Coliform	149	**200**	26				0	26
- Pacific Ocean Shoreline	Total Coliform	751	**1,000**	129	316	**0%**	0	0	129
	Enterococcus	126	**35**	5				0	5
San Dieguito HU (905.00)	Fecal Coliform	1,631	**200**	1,293				0	1,293
- Pacific Ocean Shoreline	Total Coliform	7,555	**1,000**	6,468	267	**0%**	0	0	6,468
	Enterococcus	1,368	**35**	226				0	226
Miramar Reservoir HA (906.10)	Fecal Coliform	205	**200**	7				0	7
- Pacific Ocean Shoreline	Total Coliform	1,030	**1,000**	36	271	**0%**	0	0	36
	Enterococcus	173	**35**	1				0	1

[Insert table number]. Summary of Dry Weather Existing and Allowable Indicator Bacteria Loads (Cont'd)

Watershed - Impaired Waterbody	Indicator Bacteria	Existing Bacteria Load (Billion MPN/mth)	30-Day Geometric Mean Objective (MPN/100mL)	Allowable Numeric Objective Load (Billion MPN/mth)	Total Dry Days in Critical Year	Allowable Exceedance Frequency	Allowable Dry Exceedance Days in Critical Year	Allowable Exceedance Load (Billion MPN/mth)	Total Allowable Load [=TMDL] (Billion MPN/mth)
Scripps HA (906.30)	Fecal Coliform	3,320	**200**	119				0	119
- Pacific Ocean Shoreline	Total Coliform	16,707	**1,000**	594	308	**0%**	0	0	594
	Enterococcus	2,811	**35**	21				0	21
Tecolote HA (906.50)	Fecal Coliform	4,329	**200**	234				0	234
- Tecolote Creek	Total Coliform	21,349	**1,000**	1,171	308	**0%**	0	0	1,171
	Enterococcus	3,657	**33***	39				0	39
Mission San Diego HSA (907.11)	Fecal Coliform	4,928	**200**	1,506				0	1,506
and Santee HSA (907.12)	Total Coliform	28,988	**1,000**	7,529	279	**0%**	0	0	7,529
- Forrester Creek (lower 1 mile) - San Diego River (lower 6 miles) - Pacific Ocean Shoreline	Enterococcus	4,106	**33***	248				0	248
Chollas HSA (908.22)	Fecal Coliform	5,068	**200**	398				0	398
- Chollas Creek	Total Coliform	25,080	**1,000**	1,991	300	**0%**	0	0	1,991
	Enterococcus	4,283	**33***	66				0	66

* Total Allowable Load [=TMDL] calculated using a Enterococcus numeric target of 33 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for watersheds with impaired freshwater creeks.

Existing Bacteria Load = Predicted existing bacteria load discharged from the watershed calculated by the plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993

30-Day Geometric Mean Objective = Target bacteria densities based on numeric 30-day geometric mean water quality objectives that are protective of REC-1 beneficial uses
Allowable Numeric Objective Load = Allowable load from the watershed calculated by the plug-flow reactor model using estimated flows and the numeric 30-day geometric mean water quality objective bacteria densities for 30 dry days during the critical year 1993

Total Dry Days in Critical Year = Number of dry days (i.e., day not including rainfall events of 0.2 inches or greater and the following 72 hours) in the critical year 1993 (i.e., wettest year between 1990 and 2002)
Allowable Exceedance Frequency = Assumed to be zero; data collected from reference systems generally do not show exceedances of REC-1 water quality objectives
Allowable Wet Exceedance Days = (Total Dry Days in Critical Year) X (Allowable Exceedance Frequency)
Allowable Exceedance Load = Sum of exceedance loads from the allowable exceedance days for all dry days during the critical year 1993

Total Allowable Load [i.e. TMDL] = (Allowable Numeric Objective Load) + (Allowable Exceedance Load) for a 30-day period

[Insert table number]. Wet Weather Fecal Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
Watershed	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	705,015	664,634	77,548	37,167	52.07%	179	179	0.00%	7,346	7,346	0.00%	619,942	619,942	0.00%
Aliso HSA (901.13)	1,752,096	1,579,073	650,092	477,069	26.62%	260	260	0.00%	26,508	26,508	0.00%	1,075,237	1,075,237	0.00%
Dana Point HSA (901.14)	403,911	377,313	179,043	152,446	14.86%	13	13	0.00%	0	0	0.00%	224,854	224,854	0.00%
Lower San Juan HSA (901.27)	15,304,790	14,714,833	1,326,469	1,156,419	12.82%	1,713	1,713	0.00%	3,275,477	2,855,570	12.82%	10,701,131	10,701,131	0.00%
San Clemente HA (901.30)	1,441,723	1,378,931	255,445	192,653	24.58%	335	335	0.00%	366	366	0.00%	1,185,577	1,185,577	0.00%
San Luis Rey HU (903.00)	33,120,012	32,444,242	943,501	914,026	3.12%	1,537	1,537	0.00%	20,687,954	20,041,659	3.12%	11,487,019	11,487,019	0.00%
San Marcos HA (904.50_	20,886	17,224	8,095	6,558	18.98%	8	8	0.00%	11,199	9,073	18.98%	1,585	1,585	0.00%
San Dieguito HU (905.00)	21,286,910	21,101,649	810,008	798,175	1.46%	1,310	1,310	0.00%	11,872,240	11,698,811	1.46%	8,603,352	8,603,352	0.00%
Miramar Reservoir HA (906.10)	10,392	10,256	6,839	6,703	1.99%	0	0	0.00%	0	0	0.00%	3,552	3,552	0.00%
Scripps HA (906.30)	204,057	176,907	128,403	101,253	21.14%	0	0	0.00%	0	0	0.00%	75,654	75,654	0.00%
Tecolote HA (906.5)	261,966	229,322	159,449	126,806	20.47%	553	553	0.00%	0	0	0.00%	101,963	101,963	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,932,380 +1,302**	4,680,838 +1,302*	472,660	221,117	53.22%	1,009	1,009	0.00%	414,721	414,721	0.00%	4,043,991	4,043,991	0.00%
Chollas HSA (908.22)	603,863	520,440	335,901	252,479	24.84%	892	892	0.00%	0	0	0.00%	267,070	267,070	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for fecal coliform (400 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Permitted existing fecal coliform bacteria load from Padre Dam Municipal Water District Water Reclamation Plant (Padre Dam), assigned as a separate point source wasteload allocation for discharges from Padre Dam equal to the permitted existing load

Watershed Existing Load = Predicted existing fecal coliform bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

[Insert table number]. Wet Weather Total Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
Watershed	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	8,221,901	7,445,649	1,656,904	880,652	46.85%	7,722	7,722	0.00%	50,774	50,774	0.00%	6,506,501	6,506,501	0.00%
Aliso HSA (901.13)	23,210,774	20,190,798	11,943,241	8,923,264	25.29%	11,003	11,003	0.00%	179,828	179,828	0.00%	11,076,702	11,076,702	0.00%
Dana Point HSA (901.14)	6,546,962	6,031,472	3,919,497	3,404,008	13.15%	634	634	0.00%	0	0	0.00%	2,626,830	2,626,830	0.00%
Lower San Juan HSA (901.27)	130,258,863	122,879,189	19,919,322	16,093,160	19.21%	60,480	60,480	0.00%	18,499,884	14,946,372	19.21%	91,779,178	91,779,178	0.00%
San Clemente HA (901.30)	16,236,606	15,147,603	4,566,742	3,477,739	23.85%	13,534	13,534	0.00%	2,370	2,370	0.00%	11,653,960	11,653,960	0.00%
San Luis Rey HU (903.00)	231,598,677	224,150,535	15,229,456	14,373,954	5.62%	54,508	54,508	0.00%	117,360,800	110,768,160	5.62%	98,953,913	98,953,913	0.00%
San Marcos HA (904.50_	515,278	425,083	366,021	298,430	18.47%	533	533	0.00%	122,414	99,809	18.47%	26,311	26,311	0.00%
San Dieguito HU (905.00)	163,541,133	159,814,184	17,406,569	16,660,538	4.29%	47,969	47,969	0.00%	69,551,416	66,570,499	4.29%	76,535,178	76,535,178	0.00%
Miramar Reservoir HA (906.10)	212,986	210,180	174,243	171,436	1.61%	9	9	0.00%	0	0	0.00%	38,734	38,734	0.00%
Scripps HA (906.30)	5,029,519	4,356,973	4,120,310	3,447,764	16.32%	0	0	0.00%	0	0	0.00%	909,209	909,209	0.00%
Tecolote HA (906.5)	7,395,789	6,379,770	6,152,484	5,136,598	16.51%	27,095	27,095	0.00%	0	0	0.00%	1,216,077	1,216,077	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	72,757,569	66,105,222	17,442,867	10,790,520	38.14%	53,141	53,141	0.00%	3,495,960	3,495,960	0.00%	51,765,601	51,765,601	0.00%
Chollas HSA (908.22)	15,390,608	13,247,626	12,023,766	9,880,784	17.82%	45,652	45,652	0.00%	0	0	0.00%	3,321,191	3,321,191	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for total coliform (10,000 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

Watershed Existing Load = Predicted existing total coliform bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting total coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting total coliform bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting total coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting total coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

[Insert table number]. Wet Weather Enterococcus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	852,649	782,799	136,267	66,417	51.26%	365	365	0.00%	3,201	3,201	0.00%	712,816	712,816	0.00%
Aliso HSA (901.13)	2,230,206	1,950,964**	1,014,732	735,490	27.52%	516	516	0.00%	11,245	11,245	0.00%	1,203,713	1,203,713	0.00%
Dana Point HSA (901.14)	501,526	462,306	258,747	219,528	15.16%	25	25	0.00%	0	0	0.00%	242,753	242,753	0.00%
Lower San Juan HSA (901.27)	12,980,098	12,152,446**	1,900,520	1,385,094	27.12%	2,823	2,823	0.00%	1,151,266	839,040	27.12%	9,925,490	9,925,490	0.00%
San Clemente HA (901.30)	1,663,100	1,563,187	395,581	295,668	25.26%	635	635	0.00%	148	148	0.00%	1,266,736	1,266,736	0.00%
San Luis Rey HU (903.00)	18,439,920	17,463,618	1,472,296	1,300,235	11.69%	2,397	2,397	0.00%	6,881,755	6,077,514	11.69%	10,083,473	10,083,473	0.00%
San Marcos HA (904.50_	40,558	32,966	29,784	23,771	20.19%	26	26	0.00%	7,825	6,246	20.19%	2,923	2,923	0.00%
San Dieguito HU (905.00)	14,796,210	14,307,087	1,911,170	1,763,603	7.72%	2,288	2,288	0.00%	4,423,566	4,082,010	7.72%	8,459,187	8,459,187	0.00%
Miramar Reservoir HA (906.10)	11,564	11,405	8,269	8,109	1.93%	0	0	0.00%	0	0	0.00%	3,295	3,295	0.00%
Scripps HA (906.30)	377,839	324,032	285,842	232,035	18.82%	0	0	0.00%	0	0	0.00%	91,997	91,997	0.00%
Tecolote HA (906.5)	708,256	603,761**	575,708	471,211	18.15%	1,266	1,266	0.00%	0	0	0.00%	131,284	131,284	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	7,255,759	6,590,966*	1,555,411	890,617	42.74%	2,430	2,430	0.00%	213,149	213,149	0.00%	5,484,770	5,484,770	0.00%
Chollas HSA (908.22)	1,371,972	1,152,645**	1,022,245	802,918	21.46%	2,062	2,062	0.00%	0	0	0.00%	347,665	347,665	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for enterococcus (104 MPN/100mL or 61 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 61 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches. If the usage frequency of the ffreshwater creeks can be established as "moderately to lightly used," alternative Total Maximum Daily Loads calculated using an Enterococcus numeric target of 104 MPN/ml presented in Table 9-5 may be used.

Watershed Existing Load = Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993

Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all lan uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model

MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses

MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area

Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load

Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model

Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent

Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model

Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load

Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load))

[Insert table number]. Alternative Wet Weather Enterococcus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Annual Loads (Billion MPN/year)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
Aliso HSA (901.13)	2,230,206	1,952,517**	1,014,732	737,042	27.37%	516	516	0.00%	11,245	11,245	0.00%	1,203,713	1,203,713	0.00%
Lower San Juan HSA (901.27)	12,980,098	12,159,138**	1,900,520	1,389,261	26.90%	2,823	2,823	0.00%	1,151,266	841,564	26.90%	9,925,490	9,925,490	0.00%
Tecolote HA (906.50)	708,256	604,180**	575,708	471,630	18.08%	1,266	1,266	0.00%	0	0	0.00%	131,284	131,284	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	7,255,759	6,595,208**	1,555,411	894,859	42.47%	2,430	2,430	0.00%	213,149	213,149	0.00%	5,484,770	5,484,770	0.00%
Chollas HSA (908.22)	1,371,972	1,153,599**	1,022,245	803,871	21.36%	2,062	2,062	0.00%	0	0	0.00%	347,665	347,665	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the single sample maximum WQO for enterococcus (104 MPN/100mL) and a 22 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 104 MPN/ml protective of the REC-1 "moderately to lightly used area" usage frequency that is protective freshwater creeks and downstream beaches. Acceptable evidence that impaired freshwater creeks can be considered "moderately to lightly used areas" must be provided before these alternative wet weather TMDLs, WLAs, and LAs can be implemented in these watersheds.

Watershed Existing Load Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by the Loading Simulation Program in C++ (LSPC) model using modeled flows and bacteria densities for all wet days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed on an annual basis

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the LSPC model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = = Predicted exiting Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed calculated as a fraction of the discharge from industrial/transportation land use category area
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) calculated by the LSPC model
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to Agriculture Existing Load in watersheds with existing bacteria load contributions for all three indicator bacteria of less than 5 percent; calculated as a relative load percent of the TMDL minus Caltrans WLA and Open Space LA, based on existing load contributions from MS4 and Agriculture land use categories in watersheds with existing bacteria load contributions for all three indicator bacteria of greater than 5 percent
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) calculated by the LSPC model
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

[Insert table number]. Dry Weather Fecal Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	2,741	227	2,741	227	91.72%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	5,470	242	5,470	242	95.58%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	1,851	92	1,851	92	95.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	6,455	1,665	6,455	1,665	74.21%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	3,327	192	3,327	192	94.23%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	1,737	1,058	1,737	1,058	39.09%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_	149	26	149	26	82.55%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	1,631	1,293	1,631	1,293	20.72%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	205	7	205	7	96.59%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	3,320	119	3,320	119	96.42%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	4,329	234	4,329	234	94.59%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,928 +461**	1,506 +461*	4,928	1,506	69.44%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	5,068	398	5,068	398	92.15%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for fecal coliform (200 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Permitted existing fecal coliform bacteria load from Padre Dam Municipal Water District Water Reclamation Plant (Padre Dam), assigned as a separate point source wasteload allocation for discharges from Padre Dam equal to the permitted existing load

Watershed Existing Load = Predicted existing fecal coliform bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted exiting fecal coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Fecal coliform bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Fecal coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Fecal coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

[Insert table number]. Dry Weather Total Coliform Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	13,791	1,134	13,791	1,134	91.78%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	26,639	1,208	26,639	1,208	95.47%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	9,315	462	9,315	462	95.04%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	30,846	8,342	30,846	8,342	72.96%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	16,743	958	16,743	958	94.28%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	8,549	5,289	8,549	5,289	38.13%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_	751	129	751	129	82.82%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	7,555	6,468	7,555	6,468	14.39%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	1,030	36	1,030	36	96.50%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	16,707	594	16,707	594	96.44%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	21,349	1,171	21,349	1,171	94.51%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	28,988	7,529	28,988	7,529	74.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	25,080	1,991	25,080	1,991	92.06%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for total coliform (1,000 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

Watershed Existing Load = Predicted existing total coliform bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted exiting total coliform bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from Municipal MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Total coliform bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Total coliform bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Total coliform bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

[Insert table number]. Dry Weather Enterococcus Bacteria Existing Loads, TMDLs, WLA, LAs Expressed as Monthly Loads (Billion MPN/month)

Watershed	Total Watershed		Point Sources						Nonpoint Sources					
			Municipal MS4			Caltrans			Agriculture			Open		
	Existing Load	TMDL*	Existing Load	WLA*	Reduction Required	Existing Load	WLA*	Reduction Required	Existing Load	LA*	Reduction Required	Existing Load	LA*	Reduction Required
San Joaquin Hills/ Laguna Hills HSAs (901.11 and 901.12)	2,321	40	2,321	40	98.28%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Aliso HSA (901.13)	4,614	40**	4,614	40	99.13%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Dana Point HSA (901.14)	1,567	16	1,567	16	98.98%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Lower San Juan HSA (901.27)	5,433	275**	5,433	275	94.94%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Clemente HA (901.30)	2,817	33	2,817	33	98.83%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Luis Rey HU (903.00)	1,466	185	1,466	185	87.38%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Marcos HA (904.50_	126	5	126	5	96.03%	0	0	0.00%	0	0	0.00%	0	0	0.00%
San Dieguito HU (905.00)	1,368	226	1,368	226	83.48%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Miramar Reservoir HA (906.10)	173	1	173	1	99.42%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Scripps HA (906.30)	2,811	21	2,811	21	99.25%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Tecolote HA (906.5)	3,657	39**	3,657	39	98.94%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Mission San Diego/ Santee HSAs (907.11 and 907.12)	4,106	248**	4,106	248	93.96%	0	0	0.00%	0	0	0.00%	0	0	0.00%
Chollas HSA (908.22)	4,283	66**	4,283	66	98.46%	0	0	0.00%	0	0	0.00%	0	0	0.00%

* TMDLs, WLAs, and LAs calculated based on numeric targets consisting of the 30-day geometric mean WQO for enterococcus (35 MPN/100mL or 33 MPN/100mL) and a 0 percent allowable exceedance frequency. Meeting the numeric targets in the discharge and/or receiving water indicate the TMDLs, WLAs, and/or LAs have been met.

** Total Maximum Daily Load calculated using a Enterococcus numeric target of 33 MPN/mL that is conservatively protective of the REC-1 "designated beach" usage frequency for freshwater creeks and downstream beaches.

Watershed Existing Load = Predicted existing Enterococcus bacteria loads discharged from all land use categories in the watershed calculated by a plug-flow reactor model using estimated flows and bacteria densities for 30 dry days during the critical year 1993
Watershed TMDL = Total Maximum Daily Load (TMDL) or total allowable load (Allowable Numeric Objective Load + Allowable Exceedance Load) that can be discharged from all land uses in the watershed for a 30-day period

MS4 Existing Load = Predicted exiting Enterococcus bacteria loads discharged from Municipal Separate Storm Sewer System (MS4) land use categories in the watershed (i.e., commercial/institutional, high density residential, low density residential, parks/recreation, military, transitional, and industrial/transportation, not including Caltrans transportation) calculated by the plug-flow reactor model
MS4 WLA = Point source wasteload allocation (WLA) for discharges from MS4 land uses
MS4 Reduction Required = Percent of the MS4 Existing Load that must be reduced to meet the MS4 WLA = (MS4 Existing Load – MS4 WLA)/(MS4 Existing Load)

Caltrans Existing Load = Enterococcus bacteria loads discharged from Caltrans land use areas in the watershed assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Caltrans WLA = Point source wasteload allocation (WLA) for discharges from Caltrans land uses, assumed to be equal to the Caltrans Existing Load
Caltrans Reduction Required = Percent of the Caltrans Existing Load that must be reduced to meet the Caltrans WLA = (Caltrans Existing Load – Caltrans WLA)/(Caltrans Existing Load)

Agriculture Existing Load = Enterococcus bacteria loads discharged from Agriculture land use categories in the watershed (i.e., agriculture, dairy/livestock, horse ranch) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Agriculture LA = Non-point source load allocation (LA) for discharges from Agriculture land uses, assumed to be equal to the Open Space Existing Load
Agriculture Reduction Required = Percent of the Agriculture Existing Load that must be reduced to meet the Agriculture LA = (Agriculture Existing Load – Agriculture LA)/(Agriculture Existing Load)

Open Existing Load = Enterococcus bacteria loads discharged from Open Space land use categories in the watershed (i.e., open space, open recreation, water) assumed to be unlikely during dry weather conditions, or zero bacteria load during dry weather
Open LA = Non-point source load allocation (LA) for discharges from Open Space land uses, assumed to be equal to the Open Space Existing Load
Open Reduction Required = Percent of the Open Space Existing Load that must be reduced to meet the Open Space LA = (Open Space Existing Load – Open Space LA)/(Open Space Existing Load)

(h) TMDL Implementation Plan

The ultimate goal of the Implementation Plan is to restore the impaired beneficial uses of the waterbodies addressed by these TMDLs. Restoring the impaired beneficial uses will be accomplished by achieving the TMDLs in the receiving waters, and the wasteload allocations (WLAs) for point sources and load allocations (LAs) for nonpoint sources. The actions taken by the San Diego Water Board depends on the regulatory authority and the source. The regulatory authorities and actions that the San Diego Water Board will use to compel the controllable sources to implement these TMDLs are as follows.

(1) Basin Plan Waste Discharge Prohibitions

The San Diego Water Board may specify certain conditions or areas where the discharge of waste or certain types of waste is not permitted, known as "waste discharge prohibitions," in the Basin Plan.[48] Basin Plan waste discharge prohibitions that are applicable to the implementation of these TMDLs include the following:

- The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.

- The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the Regional Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

- The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the Regional Board.

- Any discharge to a storm water conveyance system that is not composed entirely of "storm water" is prohibited unless authorized by the Regional Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities.] [Section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

- The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

Existing discharges are violating one or more of these of these Basin Plan prohibitions. The existing Basin Plan prohibitions are consistent with the TMDLs, WLAs, and LAs. If

[48] Authorized pursuant to Water Code section 13243

necessary, the San Diego Water Board may amend the Basin Plan to revise current waste discharge prohibitions or include new waste discharge prohibitions. The controllable sources must comply with the Basin Plan waste discharge prohibitions.

(2) Waste Discharge Requirements

The primary regulatory authority used by the San Diego Water Board to protect water resources and water quality in the San Diego Region is the issuance of waste discharge requirements (WDRs).[49] The San Diego Water Board will issue, or revise and re-issue WDRs to point sources and/or nonpoint sources in the San Diego Region to be consistent with the TMDLs, WLAs, and LAs. The controllable sources regulated under WDRs must comply with the requirements to be consistent with the TMDLs, WLAs, and LAs. Specific San Diego Water Board actions with regard to WDRs for point sources and nonpoint sources are discussed in the following subsections.

(A) Point Sources

The San Diego Water Board regulates discharges from point sources to surface waters with WDRs that implement federal NPDES regulations (NPDES requirements). NPDES requirements must contain water quality-based effluent limitations (WQBELs) consistent with the assumptions and requirements of the WLAs of any applicable TMDL.[50]

When developing WQBELs to be incorporated in to NPDES requirements, the following summarizes the requirements and assumptions included in the calculation of the TMDLs, WLAs, and LAs that should be considered:

Numeric Targets

- The numeric targets consist of the numeric WQOs from the Basin Plan and/or Ocean Plan and an allowable exceedance frequency.
- The numeric targets for the wet weather TMDLs consist of the REC-1 single sample maximum WQOs and a 22 percent allowable exceedance frequency.
- The numeric targets for dry weather TMDLs consist of the REC-1 30-day geometric metric mean WQOs and a 0 percent allowable exceedance frequency.
- The TMDL calculations are based on either the single sample maximum WQO (for wet weather) or 30-day geometric mean WQOs (for dry weather), but both the single sample maximum and 30-day geometric mean numeric WQOs and allowable exceedance frequencies must be met in the receiving waters.
- The TMDLs, and in turn the WLAs for point sources and LAs for nonpoint sources, are assumed to be met when the numeric targets for all three indicator bacteria (fecal coliform, total coliform, and *Enterococcus*) are met in the receiving waters.

Critical Conditions

- The mass-load based TMDLs were calculated under critical conditions consisting of flows generated during a critical wet year and estimation of existing and allowable loads at a critical location.

[49] Authorized pursuant to Water Code sections 13263 and 13264
[50] Code of Federal Regulations Title 40 section 122.44(d)(1)(vii)(B)

- The flow from the critical wet year is a "worst case" annual wet weather flow and loading scenario. Actual annual wet weather flow and loading will vary from year to year.
- The mass-load based TMDLs calculated at the critical location are dependent on the flow, which can vary from year to year, but the numeric targets will not vary. When the numeric targets are met in the receiving water, the TMDLs are assumed to be met.
- The mass-load based TMDLs, WLAs, and LAs are calculated for the critical location, but the appropriate numeric targets (based on freshwater and/or saltwater REC-1 WQOs and allowable exceedance frequencies) must be met throughout the waterbodies addressed by these TMDLs.

Linkage Analysis

- The linkage analysis was performed by utilizing calibrated and validated models to predict flow from surface runoff and predict bacteria densities under the critical conditions (i.e., during the critical wet year at the critical location). Existing mass loads and allowable mass loads (i.e., TMDLs) were calculated for each watershed. The existing mass loads were calculated based on model-predicted flow and model-predicted bacteria densities. The allowable mass loads (i.e., TMDLs) were calculated based on model-predicted flow and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies).
- The wet weather existing mass loads and allowable mass loads (i.e., wet weather mass-load based TMDLs) are calculated assuming surface runoff is generated by rainfall from storm events and discharged from all land use categories to receiving waters.
- The dry weather existing mass loads and allowable mass loads (i.e., dry weather mass-load based TMDLs) are calculated assuming surface runoff is generated only by anthropogenic activities and discharged from specific land use categories to receiving waters. The possible contribution of subsurface or groundwater flows to bacteria loads in receiving waters during dry weather was not accounted for in any land use category.

Allocations

- Each mass-load based TMDL is allocated to known point sources and nonpoint sources. Wasteload allocations (WLAs) are assigned to point sources, and load allocations (LAs) are assigned to nonpoint sources. WLAs and LAs are the maximum load a source can discharge and still achieve the TMDL in the receiving water.
- The TMDLs, and in turn the WLAs for point sources and LAs for nonpoint sources, are assumed to be met when the numeric targets are met in the receiving waters.
- The sources were identified based on land use and grouped in to Municipal MS4, Caltrans MS4 (Caltrans), Agriculture, and Open Space categories. The Municipal MS4 and Caltrans land use categories are point sources, and the Agriculture and Open Space land use categories are nonpoint sources.
- Sources that are not identified are assumed to be assigned a zero allowable load as part of the mass-load based TMDL (i.e., WLA = 0 or LA = 0). In other words,

discharges of pollutant loads from these sources are not expected or allowed as part of the TMDLs.

- Sources that are assigned an allowable load equal to the existing mass load as part of the mass-load based TMDL (i.e., WLA or LA = existing mass load) are not expected or allowed to increase their mass load in the future. In other words, discharges of pollutant loads (i.e., flows and bacteria densities) from these sources are not allowed to increase.
- The allocation of the dry weather mass-load based TMDLs assumes that no surface runoff discharge to receiving waters occurs from Caltrans, Agriculture, or Open Space land use categories (i.e., $WLA_{Caltrans} = 0$, $LA_{Agriculture} = 0$, and $LA_{OpenSpace} = 0$), meaning the entire dry weather mass-load based TMDL (i.e., allowable mass load) is allocated to Municipal MS4 land use categories (i.e., WLA_{MS4} = TMDL) (see Tables [Insert seventh through ninth table numbers]).
- The allocation of the wet weather mass-load based TMDLs assumes surface runoff discharge occurs from all land use categories, and allocated according to the following steps (see Tables [Insert third through sixth table numbers]):
  1) Sources are separated in to controllable and uncontrollable sources. Discharges from Municipal MS4, Caltrans, and Agriculture land use categories are assumed to be controllable (i.e., subject to regulation), and discharges from Open Space land use categories are assumed to be uncontrollable (i.e., not subject to regulation).
  2) Because discharges from Open Space land use categories are uncontrollable (i.e., not subject to regulation), the LAs for Open Space land use categories are set equal to the existing mass loads calculated under the critical conditions.
  3) For discharges from controllable land use categories that do not contribute more than 5 percent of the total existing mass load for all three indicator bacteria, the WLA or LA is set equal to the existing mass loads from those land uses calculated under the critical conditions.
  4) After the WLAs and LAs are assigned based on steps 2 and 3, the remaining portion of the mass-load based TMDL is assigned to discharges from controllable land use categories that contribute more than 5 percent of the total existing mass load for all three indicator bacteria. The allowable mass load for each source (WLA or LA) is calculated based on the ratio of the existing mass loads from those sources relative to each other.

Load Reductions

- The load reductions required to meet the mass-load based TMDLs, WLAs, and LAs are based on reducing the loads compared to pollutant loads from 2001 to 2002.
- Load reductions for each source are calculated based on the difference between the existing mass load and the mass-load based WLA or LA for each source (see Tables [Insert third through ninth table numbers]).
- WLAs and LAs that are set equal to the existing mass loads do not require load reductions to be calculated, but this also means that existing mass loads from those sources cannot increase over time (i.e., pollutant loads should be less than or equal to pollutant loads relative to 2001 to 2002).

- The load reductions needed to meet the WLAs for point sources and LAs for nonpoint sources are assumed to be achieved when the numeric targets are met in the receiving waters.

The persons identified as responsible for point source discharges causing or contributing to bacteria impairments at the beaches and creeks addressed in these TMDLs include:

- Phase I MS4s,
- Phase II MS4s,
- Caltrans,
- POTWs and wastewater collection systems, and
- CAFOs.

According to Tables [Insert third through ninth table numbers], Municipal (Phase I and Phase II) MS4s and Caltrans are the only point sources that have been assigned WLAs. POTWs,[51] CAFOs, and any other unidentified point sources were not assigned WLAs, which is equivalent to being assigned a WLA of zero. All these identified point sources are subject to NPDES regulations.

In order for the WDRs, NPDES requirements, and discharges from these point sources to be consistent with the TMDLs and WLAs, the San Diego Water Board will issue or revise and re-issue the WDRs for these point sources as follows:

(i) Phase I MS4s

The TMDLs and Municipal MS4 WLAs, with respect to discharges from Phase I MS4s, will be implemented primarily by revising and re-issuing the existing NPDES requirements that have been issued for Phase I MS4 discharges.

The Phase I MS4s subject to these TMDLs are regulated under San Diego Water Board WDRs that implement NPDES requirements.[52] The NPDES requirements regulating the Phase I MS4s include discharge prohibitions and receiving water limitations that are applicable to the implementation of these TMDLs, as summarized below:

- Discharges from MS4s are subject to all Basin Plan prohibitions.

- Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.

[51] Not including Padre Dam, which has been allocated a fecal coliform TMDL based on the effluent limitations in the WDRs for Padre Dam

[52] Phase I MS4s in Orange County are regulated under San Diego Water Board Order No. R9-2002-0001 or subsequent orders; Phase I MS4s in San Diego County are regulated under San Diego Water Board Order No. R9-2007-0001 or subsequent orders.

- Discharges into and from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance, in waters of the state are prohibited.

- Effectively prohibit all types of non-storm water discharges into the MS4 unless such discharges are either authorized by separate NPDES requirements, or not prohibited (i.e., exempted) by the NPDES requirements regulating the MS4. Exempted non-storm water discharges into the MS4 are not prohibited unless the discharge category is identified as a significant source of pollutants to waters of the United States.

The available data reported by the Phase I MS4s and the results of the technical TMDL analysis indicate that discharges into and from MS4s are in violation of the discharge prohibitions and receiving water limitations above. Enforcement of the current discharge prohibitions and receiving water limitations is an action that the San Diego Water Board can immediately implement to compel the MS4s to reduce discharge of bacteria to the receiving waters.

In addition to the discharge prohibitions and receiving water limitations, WQBELs consistent with the assumptions and requirements of the WLAs of any applicable TMDL must also be incorporated into the NPDES requirements. The San Diego Water Board will revise and re-issue the WDRs and NPDES requirements for Phase I MS4s to incorporate the following:

- WQBELs consistent with the requirements and assumptions of the Municipal MS4 WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.[53]

- If the WQBELs include a BMP program, periodic reporting requirements on BMP planning, implementation, and effectiveness in improving water quality at impaired beaches and creeks (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.

- Compliance schedule for Phase I MS4s to attain the MS4 WLAs and TMDLs in the receiving waters.

The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in the receiving waters. The Phase I MS4s will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving waters, acceptable to the San

[53] Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

Diego Water Board, within 18 months after the effective date of these TMDLs.[54] The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The BLRPs or CLRPs should be developed and incorporated as part of the Watershed Runoff Management Programs required under the Phase I MS4 NPDES requirements. Ideally, the Phase I MS4s and Caltrans will develop and coordinate the elements of their BLRPs or CLRPs together.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that the MS4s have met their WLAs. If, however, the receiving water limitations are not being met in the receiving waters, the Phase I MS4s will be responsible for reducing their bacteria loads and/or demonstrating that controllable anthropogenic discharges from the Phase I MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(ii) Phase II MS4s

The TMDLs and MS4 WLAs, with respect to discharges from Phase II MS4s, will be implemented primarily by requiring compliance with the existing general WDRs and NPDES requirements that have been issued for Phase II MS4 discharges. Phase II MS4s are subject to regulation under State Water Board general WDRs implementing NPDES requirements.[55]

Owners and operators of Phase II MS4s in the watersheds subject to these TMDLs, identified by the San Diego Water Board as significant sources of bacteria discharging to the receiving waters and/or Phase I MS4s, will be required to submit a Notice of Intent[56] to comply with the NPDES requirements in the State Water Board general WDRs as soon as possible after the effective date of these TMDLs.[57] Once enrolled under the general WDRs, Phase II MS4 owners and operators are required to comply with the provisions of the State Water Board general WDRs and NPDES requirements to reduce the discharge of bacteria as specified in their Stormwater Management Plans/Programs (SWMPs).

For any individual Phase II MS4s that are identified as a significant source of pollutants, the San Diego Water Board may also issue individual WDRs requiring the implementation of WQBELs that are consistent with the requirements and assumptions of the Municipal MS4 WLAs. Upon issuance of such individual WDRs by the San Diego Water Board, the State Water Board general WDRs for Phase II MS4s shall no longer regulate the affected individual Phase II MS4s.[58]

[54] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.
[55] Phase II MS4s in the San Diego Region are subject to regulation under State Water Board Order No. 2003-0005-DWQ, or subsequent orders.
[56] The Notice of Intent, or NOI, is attachment 7 to Order No. 2003-0005-DWQ.
[57] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.
[58] As authorized under State Water Board Order No. 2003-0005-DWQ, section G.

Similarly, for any category of Phase II MS4s that are identified as a significant source of pollutants, the San Diego Water Board may issue general WDRs requiring the implementation of WQBELs that are consistent with the requirements and assumptions of the Municipal MS4 WLAs above. Upon issuance of such general WDRs by the San Diego Water Board, the State Water Board general WDRs for Phase II MS4s shall no longer regulate the affected category of Phase II MS4s.[59]

In the event that the San Diego Water Board issues individual or general WDRs for Phase II MS4s in the San Diego Region, the WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve the TMDLs in the receiving waters. The Phase II MS4s will likely be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving water, acceptable to the San Diego Water Board. When and where possible, the San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale and have the Phase II MS4 BMP programs coordinate with the BMPs programs for Phase I MS4s and Caltrans.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that the Phase II MS4s have met their WLAs. If, however, the receiving water limitations are not being met in the receiving waters and one or more Phase II MS4 dischargers are identified as sources of bacteria causing exceedances, the specific Phase II MS4s will be responsible for reducing their bacteria loads and/or demonstrating that controllable anthropogenic discharges from those specific Phase II MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(iii) Caltrans

The TMDLs and Caltrans WLAs will be implemented primarily by revising and re-issuing the existing NPDES requirements that have been issued for Caltrans discharges.

Caltrans is regulated under State Water Board general WDRs that implement NPDES requirements.[60] The San Diego Water Board will request the State Water Board to revise and re-issue the WDRs and NPDES requirements to incorporate the following for Caltrans discharges in the San Diego Region:

- WQBELs consistent with the requirements and assumptions of the Caltrans WLAs. WQBELs may be expressed as numeric effluent limitations, when feasible, and/or as a BMP program of expanded or better-tailored BMPs.[61]

- If the WQBELs include a BMP program, periodic reporting requirements on BMP planning, implementation, and effectiveness in improving water quality at

[59] Ibid.
[60] Caltrans is subject to regulation under State Water Board Order No. 99-06-DWQ, and subsequent orders.
[61] Code of Federal Regulations Title 40 section 122.44(k)(2)&(3)

impaired beaches and creeks (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.

- Compliance schedule for Caltrans to attain the Caltrans WLAs and TMDLs in the receiving waters.

The WQBELs will likely consist of receiving water limitations (based on the numeric targets) and require the implementation of a BMP program to achieve TMDLs in the receiving waters. Caltrans will be required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) outlining a proposed BMP program that will be capable of attaining the TMDLs in the receiving waters, acceptable to the San Diego Water Board, within 18 months after the effective date of these TMDLs.[62] The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. Ideally, Caltrans and the Phase I MS4s will develop and coordinate the elements of their BLRPs or CLRPs together.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that Caltrans has met its WLAs. If, however, the receiving water limitations are not being met in the receiving waters, and Caltrans MS4s are identified as a source of bacteria causing exceedances, Caltrans will be responsible for reducing its bacteria loads and/or demonstrating that controllable anthropogenic discharges from the Caltrans MS4s are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(iv) Publicly Owned Treatment Works and Wastewater Collection Systems

The TMDLs, with respect to discharges from POTWs and wastewater collection systems, will be implemented primarily by requiring compliance with any existing individual and/or general WDRs and NPDES requirements that have been issued. POTWs are subject to regulation under individual WDRs that implement NPDES requirements. Wastewater collection systems are subject to regulation under general WDRs issued by the State Water Board and San Diego Water Board.[63]

Because POTWs and wastewater collection systems have been assigned WLAs of zero,[64] no discharges of bacteria are expected or allowed under the wet weather TMDLs or dry weather TMDLs. If discharges of bacteria from POTWs and/or wastewater collection systems do occur as a result of sanitary sewer overflows and result in WQO exceedances, these exceedances will not apply to the compliance status of other dischargers.

[62] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.
[63] State Water Board Order No. 2006-0003-DWQ and San Diego Water Board Order No. R9-2007-0005
[64] With the exception of Padre Dam, which has a fecal coliform mass-load based WLA that is calculated based on numeric effluent limitations derived from the REC-1 WQOs in the Basin Plan.

If necessary, individual WDRs for POTWs and/or the San Diego Water Board WDRs for wastewater collection systems can be revised to require more aggressive monitoring, maintenance, and repair schedules to ensure discharges of bacteria wasteloads to surface waters are eliminated.

(v) Concentrated Animal Feeding Operations

The TMDLs, with respect to discharges from CAFOs, will be implemented primarily by requiring compliance with any existing individual and/or general WDRs and NPDES requirements that have been issued. CAFOs that discharge to surface waters are subject to regulation under general WDRs that implement NPDES requirements.

Because CAFOs have been assigned WLAs of zero, no discharges of bacteria are expected or allowed under the wet weather TMDLs or dry weather TMDLs.

If necessary, the general WDRs and NPDES requirements for CAFOs can be revised to require more aggressive monitoring, maintenance, and repair schedules to ensure discharges of bacteria wasteloads to surface waters are minimized and/or eliminated.

(vi) Other Unidentified Point Sources

Unidentified point sources have not been assigned WLAs, which is equivalent to being assigned a WLA of zero. No discharges of bacteria are expected or allowed from unidentified point sources under the wet weather TMDLs or dry weather TMDLs.

Therefore, the TMDLs, with respect to discharges from unidentified point sources to surface waters, will be implemented primarily by issuing WDRs implementing NPDES requirements, or requiring the point sources to cease their discharges.

(B) Nonpoint Sources

The persons identified as responsible for controllable nonpoint source bacteria discharges causing or contributing to bacteria impairments at the beaches and creeks in these watersheds include the owners and operators of the following:

- agricultural facilities,
- nurseries,
- dairy/intensive livestock facilities,
- horse ranches,
- manure composting and soil amendment operations not regulated by NPDES requirements, and
- individual septic systems.

Agriculture (including nurseries), dairy/livestock, and horse ranch land uses (collectively called “agriculture” land uses) are controllable nonpoint sources that have been assigned LAs, as shown in Tables [Insert third through ninth table numbers]. Manure composting operations, soil amendment operations, and individual septic systems that are not part of agriculture land uses, and any other unidentified controllable nonpoint sources were not assigned LAs, which is equivalent to being

assigned a LA of zero. Any controllable nonpoint source that has not been assigned a LA or has a LA of zero is not expected or allowed to discharge a pollutant load as part of the TMDL.

Controllable nonpoint source discharges are present in most watersheds, however, in only four watersheds do these discharges require load reductions to meet the Agriculture LAs. These watersheds are the Lower San Juan HSA, San Luis Rey HU, San Marcos HA, and San Dieguito HU watersheds (see Tables [Insert table numbers]).

If individual or general WDRs are developed and issued to controllable nonpoint sources, the WDRs should incorporate one or more the following:

- Effluent limitations that are consistent with the requirements and assumptions of the nonpoint source LAs. Effluent limitations should be expressed as numeric effluent limitations, if feasible, and/or as a BMP program.

- Periodic reporting requirements on BMP planning, implementation, and effectiveness in improving the water quality of discharges from the nonpoint source (i.e., progress reports). Progress reports will also be required to include water quality monitoring results. Progress reports will be required as long as necessary to ensure that the beneficial uses of the impaired waterbodies have been restored and maintained.

- Compliance schedule and/or implementation milestones.

The San Diego Water Board will work with the nonpoint source dischargers and/or stakeholders when developing the WDRs. When and where possible, the San Diego Water Board will have the nonpoint source BMP programs coordinate with the BMPs programs for Phase I MS4s and Caltrans.

If the receiving water limitations (based on the numeric targets) are met in the receiving waters, the assumption will be that controllable nonpoint sources have met their LAs. If, however, the receiving water limitations are not being met in the receiving waters, and one or more controllable nonpoint source dischargers are identified as sources of bacteria causing exceedances, the San Diego Water Board may regulate those identified nonpoint sources, as needed, with WDRs or other enforcement actions, and those nonpoint sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those nonpoint sources are not causing the exceedances, as outlined below in the Monitoring for TMDL Compliance section below.

(3) Conditional Waivers of Waste Discharge Requirements

There are several types of point source discharges to land, as well as nonpoint source discharges to land and surface waters that may not have an adverse affect on the quality of the waters of the state, and/or are not readily amenable to regulation under WDRs. For

these types of discharge, the San Diego Water Board has the authority to issue conditional waivers of WDRs.[65]

There are controllable nonpoint source land uses (agriculture, horse ranches, and dairies/intensive livestock) that were identified in 8 watersheds that are contributing to the bacteria impairments. Four of the 8 watersheds were identified as requiring load reductions (Lower San Juan HSA, San Luis Rey HU, San Marcos HA, and San Dieguito HU) to meet the assigned wet weather Agriculture LAs.

In general, the San Diego Water Board utilizes conditional waivers of WDRs to address the discharges from controllable nonpoint sources. Development and enforcement of waiver conditions that are protective of water quality will likely be sufficient to implement the Agriculture LAs. The controllable nonpoint sources eligible for conditional waivers must comply with the conditions of the waiver to be consistent with the TMDLs and Agriculture LAs. Controllable nonpoint sources that do not comply with the waiver conditions are no longer eligible for the waiver and must either come into compliance with the waiver conditions, become regulated under WDRs, or cease any discharge of wastes to waters of the state.

Currently, discharges from these controllable nonpoint sources may be eligible for one of the general conditional waivers of WDRs, which are currently provided in the Basin Plan.[66] Conditional waivers of WDRs may not exceed 5 years in duration, but may be revised and renewed, or may be terminated at any time.[67] The San Diego Water Board will implement the conditional waivers of WDRs applicable to the Agriculture land uses to be consistent with the TMDLs and Agriculture LAs.

Because the conditional waivers of WDRs that may be utilized to implement the Agriculture LAs are contained in the Basin Plan, any revision of the conditions will require a Basin Plan amendment. If needed, the San Diego Water Board may amend the Basin Plan to remove these conditional waivers of WDRs from the Basin Plan and re-issue the conditional waivers of WDRs as a general order to reduce the administrative requirements for revising waiver conditions.

As required, the effectiveness of the conditional waivers of WDRs must be evaluated at least once every 5 years. If the conditions in the waivers of WDRs are not sufficient to implement the TMDLs and Agriculture LAs, the San Diego Water Board will amend the waiver conditions to include more stringent conditions, including, but not limited to, additional BMP implementation, monitoring, and/or reporting.

[65] Authorized pursuant to Water Code section 13269

[66] The current general conditional waivers in the Basin Plan were adopted under San Diego Water Board Resolution No. R9-2007-0104. These waivers will expire December 31, 2012. Conditional Waiver No. 3 (Animal Operations) and Conditional Waiver No. 4 (Agriculture and Nursery Operations) may be utilized to implement the Agriculture LAs. Future iterations of these conditional waivers may be issued in a separate implementing order and removed from the Basin Plan.

[67] Pursuant to Water Code section 13269(a)(2)

If a conditional waiver of WDRs no longer appears to be effective in protecting water quality from discharges from specific nonpoint source facilities or category of nonpoint source facilities, the waiver may be terminated. For nonpoint source facilities that are no longer eligible for a conditional waiver of WDRs, they will need to be regulated under WDRs, or cease any discharges of waste to waters of the state.

(4) Enforcement Actions

The San Diego Water Board shall consider enforcement actions, as necessary, for any discharger failing to comply with applicable waiver conditions, WDRs, or Basin Plan waste discharge prohibitions.[68] Enforcement actions can also be taken, as necessary, to control the discharge of bacteria to impaired beaches and creeks, to attain compliance with the assumptions and requirements of the TMDLs, WLAs, and LAs.

In order for implementation of the TMDLs to begin as soon as possible, the San Diego Water Board may issue enforcement actions, in lieu of or before revising and re-issuing general WDRs and NPDES requirements, for Phase I MS4s and Caltrans, directing them to begin implementing additional measures to restore compliance with the bacteria WQOs. Enforcement actions may also be issued to require the submission of Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) to the San Diego Water Board within 18 months after the effective date of these TMDLs,[69] or sooner. The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale.

The San Diego Water Board will also issue enforcement actions, as necessary, to any other discharger that is identified by the San Diego Water Board and/or other parties as a significant source causing or contributing to the bacteria impairments in the waterbodies addressed in these TMDLs.

(5) Investigative Orders

The San Diego Water Board has the authority to require any state or local agency to investigate and report on any technical factors involved in water quality control or to obtain and submit analyses of water.[70] The San Diego Water Board has the authority to require technical or monitoring program reports from persons who have discharged or are discharging waste that could affect the quality of the waters in the San Diego Region.[71] The San Diego Water Board also has the authority to establish monitoring and recordkeeping requirements for discharges regulated under NPDES requirements.[72]

Investigative orders may be issued requiring the submission of Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs), acceptable to the San Diego Water Board, within 18 months after the effective date of these TMDLs,[73] or sooner.

[68] Authorized pursuant to Water Code sections 13300-13304, 13308, 13350, 13385, and/or 13399
[69] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.
[70] Authorized pursuant to Water Code section 13225
[71] Authorized pursuant to Water Code section 13267
[72] Authorized pursuant to Water Code section 13383
[73] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

The San Diego Water Board will require the BLRPs or CLRPs to be developed on a watershed or region wide scale. The San Diego Water Board may require the Phase I MS4s and Caltrans to develop and coordinate the elements of their BLRPs or CLRPs together. The BLRPs or CLRPs will be incorporated into the WDRs and NPDES requirements.

The San Diego Water Board may issue subsequent investigative orders to confirm items in the BLRPs or CLRPs. The BLRPs or CLRPs must be capable of achieving the WLAs for the bacteria TMDLs. The CLRPs must also be capable of restoring the beneficial uses in receiving waters for other impairing pollutants in the watershed, and achieving the goals and objectives of any other water quality improvement projects included in the CLRPs within the time frame of the compliance schedule.

The San Diego Water Board will also issue investigative orders requiring BLRPs or CLRPs, or other technical or monitoring program reports, as necessary, to any other discharger that is identified by the San Diego Water Board or other parties as a significant source causing or contributing to the bacteria impairments in the waterbodies addressed in these TMDLs.

(6) Basin Plan Amendments

As the implementation of these TMDLs progress, the San Diego Water Board recognizes that revisions to the Basin Plan may be necessary in the future. The San Diego Water Board will initiate a Basin Plan amendment project to revise the requirements and/or provisions for implementing these TMDLs within 5 years from the effective date of this Basin Plan amendment or earlier if all the following conditions are met:

- Sufficient data are collected to provide the basis for the Basin Plan amendment.
- A report is submitted to the San Diego Water Board documenting the findings from the collected data.
- A request is submitted to the San Diego Water Board with specific revisions proposed to the Basin Plan, and the documentation supporting such revisions.

The San Diego Water Board will work with the project proponents to ensure that the data and documentation will be adequate for the initiation of the Basin Plan amendment. The San Diego Water Board staff will be responsible for taking the Basin Plan amendment project through the administrative and regulatory processes for adoption by the San Diego Water Board, and approval by the State Water Board, OAL, and USEPA.

If no Basin Plan amendment has been initiated within 5 years of the effective date of this TMDL Basin Plan amendment, and the Executive Officer determines, with Regional Board concurrence, that insufficient data exist to support the initiation of a Basin Plan amendment, a subsequent Basin Plan amendment to revise the requirements and/or provisions for the implementation of these TMDLs will not be initiated until the Executive Officer determines the conditions specified above are met.

(7) Other Actions

For these TMDLs, the San Diego Water Board shall recommend that the State Water Board assign a high priority to awarding grant funding[74] for projects to implement the bacteria TMDLs. Special emphasis will be given to projects that can achieve quantifiable bacteria load reductions consistent with the specific bacteria TMDLs, WLAs, and LAs.

Implementation of these TMDLs by the San Diego Water Board should not require any special studies to be conducted by the dischargers or other entities. The San Diego Water Board, however, will encourage and support any special studies proposed and undertaken by the dischargers or other entities that will provide information to refine and improve the implementation of these TMDLs. The San Diego Water Board may develop agreements (e.g., a Memorandum of Understanding) with one or more entities to support and use the findings from any special studies that may be conducted. Proposing a special study project and initiating an agreement with the San Diego Water Board to use the results of the study to modify this TMDL Implementation Plan is the responsibility of the project proponent(s).

(i) Monitoring for TMDL Compliance and Compliance Assessment

An essential component of implementation is water quality monitoring. Monitoring is needed to evaluate the progress toward attainment of the TMDLs and restoring the beneficial uses in the receiving waters. When all discharges from controllable sources meet their assigned WLAs and LAs, and the numeric targets (i.e., numeric WQOs and allowable exceedance frequencies) are also met in the receiving waters, , compliance with the TMDLs will be achieved. Additionally, sufficient water quality data are necessary to support the removal of a waterbody from the 303(d) List. Water quality data can also be used identify additional regulatory actions that may need to be implemented by the San Diego Water Board to restore and protect beneficial uses.

Monitoring for compliance will initially be conducted by the Phase I MS4s and Caltrans. The minimum components for any monitoring program that will be used to evaluate progress toward attainment of the TMDLs should include the following:

- For beaches addressed by these TMDLs, monitoring locations should consist of, at a minimum, the same locations used to collect data required under MS4 NPDES monitoring requirements and beach monitoring for Health and Safety Code section 115880.[75] If exceedances of the receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations and/or other source identification methods must also

[74] The State Water Board administers the awarding of grants funded from Proposition 13, Proposition 50, Clean Water Act section 319(h) and other federal appropriations to projects that can result in measurable improvements in water quality, watershed condition, and/or capacity for effective watershed management. Many of these grant fund programs have specific set-asides for expenditures in the areas of watershed management and TMDL project implementation for non-point source pollution.

[75] Commonly referred to as AB 411 monitoring

be used to demonstrate that the bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.

- For creeks addressed by these TMDLs, monitoring locations should consist of, at a minimum, a location at or near the mouth of the creek (e.g., Mass Loading Station or Mass Emission Station) and one or more locations upstream of the mouth (e.g., Watershed Assessment Stations). If exceedances of the receiving water limitations are observed in the monitoring data, additional monitoring locations and/or other source identification methods must be implemented to identify the sources causing the exceedances. The additional monitoring locations and/or other source identification methods must also be used to demonstrate that the bacteria loads from the identified sources have been addressed and are no longer causing exceedances in the receiving waters.

- Because there are dry weather and wet weather TMDLs, monitoring under both conditions is needed. Wet weather[76] monitoring should occur at least once within 24 hours of the end of a storm event[77] that occurs during the rainy season (i.e., October 1 through April 30). Dry weather[78] monitoring should occur at least on a monthly basis, and may be required more often during the summer months (e.g., weekly) when the REC-1 and REC-2 beneficial uses occur most frequently in the creeks and at the beaches.

Compliance with the TMDLs, WLAs, and LAs will be assessed primarily by comparing receiving water indicator bacteria results from the monitoring locations outlined above with receiving water limitations expressed in terms of the appropriate numeric REC-1 WQOs and allowable exceedance frequencies of the appropriate numeric REC-1 WQOs. The appropriate numeric WQOs and allowable exceedance frequencies are dependent upon the type of receiving water (i.e., beach or creek) and weather conditions (i.e., dry weather or wet weather), as shown in Tables [Insert table numbers].

[76] Defined as days with a storm with at least 0.2 inches of rainfall and the 72 hour period after the storm event
[77] The end of a storm event is when there is no more precipitation
[78] Defined as days with less than 0.2 inches of rainfall on each of the previous three days

[Insert table number]. Receiving Water Limitations for Beaches

Indicator Bacteria	Wet Weather Days [a]		Dry Weather Days [b]	
	Wet Weather Numeric Objective [c] (MPN/100mL)	Wet Weather Allowable Exceedance [d] Frequency	Dry Weather Numeric Objective [e] (MPN/100mL)	Dry Weather Allowable Exceedance Frequency
Fecal Coliform	400	22%	200	0%
Total Coliform	10,000	22%	1,000	0%
Enterococcus	104	22%	35	0%

a. Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
b. Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.
c. Wet weather numeric objectives based on the single sample maximum water quality objectives in the California Ocean Plan (2005). Compliance with the wet weather TMDLs in the receiving water is based on the frequency that the wet weather days in any given year exceed the wet weather numeric objective, but 30-day geometric mean must also be met.
d. The wet weather allowable exceedance frequency is set at 22%. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
e Dry weather numeric objectives based on the 30-day geometric mean water quality objectives in the California Ocean Plan (2005). Compliance with the dry weather TMDLs in the receiving water is based on the frequency that the dry weather days in any given year exceed the dry weather numeric objective.

[Insert table number]. Receiving Water Limitations for Creeks

Indicator Bacteria	Wet Weather Days [a]		Dry Weather Days [b]	
	Wet Weather Numeric Objective [c] (MPN/100mL)	Wet Weather Allowable Exceedance [d] Frequency	Dry Weather Numeric Objective [e] (MPN/100mL)	Dry Weather Allowable Exceedance Frequency
Fecal Coliform	400	22%	200	0%
Enterococcus	61 (104) [f]	22%	33	0%

a. Wet weather days defined as days with rainfall events of 0.2 inches or greater and the following 72 hours.
b. Dry weather days defined as days with less than 0.2 inch of rainfall observed on each of the previous 3 days.
c. Wet weather numeric objectives based on the single sample maximum (or equivalent) water quality objectives in the Water Quality Control Plan for the San Diego Basin (1994). Compliance with the wet weather TMDLs in the receiving water is based on the frequency that the wet weather days in any given year exceed the wet weather numeric objective, but 30-day geometric mean must also be met.
d. The wet weather allowable exceedance frequency is set at 22%. In the calculation of the wet weather TMDLs, the San Diego Regional Board chose to apply the 22 percent allowable exceedance frequency as determined for Leo Carillo Beach in Los Angeles County. At the time the wet weather watershed model was developed, the 22 percent exceedance frequency from Los Angeles County was the only reference beach exceedance frequency available. The 22 percent allowable exceedance frequency used to calculate the wet weather TMDLs is justified because the San Diego Region watersheds' exceedance frequencies will likely be close to the value calculated for Leo Carillo Beach, and is consistent with the exceedance frequency that was applied by the Los Angeles Regional Board.
e. Dry weather numeric objectives based on the 30-day geometric mean (or equivalent) water quality objectives in Water Quality Control Plan for the San Diego Basin (1994). Compliance with the dry weather TMDLs in the receiving water is based on the frequency that the dry weather days in any given year exceed the dry weather numeric objective.
f. A wet weather numeric objective for *Enterococcus* of 104 MPN/100mL may be applied as a receiving water limitation for creeks, instead of 61 MPN/100mL, if one or more of the creeks addressed by these TMDLs (San Juan Creek, Aliso Creek, Tecolote Creek, Forrester Creek, San Diego River, and/or Chollas Creek) is designated with a "moderately to lightly used area" or less frequent usage frequency in the Basin Plan. Otherwise, the wet weather numeric objective of 61 MPN/100mL for Enterococcus will be used to assess compliance with the wet weather allowable exceedance frequency.

At the end of the TMDL Compliance Schedules, which are given in the following section, the receiving waters must meet the receiving water limitations above to be considered in compliance with these TMDLs, WLAs, and LAs. Determination of compliance with the TMDLs will be assessed differently for dry weather and wet weather as follows:

1. *Compliance with Dry Weather TMDLs*: At the end of the dry weather TMDL compliance schedule, the bacteria densities in the receiving waters for all dry weather days[79] must be less than or equal to the 30-day geometric mean REC-1 WQOs 100 percent of the time (i.e., dry weather days in a 30-day period shall not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time). In addition, the bacteria densities must be consistent with the single sample maximum REC-1 WQOs in the Ocean Plan for beaches, and the Basin Plan for creeks.

   The method and number of samples needed for calculating the 30-day geometric mean should be consistent with the number of samples required by the Ocean Plan for beaches, and the Basin Plan for creeks. Analysis of the monitoring results should also be consistent with the methods given in the Water Quality Control Policy For Developing California's Clean Water Act Section 303(d) List.

   Because the dry weather TMDLs are assigned entirely to the Municipal MS4s as WLAs, the Municipal MS4s are assumed to be the only source of bacteria during dry weather (i.e., dry weather TMDL = MS4 WLA). Discharges from other controllable sources (i.e., Caltrans, Agriculture) during dry weather are not expected and/or not allowed (i.e., WLA = 0 or LA = 0). If at the end of the dry weather TMDL compliance schedule the receiving waters exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time, the municipal Phase I MS4s are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance. If controllable sources other than the Phase I MS4s are identified as causing the exceedances, and the Phase I MS4s have demonstrated they are not causing or contributing to the exceedances, the Phase I MS4s will not be considered out of compliance.

   The Phase I MS4s may demonstrate that their discharges are not causing the exceedances in the receiving waters by providing data from their discharge points to the receiving waters, by providing data collected at jurisdictional boundaries, and/or by using other methods accepted by the San Diego Water Board. Otherwise, at the end of the dry weather TMDL compliance schedule, the municipal Phase I MS4s will be held responsible and considered out of compliance unless other information or evidence indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. If controllable sources other than discharges from the municipal Phase I MS4s are identified before or after the end of the dry weather TMDL Compliance Schedule as causing the exceedances, those controllable sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those sources are not causing the exceedances. The San Diego Water Board shall implement additional actions (e.g., issue enforcement actions, amend

[79] Defined as days with less than 0.2 inches of rainfall on each of the previous three days

existing NPDES requirements or conditional waivers), as needed, to bring all controllable sources into compliance with the dry weather TMDLs.

2. *Compliance with Wet Weather TMDLs*: At the end of the wet weather TMDL compliance schedule, the bacteria densities in the receiving waters for all wet weather days[80] cannot exceed the single sample maximum REC-1 WQOs more than the allowable exceedance frequency. In addition, the bacteria densities must be less than or equal to the 30-day geometric mean REC-1 WQOs 100 percent of the time (i.e., both dry and wet weather days in a 30-day period shall not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time).

   As described in the minimum monitoring components above, wet weather samples should be collected within 24 hours of the end of a storm event that occurs during the rainy season (i.e., October 1 through April 30). At least one wet weather sample per storm is expected to be collected for each waterbody in each watershed (i.e., Pacific Ocean shoreline, creek mouth, and/or creek). Because of the many issues related to collecting wet weather samples from multiple sites within a short time frame, dischargers are expected to develop a wet weather monitoring and sampling approach in their BLRPs or CLRPs. If only one sample is collected for a storm event, the bacteria density for every wet weather day associated with that storm event shall be equal to the results from that one sample. If more than one sample is collected for a storm event, but not on a daily basis, the bacteria density for all the wet weather days not sampled shall be equal to the highest bacteria density result reported from samples collected. The exceedance frequency shall be calculated by dividing the number of wet weather days that exceed the single sample maximum REC-1 WQOs by the total number of wet weather days during the rainy season. If at the end of the wet weather TMDL Compliance Schedule the receiving waters exceed the single sample maximum REC-1 WQOs more than the allowable exceedance frequency, all controllable sources are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance.

   The data collected for compliance with the dry weather TMDLs, described above, shall be used in addition to the data collected for wet weather with the wet weather TMDLs to calculate the wet weather 30-day geometric mean. If at the end of the wet weather TMDL Compliance Schedule the receiving waters exceed the 30-day geometric mean REC-1 WQOs at any time, all controllable sources are responsible for demonstrating their discharges into the receiving waters are not causing the exceedances, or they will be considered out of compliance.

   Because the Phase I MS4s are located at the base of the watersheds and have been identified as the most significant controllable source of bacteria, the municipal Phase I MS4s will have the primary responsible for monitoring the receiving waters. Caltrans will also have monitoring responsibilities. Phase II MS4s, agricultural dischargers, and other sources that are identified as significant sources (i.e., causing

[80] Defined as days with a storm with at least 0.2 inches of rainfall and the 72 hour period after the storm event

or contributing to exceedances in the receiving waters) will also be responsible for monitoring the receiving waters. The municipal Phase I MS4s and other dischargers are responsible for reducing their bacteria loads and/or demonstrating their discharges into the receiving waters are not causing the exceedances.

The municipal MS4s may demonstrate that their discharges are not causing the exceedances in the receiving waters by providing data from their discharge points to the receiving waters, by providing data collected at jurisdictional boundaries, and/or by using other methods accepted by the San Diego Water Board. Otherwise, at the end of the wet weather TMDL compliance schedule, the municipal Phase I MS4s will be held responsible and considered out of compliance unless other information or evidence indicates another controllable or uncontrollable source is responsible for the exceedances in the receiving waters. If controllable sources other than discharges from the municipal Phase I MS4s are identified before or after the end of the wet weather TMDL Compliance Schedules as causing the exceedances, those controllable sources will be responsible for reducing their bacteria loads and/or demonstrating that discharges from those sources are not causing the exceedances. If controllable sources other than the Phase I MS4s are identified as causing the exceedances, and the Phase I MS4s have demonstrated they are not causing or contributing to the exceedances, the Phase I MS4s will not be considered out of compliance. The San Diego Water Board shall implement additional actions (e.g., issue enforcement actions, amend existing NPDES requirements or conditional waivers), as needed, to bring all those controllable sources into compliance with the wet weather TMDLs.

Between the effective date of these TMDLs and the end of the TMDL Compliance Schedules, monitoring is also required to demonstrate progress toward achieving and complying with the TMDLs, WLAs, and LAs. Progress can be demonstrated with reductions in exceedance frequencies in the receiving waters until the allowable exceedance frequencies ultimately are achieved at the end of the TMDL Compliance Schedules. Demonstrating progress toward attaining the TMDLs in the receiving waters will be assessed differently for dry weather and wet weather as follows:

1. *Measuring Progress Toward Attaining Dry Weather TMDLs*: For the dry weather TMDLs, available historical monitoring data from the years 1996-2002 should be used to calculate the "existing" dry weather exceedance frequency of the 30-day geometric mean REC-1 WQOs for each watershed. "Existing" dry weather exceedance frequencies may be calculated separately for each impaired waterbody listed, or an "existing" dry weather exceedance frequency may be calculated that is applicable to the entire watershed.

   The "existing" dry weather exceedance frequencies should be reduced until the final allowable dry weather exceedance frequency is achieved by the end of the dry weather TMDL Compliance Schedule. If the TMDL Compliance Schedules include interim milestones that must be achieved to demonstrate progress toward attaining the dry weather TMDLs, reductions in the exceedance frequencies in the receiving water may be used. For example, if the "existing" dry weather exceedance frequency is 60

percent, the final dry weather exceedance frequency is 0 percent, and an interim milestone requires a 50 percent reduction, the exceedance frequency in the receiving water should be 30 percent or less by the interim milestone date. By the end of the dry weather TMDL Compliance Schedule, the final allowable dry weather exceedance frequency of the 30-day geometric mean REC-1 WQOs is 0 percent in the receiving waters for both beaches and creeks.

2. *Measuring Progress Toward Attaining Wet Weather TMDLs*: For the wet weather TMDLs, the number of wet days and number of wet exceedance days during the critical wet year from the wet weather model were used to calculate the "existing" wet weather exceedance frequency that needs to be reduced to the allowable wet weather exceedance frequency. For example, if a watershed had 69 wet weather days during the critical wet year, and the wet weather model predicted that all the subwatersheds had an average of 41 wet weather exceedance days during the critical wet year, the "existing" wet weather exceedance frequency is 41/69=59%. For the watershed addressed by these TMDLs, the number of wet weather exceedance days for each indicator bacteria predicted by the wet weather model for the critical wet year are summarized below in Table [Insert Table Number]:

[Insert table number]. Modeled Estimate of Critical Year "Existing" Wet Weather Exceedance Frequencies by Watershed

Watershed	Number of Wet Days in Critical Wet Year	"Existing" Wet Weather Exceedance Frequency of Simgle Sample Maximum REC-1 WQO [a]		
		Fecal Coliform	Total Coliform	Enterococcus
San Joaquin Hills HSA/ Laguna Beach HSA	69	52%	54%	55%
Aliso HSA	69	59%	59%	62% (62%) [b]
Dana Point HSA	69	50%	50%	50%
Lower San Juan HSA	76	66%	66%	74% (72%) [b]
San Clemente HA	73	47%	47%	50%
San Luis Rey HU	90	68%	66%	76%
San Marcos HA	49	57%	57%	59%
San Dieguito HU	98	43%	44%	49%
Miramar Reservoir HA	94	30%	30%	30%
Scripps HA	57	52%	52%	52%
Tecolote HA	57	75%	75%	81% (79%) [b]
Mission San Diego HSA/ Santee HSA	86	70%	63%	79% (76%) [b]
Chollas HSA	65	60%	60%	63% (63%) [b]

a. Calculated by taking the average number of wet days that are predicted by the wet weather model to exceed the single sample maximum REC-1 water quality objective (400 MPN/100mL for fecal coliform, 10,000 MPN/100mL for total coliform, and 61 or 104 MPN/100mL) divided by the total number of wet days in the critical wet year (1993).

b. Allowable exceedance frequency calculated based on an *Enterococcus* single sample maximum REC-1 water quality objective of 61 MPN/100mL. Allowable exceedance frequency in parenthesis calculated based on an Enterococcus single sample maximum REC-1 water quality objective of 104 MPN/100mL, which may be applicable if the usage frequency of the creeks in these watersheds are designated as "moderately to lightly used area" or less frequent usage frequency in the Basin Plan.

> The "existing" wet weather exceedance frequencies should be reduced until the final allowable wet weather exceedance frequency is achieved by the end of the wet weather TMDL Compliance Schedule. If the TMDL Compliance Schedules include interim milestones that must be achieved to demonstrate progress toward attaining the wet weather TMDLs, reductions in the exceedance frequencies in the receiving water may be used. For example, if the "existing" wet weather exceedance frequency is 59 percent, the final wet weather exceedance frequency is 22 percent, and an interim milestone requires a 50 percent reduction, the exceedance frequency in the receiving water should be 41 percent or less by the interim milestone date. By the end of the wet weather TMDL Compliance Schedule, the allowable wet weather exceedance frequency is 22 percent in the receiving waters for both beaches and creeks.

The specific receiving waters (i.e., specific beaches and creek segments) identified on the 2002 303(d) List are shown in the TMDL Compliance Schedule in the following section. Because the REC-1 WQOs and allowable exceedance frequencies must be met throughout the 20 waterbodies addressed by these bacteria TMDLs, monitoring data from these locations and any other beach segments and/or creek monitoring points in the watersheds addressed by these TMDLs may be used to determine compliance.

Because the municipal MS4s are the most significant controllable sources of bacteria and the Phase I MS4s often discharge directly to the receiving waters addressed by these TMDLs, the municipal Phase I MS4s will be primarily responsible for conducting the monitoring. Caltrans will also have monitoring responsibilities. Phase II MS4s, agricultural dischargers, and other sources that are identified as significant sources (i.e., causing or contributing to exceedances in the receiving waters) will also be responsible for monitoring the receiving waters. Additional monitoring locations and frequency may be required to identify sources that need additional controls to reduce bacteria loads. While this TMDL Implementation Plan recommends monitoring at one or two locations for each waterbody, monitoring only one or two locations in the receiving waters may not provide the data to differentiate between and locate sources of bacteria in the watershed. Therefore, the municipal Phase I MS4s and other dischargers may wish to establish additional monitoring locations at key jurisdictional boundaries as part of their monitoring programs, especially in watersheds where Caltrans and Agriculture have been identified as sources contributing bacteria loads to the receiving waters.

Investigative orders, enforcement actions, WDRs, or conditional waiver of WDRs issued by the San Diego Water Board should require monitoring program plans that include, as applicable, the minimum monitoring locations and frequencies outlined above, but also provide the dischargers an opportunity to propose additional or alternative monitoring locations and frequency of monitoring events. The San Diego Water Board may also issue investigative orders, enforcement actions, WDRs, or conditional waiver of WDRs that specify additional or alternative monitoring, monitoring locations, and/or frequency of monitoring events.

The San Diego Water Board will coordinate, to the extent possible, the monitoring that is required by the dischargers, to minimize the monitoring resources required and maximize the temporal and spatial coverage of the data collection.

(j) TMDL Compliance Schedule

The purpose of these TMDLs is to restore the impaired beneficial uses of the waterbodies addressed through mandated reductions of bacteria from controllable point and nonpoint sources discharging to impaired waters. The requirements of these TMDLs mandate that the San Diego Water Board require dischargers improve water quality conditions in impaired waters by achieving the assigned WLAs and LAs. After the controllable sources achieve their assigned WLAs and LAs, the TMDLs in the receiving waters will be met and beneficial uses restored.

Until the dischargers achieve their assigned WLAs and LAs, the beneficial uses of the waterbodies addressed by this project will likely remain impaired, and the dischargers will continue violating one or more Basin Plan waste discharge prohibitions. The San Diego Water Board recognizes that restoring the beneficial uses of the waterbodies impaired by elevated bacteria levels will require time and multiple approaches to implement. Therefore, the bacteria TMDLs are expected to be implemented in a phased approach with a monitoring component to identify bacteria sources, determine the effectiveness of each phase, and guide the selection of BMPs, as outlined in the BMP programs proposed in the BLRPs or CLRPs that are accepted by the San Diego Water Board.

(1) Prioritization of Waterbodies

"Impaired" waters were prioritized based on several factors, because the waterbodies included in these TMDLs are numerous and diverse in terms of geographic location, swimmer accessibility and use, and degree of contamination.

Dischargers accountable for attaining load reductions in multiple watersheds may have difficulty providing the same level of effort simultaneously in all watersheds. In order to address these concerns a scheme for prioritizing implementation of bacteria reduction strategies in waterbodies within watersheds was developed. The prioritization scheme is largely based on the following criteria:

- Level of beach (marine or freshwater) swimmer usage;
- Frequency of exceedances of WQOs; and
- Existing programs designed to reduce bacteria loading to surface waters.

Dischargers were placed into one of three groups (North, Central, and South), based on geographic location. Group N consists of dischargers located in watersheds within Orange County, the northernmost region watersheds included in these TMDLs. Group C consists of dischargers located in watersheds in northern San Diego County, outside the City of San Diego limits, the central region watersheds included in these TMDLs. Group S consists of dischargers who are located in watersheds within and south of the City of San Diego limits, the southernmost region watersheds included in these TMDLs. Table [Insert table number] shows the dischargers in each of the three groups.

[Insert table number]. Responsible Municipalities and Lead Jurisdictions[†]

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	City of Laguna Beach **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
		at Heisler Park – North		
	Pacific Ocean Shoreline	at Main Laguna Beach	City of Aliso Viejo **County of Orange** City of Laguna Beach City of Laguna Woods Orange County Flood Control District Caltrans Owners/operators of small MS4s*	
		Laguna Beach at Ocean Avenue		
		Laguna Beach at Laguna Avenue		
		Laguna Beach at Cleo Street		
		Arch Cove at Bluebird Canyon Road		
		Laguna Beach at Dumond Drive		
Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place/Blue Lagoon Place at Aliso Beach	City of Aliso Viejo City of Laguna Beach City of Laguna Hills City of Laguna Niguel City of Laguna Woods City of Lake Forest City of Mission Viejo **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
	Aliso Creek	The entire reach (7.2 miles) and associated tributaries Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek, and Wood Canyon Creek		
	Aliso Creek (mouth)	At creek mouth		
Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	City of Dana Point City of Laguna Beach City of Laguna Niguel **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
		Aliso Beach at Table Rock Drive		
		1000 Steps Beach at Pacific Coast Hwy at Hospital (9th Ave)		
		at Salt Creek (large outlet)		
		Salt Creek Beach at Salt Creek service road		
		Salt Creek Beach at Dana Strand Road		

[Insert table number]. Responsible Municipalities and Lead Jurisdictions† (Cont'd)

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	At San Juan Creek	City of San Juan Capistrano City of Mission Viejo City of Laguna Hills City of Laguna Niguel City of Dana Point City of Rancho Santa Margarita **County of Orange** Orange County Flood Control District Caltrans Owners/operators of small MS4s*	N
	San Juan Creek	Lower 1 mile		
	San Juan Creek (mouth)	At creek mouth		
San Clemente HA (901.30)	Pacific Ocean Shoreline	Poche Beach	City of San Clemente **County of Orange** Orange County Flood Control District Dana Point Caltrans Owners/operators of small MS4s*	N
		Ole Hanson Beach Club Beach at Pico Drain		
		San Clemente City Beach at El Portal Street Stairs		
		San Clemente City Beach at Mariposa Street		
		San Clemente City Beach at Linda Lane		
		San Clemente City Beach at South Linda Lane		
		San Clemente City Beach at Lifeguard Headquarters		
		Under San Clemente Municipal Pier		
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)		
		San Clemente State Beach at Riviera Beach		
		San Clemente State Beach at Cypress Shores		
San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	**City of Oceanside** City of Vista County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C

[Insert table number]. Responsible Municipalities and Lead Jurisdictions† (Cont'd)

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	City of Carlsbad **City of Encinitas** City of Escondido City of San Marcos County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C
San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth	City of Del Mar **City of Escondido** City of Poway City of San Diego City of Solana Beach County of San Diego Caltrans Owners/operators of small MS4s* Controllable nonpoint sources	C/S
Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline	Torrey Pines State Beach at Del Mar (Anderson Canyon)	City of Del Mar **City of Poway** City of San Diego County of San Diego Caltrans Owners/operators of small MS4s*	S
Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	**City of San Diego** Owners/operators of small MS4s*	S
		La Jolla Shores Beach at Caminito Del Oro		
		La Jolla Shores Beach at Vallecitos		
		La Jolla Shores Beach at Ave de la Playa		
		at Casa Beach, Children's Pool		
		South Casa Beach at Coast Blvd.		
		Whispering Sands Beach at Ravina Street		
		Windansea Beach at Vista de la Playa		
		Windansea Beach at Bonair Street		
		Windansea Beach at Playa del Norte		
		Windansea Beach at Palomar Ave.		
		at Tourmaline Surf Park		
		Pacific Beach at Grand Ave.		

[Insert table number]. Responsible Municipalities and Lead Jurisdictions† (Cont'd)

Watershed	Waterbody***	Segment or Area**	Responsible Municipalities	Group
Tecolote HA (906.50)	Tecolote Creek	Tecolote Creek	**City of San Diego** Owners/operators of small MS4s*	S
Mission San Diego HSA (907.11) & Santee HSA (907.12)	Forrester Creek	Lower 1 mile	**City of El Cajon** City of Santee County of San Diego Caltrans Owners/operators of small MS4s*	S
	San Diego River, Lower	Lower 6 miles	**City of El Cajon** City of La Mesa City of San Diego City of Santee County of San Diego Caltrans Owners/operators of small MS4s* Padre Dam Water Treatment Facility	S
	Pacific Ocean Shoreline	At San Diego River Mouth at Dog Beach		
Chollas HSA (908.22)	Chollas Creek	Lower 1.2 miles	City of La Mesa City of Lemon Grove **City of San Diego** County of San Diego San Diego Unified Port District Caltrans Owners/operators of small MS4s*	S

† Developed based on the 2002 Clean Water Act Section 303(d) List
*Owners/operators of small MS4s are listed in Appendix Q.
** As listed on the 2002 Clean Water Act Section 303(d) List
*** Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

Impaired waters were given a priority number of 1, 2, or 3 with 1 being the highest priority. Priority 1 waters also included waterbodies likely to be removed from the Clean Water Act Section 303(d) List of Water Quality Limited Segments. Priority schemes are designated within watersheds. A prioritized list of impaired beaches and creeks included in this project is shown below in Table [Insert table number].

[Insert table number]. Prioritized List of Impaired Waters for TMDL Implementation

Watershed	Waterbody[b]	Segment or Area[a]	Priority
San Joaquin Hills HSA (901.11) & Laguna Beach HSA (901.12)	Pacific Ocean Shoreline	Cameo Cove at Irvine Cove Dr. - Riviera Way	1
		at Heisler Park – North	1
	Pacific Ocean Shoreline	at Main Laguna Beach	1
		Laguna Beach at Ocean Avenue	1
		Laguna Beach at Laguna Avenue	1
		Laguna Beach at Cleo Street	1
		Arch Cove at Bluebird Canyon Road	1
		Laguna Beach at Dumond Drive	1
Aliso HSA (901.13)	Pacific Ocean Shoreline	Laguna Beach at Lagunita Place/Blue Lagoon Place at Aliso Beach	1
	Aliso Creek	The entire reach (7.2 miles) and associated tributaries Aliso Hills Channel, English Canyon Creek, Dairy Fork Creek, Sulphur Creek, and Wood Canyon Creek	3
	Aliso Creek (mouth)	At creek mouth	3
Dana Point HSA (901.14)	Pacific Ocean Shoreline	Aliso Beach at West Street	1
		Aliso Beach at Table Rock Drive	1
		1000 Steps Beach at Pacific Coast Hwy at Hospital (9th Ave)	1
		at Salt Creek (large outlet)	1
		Salt Creek Beach at Salt Creek service road	2
		Salt Creek Beach at Dana Strand Road	2
Lower San Juan HSA (901.27)	Pacific Ocean Shoreline	At San Juan Creek	1
	San Juan Creek	Lower 1 mile	3
	San Juan Creek (mouth)	At creek mouth	1

[Insert table number]. Prioritized List of Impaired Waters for TMDL Implementation [†] *(Cont'd)*

Watershed	Waterbody[b]	Segment or Area[a]	Priority
San Clemente HA (901.30)	Pacific Ocean Shoreline	at Poche Beach (large outlet)	1
		Ole Hanson Beach Club Beach at Pico Drain	1
		San Clemente City Beach at Linda Lane	1
		San Clemente State Beach at Riviera Beach	1
		San Clemente City Beach at Mariposa Street	2
		San Clemente State Beach at Cypress Shores	2
		San Clemente City Beach at Lifeguard Headquarters	2
		Under San Clemente Municipal Pier	2
		San Clemente City Beach at El Portal Street Stairs	2
		San Clemente City Beach at South Linda Lane	3
		San Clemente City Beach at Trafalgar Canyon (Trafalgar Lane)	3
San Luis Rey HU (903.00)	Pacific Ocean Shoreline	at San Luis Rey River Mouth	2
San Marcos HA (904.50)	Pacific Ocean Shoreline	at Moonlight State Beach	1
San Dieguito HU (905.00)	Pacific Ocean Shoreline	at San Dieguito Lagoon Mouth	1
Miramar Reservoir HA (906.10)	Pacific Ocean Shoreline[a]	Torrey Pines State Beach at Del Mar (Anderson Canyon)	1
Scripps HA (906.30)	Pacific Ocean Shoreline	La Jolla Shores Beach at El Paseo Grande	1
		La Jolla Shores Beach at Caminito Del Oro	1
		La Jolla Shores Beach at Vallecitos	1
		La Jolla Shores Beach at Ave de la Playa	1
		at Casa Beach, Children's Pool	1
		South Casa Beach at Coast Blvd.	1
		Whispering Sands Beach at Ravina Street	1
		Windansea Beach at Vista de la Playa	1
		Windansea Beach at Bonair Street	1
		Windansea Beach at Playa del Norte	1
		Windansea Beach at Palomar Ave.	1
		at Tourmaline Surf Park	1
		Pacific Beach at Grand Ave.	1
Tecolote HA (906.10)	Tecolote Creek	The entire reach and associated tributaries	1

[Insert table number]. Prioritized List of Impaired Waters for TMDL Implementation † *(Cont'd)*

Watershed	Waterbody[b]	Segment or Area[a]	Priority
Mission San Diego HSA (907.11) & Santee HSA (907.12)	San Diego River, Lower	Lower 6 miles	3
	Pacific Ocean Shoreline	At San Diego River Mouth at Dog Beach	3
	Forrester Creek	Lower 1 mile	3
Chollas HSA (908.22)	Chollas Creek	Bottom 1.2 miles	3

† Developed based on the 2002 Clean Water Act Section 303(d) List
a As listed on the 2002 Clean Water Act Section 303(d) List
b Listings on the 2006 and 2008 303(d) List compared to listing shown above are provided in Appendix T to the Technical Report.

Beginning with the 2008 303(d) List, specific beach segments of the Pacific Ocean shoreline are listed individually, and may not be identified in the same way as those segments listed in the table above. Several of the segments or areas in the list above have been delisted or redefined in the 2008 303(d) List. In addition, other segments or areas have been added to the Pacific Ocean shorelines listed above. The TMDLs that address the Pacific Ocean shorelines identified in the 2002 303(d) List are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above, or as listed individually in the 2008 and future 303(d) Lists.

The prioritized list above recognizes that there are segments or areas where bacterial water quality improvements are most likely to occur first (Priority 1), and segments or areas where bacterial water quality improvements are most likely to require more time to achieve (Priority 3). In some cases, receiving water limitations are already being met, resulting in the delisting of those segments or areas from the 2006 and/or 2008 303(d) Lists. The protection of the REC-1 beneficial use of those delisted segments or areas, however, must also be maintained, and those segments or areas must remain off future iterations of the 303(d) List.

The BLRPs or CLRPs that are developed are expected to focus on implementing BMP programs to reduce bacteria loads to those segments or areas where exceedances of the receiving water limitations continue to occur. The BMP programs that are included in the BLRPs or CLRPs should include short-term and long-term implementation strategies. The short-term strategies should be able to result in bacteria load reductions that can result in achieving the TMDLs for Priority 1 segments or areas. The long-term strategies should be able to result in bacteria load reductions that will result in achieving the TMDLs in all segments or areas by the end of the TMDL compliance schedules and maintain the protection of the REC-1 beneficial use after the end of the TMDL compliance schedules.

In the segments or areas where the receiving water limitations are being met, the BLRPs or CLRPs also need to include a monitoring component to ensure that protection of the REC-1 beneficial use is maintained. If receiving water limitations are exceeded in the future in

those locations, the BLRPs or CLRPs must include the implementation of a BMP program that will ensure that the TMDLs will be achieved by the end of the TMDL compliance schedules.

(2) Compliance Schedule

Full implementation of the TMDLs for indicator bacteria shall be completed as soon as possible, but no later than 10 years[81] from the effective date[82] for both the dry weather and wet weather TMDLs, unless an alternative compliance schedule is approved as part of a Comprehensive Load Reduction Plan, as described in the following section. The effective date of these TMDLs is [*insert date on which OAL approves this Basin Plan amendment]*.

The San Diego Water Board will require the Phase I MS4s to submit Bacteria Load Reduction Plan (BLRPs) outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the bacteria TMDLs in the receiving waters, acceptable to the Regional Board within 18 months after the effective date of these TMDLs. The Phase I MS4 BLRPs should be incorporated into their Watershed Runoff Management Programs. Caltrans will also be required to develop and submit BLRPs outlining a proposed BMP program that will be capable of achieving the necessary load reductions required to attain the TMDLs in the receiving waters, acceptable to the Regional Board, within 18 months after the effective date of these TMDLs. To the extent possible, the Phase I MS4s and Caltrans should develop and coordinate the elements of their BLRPs together. The BLRPs will allow the Phase I MS4s and Caltrans to propose a compliance schedule for WQBELs that implement the bacteria TMDLs. The compliance schedule for the Phase I MS4s and Caltrans to attain their respective WLAs and the TMDLs in the receiving waters will be based on the BMP program proposed in the BLRPs.

For watersheds in [Insert table number] where there are no longer any impairments listed on the 2008 303(d) List, the Phase I MS4s and Caltrans are not required to submit a BLRP or CLRP within 18 months of the effective date of these TMDLs. If, however, any segment of a waterbody for the watershed (Pacific Ocean shoreline, creek, or mouth as shown in Table 11-5) is re-listed on a future 303(d) List for any type of indicator bacteria, the Phase I MS4s and Caltrans will be required to submit a BLRP or CLRP within 6 months of the adoption of the 303(d) List by the San Diego Regional Board.

If the Phase I MS4s and Caltrans choose to submit BLRPs that address only bacteria, the proposed schedule for compliance with the wet weather and dry weather TMDLs cannot extend beyond 10 years from the effective date, and must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged, but may also be required by the Regional Board. If the BLRPs do not include a proposed compliance schedule that is acceptable to the Regional Board, the compliance schedule will be as follows.

[81] If a Comprehensive Load Reduction Plan (CLRP) is developed to address several pollutants, including bacteria, the implementation of the wet weather bacteria TMDLs shall be completed as soon as possible, but no later than 20 years from the effective date. See Alternative Compliance Schedules under section (j)(3).
[82] The effective date is the date the Office of Administrative Law approves this Basin Plan amendment.

The compliance schedule for achieving the dry weather and wet weather bacteria TMDLs (Tables [Insert table numbers], respectively) are structured in a phased manner, with 100 percent of dry weather exceedance frequency reductions, and 100 percent of wet weather exceedance frequency reductions within 10 years from the effective date. At the end of the dry weather TMDL compliance schedule, the receiving waters must not exceed the 30-day geometric mean REC-1 WQOs more than 0 percent of the time. At the end of the wet weather TMDL compliance schedule, the receiving waters must not exceed the single sample maximum REC-1 WQOs more than the wet weather allowable exceedance frequency. All of these reductions are aimed at restoring water quality to a level that supports REC-1 beneficial uses in the ocean shoreline and in impaired creeks. These reductions required by the compliance schedule vary on the timeline based on the priority scheme described in Table [Insert table number]. Intermediate milestone reductions in bacteria wasteloads are required sooner in the higher priority waters.

[Insert Table Number]. Dry Weather Compliance Schedule and Milestones for Achieving Exceedance Frequency Reductions

Compliance Year (year after OAL approval)	Required Exceedance Frequency Reduction		
	Priority 1	Priority 2	Priority 3
5	50% (All Dry Weather)		
6		50% (All Dry Weather)	
7			50% (All Dry Weather)
10+	100% (All Dry Weather)	100% (All Dry Weather)	100% (All Dry Weather)

[Insert Table Number]. Wet Weather Compliance Schedule and Milestones for Achieving Exceedance Frequency Reductions

Compliance Year (year after OAL approval)	Required Exceedance Frequency Reduction		
	Priority 1	Priority 2	Priority 3
5	50% (All Wet Weather)		
6		50% (All Wet Weather)	
7			50% (All Wet Weather)
10+	100% (All Wet Weather)	100% (All Wet Weather)	100% (All Wet Weather)

The first four years of the compliance schedules above do not require any exceedance frequency reductions from current conditions. These years will provide the dischargers time to identify sources, develop plans and implement enhanced and expanded BMPs capable of achieving the mandated decreases in exceedance frequencies of the REC-1 WQOs in the impaired beaches and creeks. The Regional Board may also include

additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent).

If appropriate and acceptable to the Regional Board, the proposed compliance schedules included in the BLRPs will be incorporated into the various TMDL implementing orders, such as the municipal Phase I MS4 stormwater WDRs and NPDES requirements. Otherwise, the compliance schedules given above will be implemented.

(3) Alternative Compliance Schedules

The dischargers to Chollas Creek in the Chollas HSA watershed will have to address reductions from multiple water quality improvement projects in addition to bacteria, namely TMDLs for copper, lead, zinc, and diazinon,[83] and a trash reduction program. Addressing multiple pollutants (in addition to bacteria) will require the development and submittal of a Comprehensive Load Reduction Plan (CLRP) by the Phase I MS4s and Caltrans. The CLRP will allow the Phase I MS4s and Caltrans to propose a compliance schedule to address impairments due to loads from multiple pollutants, including bacteria.

Full implementation of the TMDLs for indicator bacteria included under the CLRP for the Chollas HSA watershed shall be completed as soon as possible, but cannot extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs. The proposed compliance schedules for the bacteria TMDLs included under the CLRP must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged. If the CLRP for the Chollas HSA watershed does not include a proposed compliance schedule, specifically for bacteria, the compliance schedule will be as given in Table [*Insert table number*].

[*Insert table number*]. *Alternative Compliance Schedule Chollas Creek*

Compliance Year*	Exceedance Frequency Reduction Milestone**
7	50% for dry weather
10	100% for dry weather 50% for wet weather
20	100% for wet weather

* Year after effective date for the TMDL that initiated the development of the CLRP.
** The Regional Board may also include additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent).

Likewise, dischargers in other bacteria-impaired watersheds may also find that undertaking concurrent load reduction programs for other pollutant constituents (e.g. metals, pesticides, trash, nutrients, sediment, etc.) together with the bacteria load reduction requirements in these TMDLs, is more cost effective, and has fewer potential environmental impacts from structural BMP construction. In these cases, the dischargers may develop and submit a CLRP for all constituents of concern in lieu of the BLRP, and to

[83] As described in *Total Maximum Daily Loads for Dissolved Copper, Lead, and Zinc in Chollas Creek, Tributary to San Diego Bay*, adopted under Resolution No. R9-2007-0043, and *Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County*, adopted under Resolution No. R9-2002-0123.

propose an appropriately tailored alternative compliance schedule. Proposed alternative compliance schedules tailored under this provision may not extend beyond 10 years for the dry weather bacteria TMDLs and 20 years for the wet weather bacteria TMDLs from the effective date, and must include at least a milestone for achieving a 50 percent exceedance frequency reduction. Additional milestones for achieving exceedance frequency reductions (e.g., 25 and 75 percent) are encouraged, but may also be required by the Regional Board.

If appropriate and acceptable to the Regional Board, the proposed alternative compliance schedules included in the CLRPs will be incorporated into the various TMDL implementing orders. Otherwise, the alternative compliance schedule given above as an example for Chollas Creek will be implemented for a CLRP that is developed for any other watershed.

(k) TMDL Implementation Milestones

Accomplishing the goals of the implementation plan will be achieved by cooperative participation from all responsible parties, including the San Diego Water Board. Major milestones are described in Table [*Insert table number*].

[*Insert table number*]. *TMDL Implementation Milestones*

Item	Implementation Action	Responsible Parties	Date
1	Obtain approval of Beaches and Creeks Indicator Bacteria TMDLs from the State Water Board, OAL, and USEPA.	San Diego Water Board	Effective date[a] [Insert Date of OAL Approval]
2	Issue investigative orders to Phase I MS4s and Caltrans requiring the development and submittal of BLRPs or CLRPs acceptable to the Regional Board within 18 months of effective date	San Diego Water Board	As soon as possible (if necessary)
3	Issue, reissue, or revise general WDRs and NPDES requirements for the Phase I MS4s to incorporate the requirements for complying with the TMDLs and MS4 WLAs.	San Diego Water Board	Within 5 years of effective date[b]
4	Issue, reissue, or revise general WDRs and NPDES requirements for Caltrans to incorporate the requirements for complying with the TMDLs and Caltrans WLAs.	San Diego Water Board, State Water Board	Within 5 years of effective date[b]
5	Issue, reissue, or revise the WDRs and NPDES requirements for POTWs and wastewater collection systems to incorporate new requirements for sewer line surveillance and maintenance, consistent with the zero WLA.	San Diego Water Board	Within 5 years of effective date[b]
6	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 1 watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	5 years after effective date[b]
7	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 1 watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	5 years after effective date[b]
8	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 2 watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	6 years after effective date[b]
9	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 2 watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	6 years after effective date[b]
10	Meet 50% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 3 watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	7 years after effective date[b]
11	Meet 50% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in Priority 3 watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	7 years after effective date[b]
12	Meet 100% Dry Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in all watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	10 years after effective date[b,c]

Item	Implementation Action	Responsible Parties	Date
13	Meet 100% Wet Weather exceedance frequency reductions required to achieve TMDLs in receiving waters in all watersheds.	Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	10 to 20 years after effective date[b,c]
14	Amend discharge conditions of appropriate waivers to be consistent with the requirements for complying with the TMDLs and Agriculture LAs.	San Diego Water Board	As needed after effective date
15	Issue individual or general WDRs or Basin Plan prohibitions consistent with the TMDLs and LAs for controllable nonpoint source discharges not eligible conditional waivers.	San Diego Water Board	As needed after effective date
16	Submit BLRP or CLRP Progress Reports to San Diego Water Board	Phase I MS4s, Phase II MS4s, Caltrans	In accordance with BLRPs or CLRPs accepted by the Regional Board
17	Enroll Phase II MS4s identified as significant sources of bacteria to receiving waters under State Water Board general WDRs and NPDES requirements.	San Diego Water Board	As needed after effective date
18	Issue individual or general WDRs and NPDES requirements consistent with the TMDLs and WLAs for specific Phase II MS4s or category of Phase II MS4s.	San Diego Water Board	As needed after effective date
19	Take enforcement actions against controllable point sources and nonpoint sources to attain compliance with the WLAs and LAs.	San Diego Water Board	As needed after effective date
20	Recommend TMDL-related projects as high priority for grant funds.	San Diego Water Board	As needed after effective date
21	Amend the Basin Plan and/or provisions of these TMDLs (e.g., usage frequency or creeks or watershed-specific allowable exceedance frequency) based on evidence provided by dischargers and/or other entities	San Diego Water Board, Municipal Dischargers,[d] Caltrans, Agriculture/Livestock Dischargers	Within 5 years after effective date [e]

[a] Effective date = date of approval by OAL

[b] May defer to alternative compliance schedule proposed in BLRPs or CLRPs that have been incorporated into implementing orders (e.g., WDRs, cleanup and abatement orders)

[c] Compliance schedules for dry weather and wet weather TMDLs proposed in BLRPs cannot extend beyond 10 years from the effective date. Compliance schedules proposed in CLRPs for dry weather TMDLs cannot extend beyond 10 years and for wet weather TMDLs cannot extend beyond 20 years from the effective date.

[d] Because there are no Phase II MS4s enrolled under the State General Permit for Small MS4s, discharges from Phase II MS4s are not permitted (i.e., WLA = 0) and Municipal Dischargers are only the Phase I MS4s in this Implementation Milestone item. When a Phase II MS4 is enrolled under the State General Permit for Small MS4s or issued an individual NPDES permit, the Municipal Dischargers will be both the Phase I MS4s and Phase II MS4s in this Implementation Milestone item.

[e] If no Basin Plan amendment has been initiated within 5 years of the effective date of this TMDL Basin Plan amendment, and the Executive Officer determines, with Regional Board concurrence, that insufficient data exist to support the initiation of a Basin Plan amendment, a subsequent Basin Plan amendment to revise the requirements and/or provisions for the implementation of these TMDLs will not be initiated until the Executive Officer determines the conditions to initiate a Basin Plan amendment are met.

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ATTACHMENT
26

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Thomas Howard
Executive Director
California State Water Resources Control Board
P.O. Box 100
Sacramento, California 95812-0100

Dear Mr. Howard:

Thank you for submitting the Basin Plan Amendment containing the Total Maximum Daily Load (TMDL) for indicator bacteria in twenty beaches and creeks in the San Diego Region. Based on the U.S. Environmental Protection Agency (EPA) review of the TMDL submittal under Clean Water Act (CWA) section 303(d), I have concluded the TMDL adequately addresses the pollutants of concern and, upon implementation, will result in attainment of the applicable water quality standards for each beach and freshwater creek. All required elements are adequately addressed; therefore, the TMDL is hereby approved pursuant to CWA section 303(d)(2).

EPA received the State Water Resources Control Board's complete TMDL package for approval on May 18, 2011. The TMDL includes load and wasteload allocations as needed, takes into consideration seasonal variation and critical conditions, and provides an adequate margin of safety. The State has provided adequate opportunities for public review and comment on the TMDL, and demonstrated how public comments were considered in the final TMDL.

The TMDL submittal also contains a detailed plan for implementing the TMDL. Current federal regulations do not define TMDLs as containing implementation plans; therefore, EPA is not taking action on the implementation plan provided with this TMDL. However, EPA concurs with the State's proposed implementation approaches.

If you have any questions concerning this approval, please call me at (415) 972-3572 or Cindy Lin at (213) 244-1803.

Sincerely yours,

Alexis Strauss 22 June 2011
Alexis Strauss
Director, Water Division

Enclosure

cc: David Gibson, Executive Officer
California Regional Water Quality Control Board, San Diego Region

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ATTACHMENT
27

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

2375 Northside Drive, Suite 100, San Diego, CA 92108
(619) 516-1990 • Fax (619) 516-1994
http://www.waterboards.ca.gov

ORDER R9-2016-0116
NPDES NO. CA0109134

WASTE DISCHARGE REQUIREMENTS FOR GENERAL DYNAMICS NATIONAL STEEL AND SHIPBUILDING COMPANY (NASSCO) DISCHARGE TO SAN DIEGO BAY

The following Discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Table 1. Discharger Information

Discharger	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Name of Facility	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Facility Address	2798 East Harbor Drive
	San Diego, CA 92113
	San Diego County

Table 2. Discharge Locations

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
IX-1 (Ion Exchange Treatment System)	Hydrostatic Relief and Ways Flood Water	32º 41' 30" N	-117º 8' 26" W	San Diego Bay
M-1 (Floating Dry Dock)	Ballast Water	32º 41' 33" N	-117º 8' 37" W	San Diego Bay
M-2 (Graving Dock Flood Water)	Dewatering Flood Water	32º 41' 27" N	-117º 8' 25" W	San Diego Bay
SW-1 (North Shipyard)	Northwest Storm Water Collection	32° 41' 25" N	-117° 8' 33" W	San Diego Bay
SW-2 (South Shipyard	Southwest Storm Water Collection	32° 41' 21" N	-117° 8' 20" W	San Diego Bay

Table 3. Administrative Information

This Order was adopted on:	**December 14, 2016**
This Order shall become effective on:	**February 1, 2017**
This Order shall expire on:	**January 31, 2022**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations (CCR), and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**180 days prior to the Order expiration date**
The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, San Diego Region have classified this discharge as follows:	**Major**

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Diego Region, on the date indicated above.

David W. Gibson, Executive Officer

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I. FACILITY INFORMATION

The General Dynamics National Steel And Shipbuilding Company (NASSCO or Discharger) provides a full range of ship construction, conversion, and repair capabilities to the U.S. Navy and commercial customers at the General Dynamics NASSCO shipyard facility (Facility). Information describing the Facility is summarized in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Discharger's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds:

A. Legal Authorities. This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code) (commencing with section 13260).This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the U.S. at the discharge locations described in Table 2 subject to the WDRs in this Order.

B. Background and Rationale for Requirements. The San Diego Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections VI.A.2 are included to implement State law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES permit violations.

D. Executive Officer Delegation of Authority. The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to Water Code section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under Water Code section 13223 or this Order explicitly states otherwise.

E. Notification of Interested Parties. The San Diego Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in section VIII of the Fact Sheet (Attachment F).

F. Consideration of Public Comment. The San Diego Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in section VIII of the Fact Sheet (Attachment F).

THEREFORE, IT IS HEREBY ORDERED that this Order supersedes Order No. R9-2009-0099 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. This action in no way prevents the San Diego Water Board from taking enforcement action for past violations of the previous Order.

III. DISCHARGE PROHIBITIONS

A. The Discharger must comply with discharge prohibitions contained in chapter 4 of the San Diego Water Board's *Water Quality Control Plan for the San Diego Basin* (Basin Plan) and other applicable statewide water quality control plans and policies described in Attachment F of this Order. All such prohibitions are incorporated by reference into this Order as if fully set forth herein. The San Diego Water Board's Basin Plan Waste Discharge Prohibitions are summarized in Attachment H as a condition of this Order.

B. The dumping, deposition, or discharge of the wastes directly into waters of the U.S. including but not limited to San Diego Bay and Chollas Creek, or adjacent to such waters in any manner which may permit its being transported into the waters is prohibited. The following are the types of wastes that are likely to be generated at the Facility:

1. Paint, including paint chips and overspray.
2. Blasting materials.
3. Water contaminated with waste, including abrasive blast materials, paint, oils, fuels, lubricants, solvents, or petroleum.
4. Hydroblast water.
5. Treated or untreated sewage.
6. Tank cleaning water, including water from tank cleaning to remove sludge or dirt.
7. Clarified water from oil and water separator.
8. Steam cleaning water.
9. Pipe and tank hydrostatic test water, unless regulated by an NPDES permit.
10. Hydraulic oil.
11. Fuel.
12. Trash.
13. Refuse and rubbish including but not limited to cans, bottles, paper, plastics, vegetable matter or dead animals.
14. Fiberglass dust.
15. Swept materials.
16. Ship repair and maintenance activity debris.
17. Waste zinc plates.
18. Demineralizer and reverse osmosis brine.
19. Oily bilge water.

C. The discharge of waste to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek, is prohibited except as specifically authorized by this Order or another NPDES permit.

D. The discharge of industrial process water (other than shipboard cooling water), including hydroblast water, to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek is prohibited except as specifically authorized by this order or another NPDES permit.

E. The discharge of materials of petroleum origin to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek in sufficient quantities to be visible is prohibited.

F. Discharges to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek, containing a hazardous substance equal to or in excess of a reportable quantity listed in title 40 Code of Federal Regulations (40 CFR) part 117, *Determination of Reportable Quantities for Hazardous Substances*, and/or 40 CFR part 302, *Designation, Reportable Quantities, and Notification*, are prohibited.

G. The discharge of wastes and pollutants from underwater operations, such as underwater paint and coating removal and underwater hull cleaning, is prohibited. This prohibition does not apply to the discharge of marine fouling organisms removed from unpainted and uncoated surfaces by underwater operations or to discharges that result from the cleaning of floating booms.

H. The discharge of polychlorinated biphenyls (PCBs) to to waters of the U.S. including but not limited to San Diego Bay and Chollas Creek is prohibited.

I. The discharge of flood waters from the graving dock (Discharge Point No. M-2) more than 10 times per year is prohibited.

J. The addition of chlorine or other additive pollutants to the fire protection system, potable water system, steam system, or dry dock ballast tanks is prohibited.

K. The discharge of the first one (1) inch of storm water runoff from all areas designated as Industrial High Risk areas, as described in section IV.A of this Order, is prohibited, unless pollutants in the discharge are reduced to levels that comply with the effluent limitations in section IV.B.1. Effluent limitations contained in section IV.B.1 are applicable to all discharges of storm water from Industrial High Risk Areas on the Facility.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Storm Water Risk Level Designation Definition

Industrial High Risk Areas. All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, nonconventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, storm water run-on, and/or storm water runoff. Except non-industrial areas such as administrative areas or parking lots, the entire Facility is designated an Industrial High Risk Area.

B. Effluent Limitations

1. Discharge Point Nos SW-1 and SW-2 – Industrial Storm Water

For discharges of storm water from Industrial High Risk Areas, the Discharger shall maintain compliance with the following effluent limitations:

Table 4. Effluent Limitations for the Industrial Storm Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum
Chronic Toxicity	Pass/Fail & % Effect	--	--	[1]	--

[1] As specified in section VII.I. of this Order.

2. Discharge Point No. IX-1 – Ion Exchange Treatment System

For discharges from the Ion Exchange Treatment System, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. IX-1, with compliance measured at Monitoring Location No. IX-1, as described in the Monitoring and Reporting Program (MRP) (Attachment E):

Table 5. Effluent Limitations for the Ion Exchange Treatment System

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	mL/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	pH units	--	--	--	[1]
Temperature	ºF	--	--	--	[2]
Chronic Toxicity	Pass/Fail	[3]	--	[3]	--
Copper, Total Recoverable	µg/L	3.2	--	5.6	--

[1] Within limits of 7.0 – 9.0 at all times.
[2] At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.
[3] As specified in section VII.I of this Order.

3. Discharge Point No. M-1 –Ballast Water

The Discharger must comply with narrative Best Management Practices (BMPs) based effluent limitations pursuant to section VI.C.3 of this Order.

4. Discharge Point No. M-2 - Graving Dock Flood Water

For discharges of Graving Dock Flood Water, the Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. M-2, with compliance measured at Monitoring Location No. M-2, as described in the attached MRP (Attachment E):

Table 6. Effluent Limitations for Graving Dock Flood Water

Parameter	Units	Effluent Limitations			
		Average Monthly[4]	Average Weekly	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	mL/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	pH units	--	--	--	[1]
Temperature	ºF	--	--	--	[2]
Chronic Toxicity	Pass/Fail	--	--	[3]	--
Copper, Total Recoverable	µg/L	--	--	10.0	--
Zinc, Total Recoverable	µg/L	--	--	95	--

Parameter	Units	Effluent Limitations			
		Average Monthly[4]	Average Weekly	Maximum Daily	Instantaneous Maximum

[1] Within limits of 7.0 – 9.0 at all times.
[2] At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.
[3] As specified in section VII.I of this Order.
[4] The Average Monthly Effluent Limitations only apply if there is a discharge more than one day in a 30 day period.

C. Industrial Storm Water Discharge Specifications

1. Pollutant Reduction to Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT).

The Discharger shall reduce pollutants in storm water discharges from Industrial High Risk Areas as follows:

a. Attain the technology–based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.

b. Attain compliance with applicable effluent limitations and requirements set forth in section IV.B of this Order and water quality standards set forth in section V of this Order.

2. Storm Water Pollution Prevention Plan (SWPPP) Requirements

a. The Discharger shall continue to maintain and implement an effective SWPPP designed to reduce or prevent the discharge of pollutants from industrial activities to the technology–based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.

b. The SWPPP shall include identification, assignment, and guidance for implementation of measures and BMPs to control discharges from industrial activities and prevent the discharge of storm water to the receiving water. The BMPs and measures shall be selected to achieve BAT/BCT and compliance with all receiving water limitations.

c. At a minimum, the SWPPP shall contain the elements and be implemented in accordance with Attachment G of this Order. The SWPPP elements shall be incorporated into the overall BMP Program.

d. The relevant portions of the SWPPP may be incorporated into another plan, such as a BMP Program, in order to comply with the requirements of this Order.

e. The SWPPP shall be reviewed annually and revised as necessary.

3. Numeric Action Levels (NALs) for Industrial High Risk

a. **NAL Exceedance Determination Method**

i. **Annual NAL Exceedance**. The Discharger shall determine the average concentration for each parameter using the results of all industrial storm water sampling and analytical results for the entire Facility for the reporting year (i.e., all "effluent" data). This average concentration for each parameter shall be compared to the corresponding annual NAL values in Table G-1. If composite sampling or flow-weighted measurements are used in accordance with standard practices, the average concentrations shall be calculated in accordance with the *U.S. EPA Industrial Stormwater Monitoring and Sampling*

Guide.[1] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value for that parameter listed in Table G-1 (or is outside the NAL pH range) The Discharger has the option of calculating the flow-weighted average concentration for all industrial storm water effluent data for the entire Facility as shown below to compare the corresponding annual NAL values in Table G-1:

$$FWAC = \frac{\sum_{n=1}^{n=9} Q_n C_n}{\sum_{n=1}^{n=9} Q_n}$$

Where:

FWAC = Flow weighted average concentration
Q_n = Flow rate of discharge at time of sample collection
C_n = Concentration of chemical in the collected sample
n = Number of discharge points

The flow rate for each discharge point is multiplied by the concentration (C) in the sample from that discharge point. This sum is divided by the total flow rate for all of the discharge points.

For calculating the average, all effluent sampling analytical results that are reported by the laboratory as “non-detect" or less than the Method Detection Limit (MDL), a value of zero shall be used. Any results reported by the laboratory as “Detected Not Quantifiable” or less than the Minimum Level (ML) but above the MDL, a value of the MDL plus half the difference between the MDL and the ML shall be used.

ii. **Instantaneous Maximum NAL Exceedance**. The Discharger shall compare all industrial storm water analytical results from each distinct sample (grab or composite) to the corresponding instantaneous maximum NAL values in Table G-1. An instantaneous maximum NAL exceedance occurs when two or more analytical results for TSS, oil and grease, or pH from samples taken within a reporting year exceed the instantaneous maximum NAL value or is outside the NAL pH range.

iii. The NALs described in Table G-1 of Attachment G of this Order are used as numeric thresholds for corrective action. An exceedance of a NAL is not a violation of this Order.

b. **NAL Exceedance Response Actions (ERAs)**

i. **Baseline Status – No Exceedance**

The Discharger will automatically be placed in Baseline status at the beginning of the permit term.

ii. **Level 1 Status**

A Discharger’s Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter.

[1] U.S. EPA. “*Industrial Stormwater Monitoring and Sampling Guide*.” March 2009. EPA 832-B-09-003 Web 7 April 2014. <http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf>.

Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.

a) Level 1 ERA Evaluation. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:

(1) Complete an evaluation of the industrial pollutant sources at the Facility that are or may be related to the NAL exceedance(s); and,

(2) Identify in the evaluation the corresponding Best Management Practices (BMPs) in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this Order. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

b) Level 1 ERA Report. Based on the above evaluation, the Discharger shall, as soon as practicable, but no later than January 1 following commencement of Level 1 status:

(1) Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;

(2) Certify and submit a Level 1 ERA Report that includes the following:

(a) A summary of the Level 1 ERA Evaluation required in section IV.C.3.b.ii.a) above; and
(b) A detailed description of the SWPPP and any additional BMPs for each parameter that exceeded an NAL.

c) Return to Baseline Status. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four consecutive QSEs that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.

d) NAL Exceedances Prior to Implementation of Level 1 Status BMPs. Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances.

iii. **Level 2 Status**

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.

a) Level 2 ERA Action Plan

(1) Dischargers with Level 2 status shall certify and submit a Level 2 ERA Action Plan that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in section X.B of Attachment G to this Order the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.

(2) The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.

(3) All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.

(4) The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in section X.B of Attachment G to this Order.

b) Level 2 ERA Technical Report

(1) On **January** 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations described in section X.B of Attachment G to this order:

(a) Industrial Activity BMPs Demonstration:
(b) Non-Industrial Pollutant Source Demonstration; or
(c) Natural Background Pollutant Source Demonstration.

(2) Upon review of a Level 2 ERA Technical Report, the San Diego Water Board may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this Order.

(3) Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area, facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be certified and submitted by the Discharger with each Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

(4) Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if

information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

c) Return to Baseline Status

(1) The Discharger's Level 2 status will return to Baseline status once an Industrial Activity BMPs Demonstration has been submitted in accordance with section X.B.1 of Attachment G to this Order, measures and BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) have been implemented, and the results from four subsequent consecutive Qualifying Storm Events (QSEs) sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 of the year subsequent to the reporting year during which the NAL exceedance(s) occurred. Upon return to Level 2 status, the Discharger shall update the Level 2 ERA Technical Report.

(2) The Discharger is ineligible to return to Baseline status if they submit any of the following:

(a) An Industrial Activity BMP Demonstration that the Discharger is not expected to eliminate future NAL exceedance(s) in accordance with section X.B.1.d of Attachment G to this Order;
(b) A Non-industrial Pollutant Source Demonstration in accordance with section X.B.2 of Attachment G to this Order; or
(c) A Natural Background Pollutant Source Demonstration in accordance with section X.B.3 of Attachment G to this Order.

d) Level 2 ERA Implementation Extension

(1) If additional time is needed to submit the Level 2 ERA Technical Report, the Discharger shall be automatically granted a single time extension for up to six months upon submitting the following items as applicable:

(a) Reason(s) for the time extension;
(b) A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and
(c) A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.

(2) Requests for extensions that total more than six months must be approved of in writing by the San Diego Water Board. The San Diego Water Board may do any of the following:

(a) Reject or revise the time allowed to complete Level 2 ERA Implementation Extensions,

(b) Identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or
(c) Require the Discharger to implement additional temporary BMPs.

4. Design Storm Standards for Storm Water Retention and Treatment Control BMPs

The Discharger shall maintain and operate the Facility's storm water diversion system to eliminate storm water discharges associated with industrial activity from the Facility. The Discharger shall maintain the current design ability to capture approximately 3.5 inches of rainfall from a 24-hour storm event.

D. Floating Dry Dock, Graving Dock, and Building Ways Discharge Specifications

1. The Discharger shall prevent or minimize the discharge of pollutants from any surface of its floating dry dock, graving dock, and building ways during submergence or flooding by implementing a BMP Program which shall incorporate the relavent SWPPP elements. The BMP Program shall include, at a minimum, specific management practices and standard operating procedures, good housekeeping practices, and provisions for inspections, records, and training.

2. As the Discharger performs construction, maintenance, and repair work, the Discharger shall remove spent abrasives, paint residues, particulate matter, and other debris and waste from surfaces that are reasonably accessible to the degree achievable by scraping, broom cleaning, and/or power and pressure washing as needed to achieve BAT and BCT. Prior to submergence or flooding, any other areas that were previously inaccessible shall be cleaned by scraping, broom cleaning, and/or power and pressure washing as soon as practical as needed to achieve BAT and BCT. The Discharger may then submerge the floating dry dock or flood the graving dock or building ways. This provision shall not apply in cases wherein a vessel must be introduced into the dry dock, graving dock, or building ways on an emergency basis, such as to prevent sinking or leakage of oil or another hazardous material. The Discharger shall notify the San Diego Water Board of such emergency circumstances as follows:

   a. Any available information shall be provided orally or by e-mail within 24 hours after the time the Discharger becomes aware of the circumstances even if the vessel docks within these 24 hours.

   b. A written report submission shall also be provided within five working days of the emergency docking. The report shall contain a description of the emergency circumstances including the identification of the floating dry dock, graving dock, or building way involved; identification of key waste constituents discharged as a result of the incident; the name and owner of the vessel; and the exact date and time the vessel was moved into the floating dry dock, graving dock, or building way. The San Diego Water Board may waive the written report under this provision on a case by case basis if an oral or e-mail report has been received within 24 hours.

3. The Discharger shall perform regular dry dock, graving dock, and building ways cleaning while work is being conducted to minimize the potential for pollutants to accumulate on, or to be released from, their surfaces.

E. Land Discharge Specifications – Not Applicable

F. Recycling Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

The receiving water limitations set forth below for the waters of San Diego Bay and the mouth of Chollas Creek are based on applicable water quality standards contained in water quality control plans and policies and federal regulations and are a required part of this Order. The discharge of waste shall not cause or contribute to violations of these receiving water limitations.

A. Water Quality Objectives and Criteria

The discharge of waste shall not cause violations of water quality standards, federal pollutant criteria or other provisions applicable to San Diego Bay or the mouth of Chollas Creek contained in the water quality control plans, policies, and federal regulations set forth below:

1. The San Diego Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans.
2. State Water Resources Control Board (State Water Board) water quality control plans and policies including:
    a. *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries* (Thermal Plan).
    b. *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* (Bays and Estuaries Policy).
    c. *Policy for Implementation of Toxics Standards for Inland Surface Waters, and Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP).
    d. *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan).
3. Priority pollutant criteria promulgated by the U.S. EPA through the:
    a. *National Toxics Rule* (NTR)[2] (promulgated on December 22, 1992 and amended on May 4, 1995).
    b. *California Toxics Rule* (CTR)[3,4]

B. Physical Characteristics

1. Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses. [Basin Plan]
2. Waters shall not contain oils, greases, waxes, or other materials in concentrations which result in a visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or which otherwise adversely affect beneficial uses. [Basin Plan].
3. Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses. [Basin Plan]
4. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. [Basin Plan]

[2] 40 Code of Federal Regulations (CFR) section 131.36
[3] 65 Federal Register 31682-31719 (May 18, 2000), adding section 131.38 to 40 CFR
[4] If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies.

5. Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses. [Basin Plan]
6. Waters shall not contain taste or odor producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. [Basin Plan]
7. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. In addition, within San Diego Bay, the transparency of bay waters, insofar as it may be influenced by any controllable factor, either directly or through induced conditions, shall not be less than 8 feet in more than 20 percent of the readings in any zone, as measured by a standard Secchi disk. Wherever the water is less than 10 feet deep, the Secchi disk reading shall not be less than 80 percent of the depth in more than 20 percent of the readings in any zone. [Basin Plan]
8. The discharge of waste shall not cause the temperature of the receiving water to be altered in a manner that adversely impacts beneficial uses. [Thermal Plan]

C. Chemical Characteristics

1. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally. The pH shall not be depressed below 7.0 nor raised above 9.0. [Basin Plan]
2. The dissolved oxygen concentration shall not at any time be less than 5.0 mg/L. The annual mean dissolved oxygen concentration shall not be less than 7 mg/L more than 10 percent of the time. [Basin Plan]
3. San Diego Bay waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses. [Basin Plan]
4. The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/L (as N) in San Diego Bay. [Basin Plan]
5. No individual pesticide or combination of pesticides shall be present in the water column, sediments or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife or aquatic organisms. [Basin Plan]

D. Biological Characteristics

1. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded. [California Ocean Plan, Water Quality Control Plan Ocean Waters of California (Ocean Plan) – Best Professional Judgement (BPJ)]
2. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered. [Ocean Plan - BPJ]
3. The concentration of organic materials in fish, shellfish or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health. [Ocean Plan - BPJ]

E. Bacterial Characteristics

1. The most probable number of total coliform organisms in the upper 60 feet of the water column shall be less than 1,000 organisms per 100 mL (10 organisms per mL); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 organisms per 100 mL (10 per mL); and provided further that

no single sample shall exceed 10,000 organisms per 100 mL as described in the Basin Plan. [Basin Plan]

2. The median total coliform concentration throughout the water column for any 30-day period shall not exceed 70 organisms per 100 mL nor shall more than 10 percent of the samples collected during any 30-day period exceed 230 organisms per 100 mL for a five tube decimal dilution test or 330 organisms per 100 mL when a three-tube decimal dilution test is used where shellfish harvesting is designated. [Basin Plan]
3. Where bay waters are used for whole fish handling, the density of E. coli shall not exceed 7 organisms per mL in more than 20 percent of any 20 daily consecutive samples of bay water. [Basin Plan]

F. Radioactivity

1. Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life. [Basin Plan]
2. The radioactivity in the receiving waters shall not exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 1, section 30253 of the California Code of Regulations (CCR).

G. Toxicity

1. All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board. [Basin Plan]
2. Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities. [Sediment Quality Plan]
3. Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health. [Sediment Quality Plan]

H. Corrective Actions for Receiving Water Limitation Violations

Upon determination by the Discharger or written notification by the San Diego Water Board that discharges are causing or contributing to an exceedance of receiving water limitations in section V of this Order, the Discharger shall implement the following corrective actions at a minimum:

1. As soon as practicable, notify the San Diego Water Board that discharges are causing or contributing to an exceedance of receiving water limitations in section V of this Order.
2. Conduct a facility evaluation to determine whether there are pollutant source(s) within the Facility and whether BMPs and other requirements of this Order have been properly implemented.
3. Conduct an assessment of the Facility's plans required by this Order to determine whether additional or improved measures or BMPs are necessary to prevent or reduce pollutants in discharges to comply with receiving water limitations in section V of this Order.

4. Prepare a certification statement, based upon the Facility evaluation and assessment required above, that certifies either:
    a. Additional or improved measures or BMPs have been identified, included in the appropriate plan, and implemented to comply with receiving water limitations, as specified in section V of this Order; or
    b. No additional or improved BMPs or measures are required for implementation to reduce or prevent pollutants in discharges to comply with receiving water limitations, as specified in section V of this Order; or
    c. There are no sources of pollutants at the Facility that are causing or contributing to exceedances of receiving water limitations, as specified in section V of this Order.
5. If a certification statement provides that no additional BMPs or measures are required for implementation to reduce or prevent pollutants in discharges to comply with receiving water limitations specified in section V of this Order, the certification statement must show, with supporting information, why the exceedances occurred and why the exceedances will not occur again under similar circumstance(s).
6. Implement additional or improved measures or BMPs as soon as is practicable.
7. Within 60 days of the exceedance(s)/violation(s) of receiving water limitations specified in section V of this Order, prepare and submit a report that:
    a. Describes the Facility evaluation performed pursuant to section V.H.2 above.
    b. Describes the assessment of the Facility's plans required pursuant to section V.H.3 above.
    c. Identifies the additional or improved measures or BMPs that are currently being implemented to assure compliance with receiving water limitations in section V of this Order.
    d. Identifies additional or improved measures or BMPs that will be implemented to assure compliance with receiving water limitations in section V of this Order. This report shall include an implementation schedule that reflects the shortest practicable time required to perform each task, given the type of BMPs or measures planned. The implementation schedule shall not exceed 90 days from the date of determination of the exceedance(s)/violations(s) of receiving water limitations in section V of this Order.
    e. Includes the certification statement required above in section V.H.4 of this Order.
8. The San Diego Water Board may require the Discharger to modify and resubmit the report if the report is not in conformance with the criteria described in section V.H.7 of this Order. The Discharger shall submit any required modifications to the report within 30 days of written notification from the San Diego Water Board.
9. Within 30 days following submittal of the report required by section V.H.7 above or modified report required by section V.H.8 above, the Discharger shall revise the SWPPP and other plans required by this Order and the MRP to incorporate a) the additional or improved BMPs and measures that have been and will be implemented, b) an implementation schedule, and c) any additional monitoring required.
10. Nothing in this section shall prevent the San Diego Water Board from enforcing any provisions of this Order while the Discharger prepares and implements the above report.

11. If the Discharger has complied with the procedures set forth above and is implementing the actions required, the Discharger will not be required to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the San Diego Water Board to develop and implement additional BMPs or measures.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D.

2. **San Diego Water Board Standard Provisions**. The Discharger shall comply with the following provisions:

   a. The Discharger shall properly handle, manage, transport, treat, or dispose of waste in accordance with all applicable federal, state, and local laws and regulations. Waste management shall be implemented to avoid or minimize exposure of wastes to precipitation or storm water runoff. The storage, handling, treatment, or disposal of waste shall not cause or threaten to cause a condition of pollution, contamination or nuisance as those terms are defined in Water Code 13050 in waters of the State.

   b. This Order expires on **January 31, 2022,** after which, the terms and conditions of this permit are automatically continued pending issuance of a new permit, provided that all requirements of U.S. EPA's NPDES regulations at 40 CFR section 122.6 and the State's regulations at CCR title 23, section 2235.4 regarding the continuation of expired permits and waste discharge requirements are met.

   c. A copy of this Order shall be posted at a prominent location and shall be available to site personnel, San Diego Water Board, State Water Board, and U.S. EPA or their authorized representative at all times.

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP and future revisions thereto in Attachment E of this Order.

2. Notifications required to be provided under this Order to the San Diego Water Board shall be made to:

   E-mail – sandiego@waterboards.ca.gov

   Telephone – (619) 516-1990
   Facsimile – (619) 516-1994

C. Special Provisions

1. Reopener Provisions

   a. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.

b. This Order may be reopened and modified in accordance with NPDES regulations at 40 CFR parts 122 and 124, as necessary, to include additional conditions or limitations based on newly available information or to implement any new, U.S. EPA approved, State water quality objective.

c. This Order may be modified, revoked and reissued, or terminated for cause in accordance with the provisions of 40 CFR parts 122, 124, and 125 at any time prior to its expiration under any of the following circumstances:

   i. Violations of any terms or conditions of this Order (Water Code section 13381(a)).

   ii. Obtaining this Order by misrepresentation or Failure to disclose fully all relevant facts (Water Code section 13381(b)).

   iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge (Water Code section 13381(c)).

   iv. Endangerment to human health or the environment resulting from the permitted activity (40 CFR 122.64(a)(3)).

d. This Order may be reopened and modified for cause at any time prior to its expiration under any of the following circumstances:

   i. Present or future investigations demonstrate that the discharge(s) regulated by this Order may have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses.

   ii. New or revised water quality objectives come into effect, or any total maximum daily load (TMDL) is adopted or revised that is applicable to the Discharger.

   iii. Modification is warranted to those provisions of this Order addressing compliance with water quality standards in the receiving water or those provisions of this Order laying out an iterative process for implementation of management practices to achieve compliance with water quality standards in the receiving water.

   iv. Modification is warranted to incorporate additional effluent limitations, prohibitions, and requirements, based on the results of additional monitoring required by the MRP (Attachment E).

   v. Modification of the receiving waters monitoring and reporting requirements and/or special studies requirements of this Order is necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

   vi. Modification is warranted to address chronic toxicity in Facility wastewater discharges, storm water discharges, or receiving waters through new or revised effluent limitations or other permit toxicity requirements or to implement new, revised, or newly interpreted water quality standards applicable to chronic toxicity.

e. The filing of a request by the Discharger for modifications, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.

2. **Special Studies, Technical Reports and Additional Monitoring Requirements**

See section IV.G of the MRP (Attachment E) for the Toxicity Reduction Evaluation (TRE) Requirements.

3. **Best Management Practices (BMPs)**

The Discharger shall continue to implement a BMP Program that prevents or reduces the discharge of pollutants into the receiving waters at levels that would cause or contribute to exceedances of the receiving water limitations in section V of this Order or otherwise adversely affect the beneficial uses of the receiving water. The BMP Program shall incorporate the Facility's SWPPP and shall be updated annually as needed and shall address, at a minimum, floating dry dock pre-flood cleaning, building ways pre-flood cleaning, graving dock pre-flood cleaning, dry dock ballast water, and spills including fire protection water, potable water, steam condensate. The BMP Program shall be developed and implemented in accordance with Attachment G to prevent, or minimize the potential for, the release of pollutants to waters of the U.S. and State. BMPs for floating dry dock ballast water shall include, at a minimum, applicable BMPs from the U.S. EPA Vessel General Permit (VGP).

4. **Construction, Operation and Maintenance Specifications – Not Applicable**

5. **Other Special Provisions – Not Applicable**

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. General

Compliance with effluent limitations shall be determined using sample reporting protocols defined in the MRP (Attachment E) and Attachment A of this Order. For purpose of reporting and administrative enforcement by the San Diego Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the constituent in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL) or lowest quantifiable level.

B. Multiple Sample Data

When determining compliance with an average annual effluent limitation (AAEL), average monthly effluent limitation (AMEL), or maximum daily effluent limitation (MDEL) and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determination of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, following by quantified values (if any). The order of individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Average Annual Effluent Limitation (AAEL)

If the average (or when applicable, the median determined by subsection VII.B above for multiple sample data) of daily discharges over a 12-month period exceeds the AAEL for a given parameter, this will represent a single violation for the purpose of assessing mandatory minimum penalties under Water Code section 13385. Because the AAEL is a rolling average calculated once each month, the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g. resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. Each discharge day of the year is determined to be either in compliance or out of compliance for the AAEL only once, during the month in which the day falls. For anyone calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month and no penalty assessed. The AAEL will be effective when the final effluent limitations are effective. For the first month and until there is 12 months of effluent data, the samples collected since the effluent limitation became effective shall be averaged and compared to the 12-month AAEL. The Discharger may submit for San Diego Water Board review and approval an alternative statistical method for calculating annual average effluent limits to demonstrate that the mass and concentration of the pollutant in the discharge does not exceed the mass and concentration of the pollutant in the intake water.

D. Average Monthly Effluent Limitation (AMEL)

If the average (or when applicable, the median determined by subsection VII.B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation for the purpose of assessing mandatory minimum penalties under Water Code section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g. resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance only for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month and no penalty assessed.

E. Median Monthly Effluent Limit (MMEL)

If the median result of three independent toxicity tests, conducted within the same calendar month, and analyzed using the Test of Significant Toxicity (TST) is a “Fail” (i.e. two out of three is “Fail”), this will represent a single violation for the purpose of assessing mandatory minimum penalties under Water Code section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g. resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If median result is “Fail”, the Discharger will be considered out of compliance for days when the discharge occurs. For any one calendar month during which fewer than three samples are taken, no compliance determination can be made for that calendar month.

F. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge (or when applicable, the median result determined by section VII.B above for multiple sample data of a daily discharge) exceeds the MDEL for a given parameter, the Discharger will be considered out of compliance for that parameter for that one day only within the reporting period. For any one day during which no sample is taken, no compliance determination can be made for that day.

G. Instantaneous Minimum Effluent Limitation

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g. the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of noncompliance with the instantaneous minimum effluent limitation).

H. Instantaneous Maximum Effluent Limitation

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g. the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

I. Chronic Toxicity for Discharges to San Diego Bay

The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the TST statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is:

Mean discharge Instream Waste Concentration (IWC) response ≤0.75 × Mean control response.

A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as "Fail". The relative "Percent Effect" at the discharge IWC is defined and reported as: ((Mean control response – Mean discharge IWC response) ÷ Mean control response)) × 100. This is a t-test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations—in the case of Whole Effluent Toxicity (WET), only two test concentrations (i.e. a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e. if the IWC or receiving water concentration differs from the control (the test result is "Pass" or "Fail")). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

The MDEL for chronic toxicity is exceeded and a violation will be flagged when a chronic toxicity test, analyzed using the TST statistical approach, results in "Fail" and the "Percent Effect" is ≥50%.

The MMEL for chronic toxicity is exceeded and a violation will be flagged when the median of no more than three independent chronic toxicity tests, conducted within the same calendar month and analyzed using the TST statistical approach, results in "Fail". The MMEL for chronic toxicity shall only apply when there is a discharge more than one day in a calendar

month period. During such calendar months, up to three independent toxicity tests may be conducted when one toxicity test results in “Fail”.

The chronic toxicity MDEL and MMEL are set at the IWC for the discharge (100% effluent) and expressed in units of the TST statistical approach (“Pass” or “Fail”, “Percent Effect”). All NPDES effluent compliance monitoring for the chronic toxicity MDEL and MMEL shall be reported using the 100% effluent concentration and negative control, expressed in units of the TST. The TST hypothesis (Ho) (see above) is statistically analyzed using the IWC and a negative control. Effluent toxicity tests shall be run using a multi-concentration test design when required by *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014)* or *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition (EPA-600-R-95-136)*. The San Diego Board’s review of reported toxicity test results will include review of concentration response patterns as appropriate (see Fact Sheet (Attachment F) discussion at IV.C.5). As described in the bioassay laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 7, 2014, and from the U.S. EPA dated December 24, 2013, the Percent Minimum Significant Difference (PMSD) criteria only apply to compliance reporting for the No Observed Effect Concentration (NOEC) and the sublethal statistical endpoints of the NOEC, and therefore are not used to interpret TST results. Standard Operating Procedures used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent (and receiving water) toxicity test measurement results from the TST statistical approach, including those that incorporate a consideration of concentration-response patterns, must be submitted to the San Diego Water Board (40 CFR section 122.41(h)). The San Diego Water Board will make a final determination as to whether a toxicity test result is valid, and may consult with the Discharger, U.S. EPA, the State Water Board’s Quality Assurance Officer, or the State Water Board’s Environmental Laboratory Accreditation Program (ELAP), as needed. The San Diego Water Board may consider results of any Toxicity Reduction Evaluation / Toxicity Identification Evaluation (TRE/TIE) studies in an enforcement action.

ATTACHMENT A – ABBREVIATIONS AND DEFINITIONS

Part 1 – Abbreviations

Abbreviation	Definition
ASBS	Areas of Special Biological Significance
AST	Above Ground Storage Tanks
Basin Plan	*Water Quality Control Plan for the San Diego Basin*
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD_5	Biochemical Oxygen Demand (5-Day at 20^oC)
BPJ	Best Professional Judgment
BPT	Best Practicable Treatment Control Technology
CCR	California Code of Regulations
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CIWQS	California Integrated Water Quality System
CTR	California Toxics Rule
CV	Coefficient of Variation
CWA	Clean Water Act
Water Code	California Water Code
DMR	Discharger Monitoring Report
DNQ	Detected, but Not Quantified
ECA	Effluent Concentration Allowance
ERA	Exceedance Response Action
gpd	gallons per day
gpm	gallons per minute
IWC	Instream Waste Concentration
lbs/day	Pounds per Day
MDEL	Maximum Daily Effluent Limitation
MDL	Method Detection Limit
MEP	Maximum Extent Practicable
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
ML	Minimal Level
mL/L	Milliliters per Liter
MMEL	Maximum Monthly Effluent Limitation
MPCD	Marine Pollution Control Device
MPN	Most Probable Number
MRP	Monitoring and Reporting Program
MS4	Municipal Separate Storm Sewer System
NAL	Numeric Action Level
ND	Not Detected
NOEC	No Observed Effect Concentration
NOEL	No Observed Effect Level
NPDES	National Pollutant Discharge Elimination System
NR	Not Reported
NTR	National Toxics Rule
Ocean Plan	California Ocean Plan, *Water Quality Control Plan Ocean Waters of California*
PCB	Polychlorinated Biphenyls
PMP	Pollutant Minimization Program

Abbreviation	Definition
PPP	Pollution Prevention Plan
QAPP	Quality Assurance Project Plan
QSE	Qualifying Storm Event
QA/QC	Quality Assurance/ Quality Control
QSE	Qualifying Storm Event
REC-1	Contact Water Recreation Beneficial Use
RL	Reporting Level
ROWD	Report of Waste Discharge
RPA	Reasonable Potential Analysis
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SCCWRP	Southern California Coastal Waters Research Project
Sediment Quality Plan	*Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality*
SIP	State Implementation Policy, *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*
SQO	Sediment Quality Objective
State Water Board	State Water Resources Control Board
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
SWDS	Storm Water Diversion System
TBEL	Technology-Based Effluent Limitations
Thermal Plan	Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TST	Test of Significant Toxicity
U.S.	U.S.
U.S. EPA	United Stated Environmental Protection Agency
WDR	Waste Discharge Requirements
WET	Whole Effluent Toxicity
WLA	Wasteload Allocation
WQBEL	Water Quality-Based Effluent Limitation
µg	Microgram
µg/L	Micrograms per Liter

Part 2 – Definitions of Common Terms

Acute Toxicity Tests
A measurement of the adverse effect (usually mortality) of a waste discharge or ambient water sample on a group of test organisms during a short-term exposure.

Arithmetic Mean (μ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative Pollutants
Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Best Management Practices (BMPs)
Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the U.S. The BMPs also include treatment measures, operating procedures, and practices to control facility site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The BMPs may include any type of pollution prevention and pollution control measure necessary to achieve compliance with this Order.

California Toxics Rule
The EPA promulgated numeric water quality criteria for priority toxic pollutants and other provisions for water quality standards applied to waters in the state of California found at 40 CFR 131.

Best Professional Judgment (BPJ)
The method used by permit writers to develop technology-based NPDES permit conditions on a case by-case basis using all reasonably available and relevant data.

Carcinogenic
Pollutants are substances that are known to cause cancer in living organisms.

Clean Water Act (CWA)
The Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; 33 USC 1251 et seq.

Chronic Toxicity
This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

Chronic Toxicity (TUc)

a. Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Ocean Plan Appendix III, Table III-1.

Chronic Toxicity Tests

A measurement of the sub-lethal effects of a discharge or ambient water sample (e.g. reduced growth or reproduction). Certain chronic toxicity tests include an additional measurement of lethality.

Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Contamination

"Contamination" means an impairment of the quality of the waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. "Contamination" includes any equivalent effect resulting from the disposal of waste, whether or not waters of the State are affected. (Water Code section 13050(k))

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g. concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Discharge incidental to the normal operation of a vessel
A discharge, including, but not limited to: graywater, bilgewater, cooling water, weather deck runoff, ballast water, oil water separator effluent, and any other pollutant discharge from the operation of a marine propulsion system, shipboard maneuvering system, crew habitability system, or installed major equipment, such as an aircraft carrier elevator or a catapult, or from a protective, preservative, or absorptive application to the hull of a vessel; and a discharge in connection with the testing, maintenance, and repair of any of the aforementioned systems whenever the vessel is waterborne, including pierside. A discharge incidental to normal operation does not include:

1. Sewage.
2. A discharge of rubbish, trash, or garbage.
3. A discharge of air emissions resulting from the operation of a vessel propulsion system, motor driven equipment, or incinerator.
4. A discharge that requires a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act (CWA).
5. A discharge containing source, special nuclear, or byproduct materials regulated by the Atomic Energy Act

Drainage Area
The area of land that drains water, sediment, pollutants, and dissolved materials to a common discharge location.

Effluent Concentration Allowance (ECA)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in U.S. EPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Facility
As used in the Storm Water Pollution Prevention Plan contained in Attachment G, a Facility is an area or areas discharging storm water associated with industrial activity within the property boundary or operational unit.

First Flush
Storm water runoff that occurs between the time a storm event begins and when a minimum of 1 inch of precipitation has been collected in a rain gauge or equivalent measurement device at a location on the site which is representative of precipitation at the site. A storm event is a period of rainfall that is preceded by at least seven days without rainfall.

Industrial High Risk Areas
All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff.

Inland Surface Waters
All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
The highest allowable value for any single grab sample or aliquot (i.e. each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
The lowest allowable value for any single grab sample or aliquot (i.e. each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Instream Waste Concentration (IWC)
The concentration of a toxicant or effluent in the receiving water after mixing (the inverse of the dilution factor). A discharge of 100 percent effluent will be considered the IWC whenever mixing zones or dilution credits are not authorized by the applicable Water Board.

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP)
MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. MEP is the result of emphasizing pollution prevention and source control BMPs as the first lines of defense in combination with structural and treatment methods where appropriate serving as additional lines of defense.

Median Monthly Effluent Limit (MMEL)
An effluent limit based on the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST. The MMEL is exceeded when the median result (i.e. two out of three) is a “Fail.”

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = ($X_{n/2}$ + $X_{(n/2)+1}$)/2 (i.e. the midpoint between the n/2 and n/2+1).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in in 40 CFR part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Non-Storm Water Discharge
Any discharge to storm sewer systems that is not composed entirely of storm water.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Nuisance
"Nuisance" means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of waste. [Water Code section 13050(m)]

Numeric Action Level (NAL)
Numeric Action Levels (NALs), found in Table G-1 of Attachment G of this Order are used as numeric thresholds for corrective action. An exceedance of a NAL is not a violation of this Order.

Ocean Waters
The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Percent effect
The value that denotes the difference in response between the IWC and the control, divided by the mean response, and multiplied by 100 (see the equation in Step 6 of Appendix A of the Toxicity Policy).

$$\%\ Effect\ at\ IWC = \frac{Mean\ Control\ Response - Mean\ IWC\ Response}{Mean\ Control\ Response} * 100$$

Persistent Pollutants
Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant
"Pollutant" means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean: (a) Sewage from vessels; or (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well-used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources. NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator-produced isotopes. See Train v. Colorado Public Interest Research Group, Inc. 426 U.S. 1 (1976). (40 CFR 122.2)

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The San Diego Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Pollution
"Pollution" means an alteration of the quality of the waters of the State by waste to a degree which unreasonably affects either of the following: (A) The waters for beneficial uses. (B) Facilities which serve these beneficial uses. "Pollution" may include "contamination." [Water Code section 13050(l)]

Pollution Prevention
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Resources Control Board (State Water Board) or San Diego Water Board.

Pollution Prevention Plan (PPP)
A PPP is a plan for implementing pollution prevention containing, at a minimum, the elements identified in Water Code section 13263.3(d)(2).

Priority Pollutants
Priority pollutants are all compounds with criteria in the California Toxics Rule (CTR).

Qualifying Storm Event (QSE)
A qualifying storm event is one that produces a discharge for at least one drainage area and is preceded by at least 48 hours with no discharge from any drainage area.

Reporting Level (RL)
The RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the San Diego Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

San Diego Water Board
As used in this document the term "San Diego Water Board" is synonymous with the term "Regional Board" as defined in Water Code section 13050(b) and is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200.

Significant Materials
Raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101 (14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and chemical the facility is required to report pursuant to section 313 of Title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be discharged.

Significant Quantities
Volumes, concentrations, or masses of pollutants that can cause or threaten to cause pollution, contamination, or nuisance; adversely impact human health or the environment; and/or cause or contribute to a violation of any applicable water quality standard for the receiving water or any receiving water limitation.

Significant Spills
Include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities under section 311 of the CWA (see 40 CFR 110.10 and 117.21) or section 102 of CERCLA (see 40 CFR 302.4).

Source of Drinking Water
Any water designated as municipal or domestic supply (MUN) in San Diego Water Board Basin Plan.

Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:
x is the observed value.
μ is the arithmetic mean of the observed values.
n is the number of samples.

Storm Water
Includes storm water runoff, snowmelt runoff, and storm water surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

Storm Water Discharge Associated with Industrial Activity
The discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR part 122. For the facilities identified in the Fact Sheet (Attachment F) of this Order, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters; sites used for residual treatment, storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, State, or municipally owned or operated that meet the description of the facilities referenced in this paragraph) include those facilities designated under 40 CFR 122.26(a)(1)(v).

Storm Water Pollution Prevention Plan (SWPPP)
A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into storm water runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a "living" document, updated as necessary, such that when industrial activities or storm water control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

Test of Significant Toxicity (TST)
A statistical approach used to analyze toxicity test data. The TST incorporates a restated null hypothesis, Welch's t-test, and biological effect thresholds for chronic and acute toxicity.

Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

Vessel
Includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on navigable waters of the U.S. or waters of the contiguous zone, but does not include amphibious vehicles.

Water Quality Objectives
Numerical or narrative limits on constituents or characteristics of water designed to protect designated beneficial uses of the water.

Water Quality Standards
Water quality standards, as defined in CWA Section 303(c) and 40CFR131.6, consist of 1) the beneficial uses of a water body, 2) criteria (referred to as water quality objectives in California law) to protect those uses, and 3) an anti-degradation policy. Under State law, the water boards establish beneficial uses and water quality objectives in their water quality control or basin plans. Together with an anti-degradation policy (State Water Board Resolution 68-16), these beneficial uses and water quality objectives serve as water quality standards under the CWA. In CWA parlance, State beneficial uses are called "designated uses" and State water quality objectives are called "criteria." Throughout this Order, the relevant term is used depending on the statutory scheme. The water quality standards described in section V of this Order are enforceable receiving water limitations for the surface water bodies for which they are established.

Waters of the U.S.
Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purpose by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the U.S. under this definition: (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with the EPA." (40 CFR 122.2).

Whole Effluent Toxicity (WET)
The aggregate toxic effect of a waste discharge measured directly by a chronic or acute toxicity test.

ATTACHMENT B – MAPS

Figure B-1. Location Map

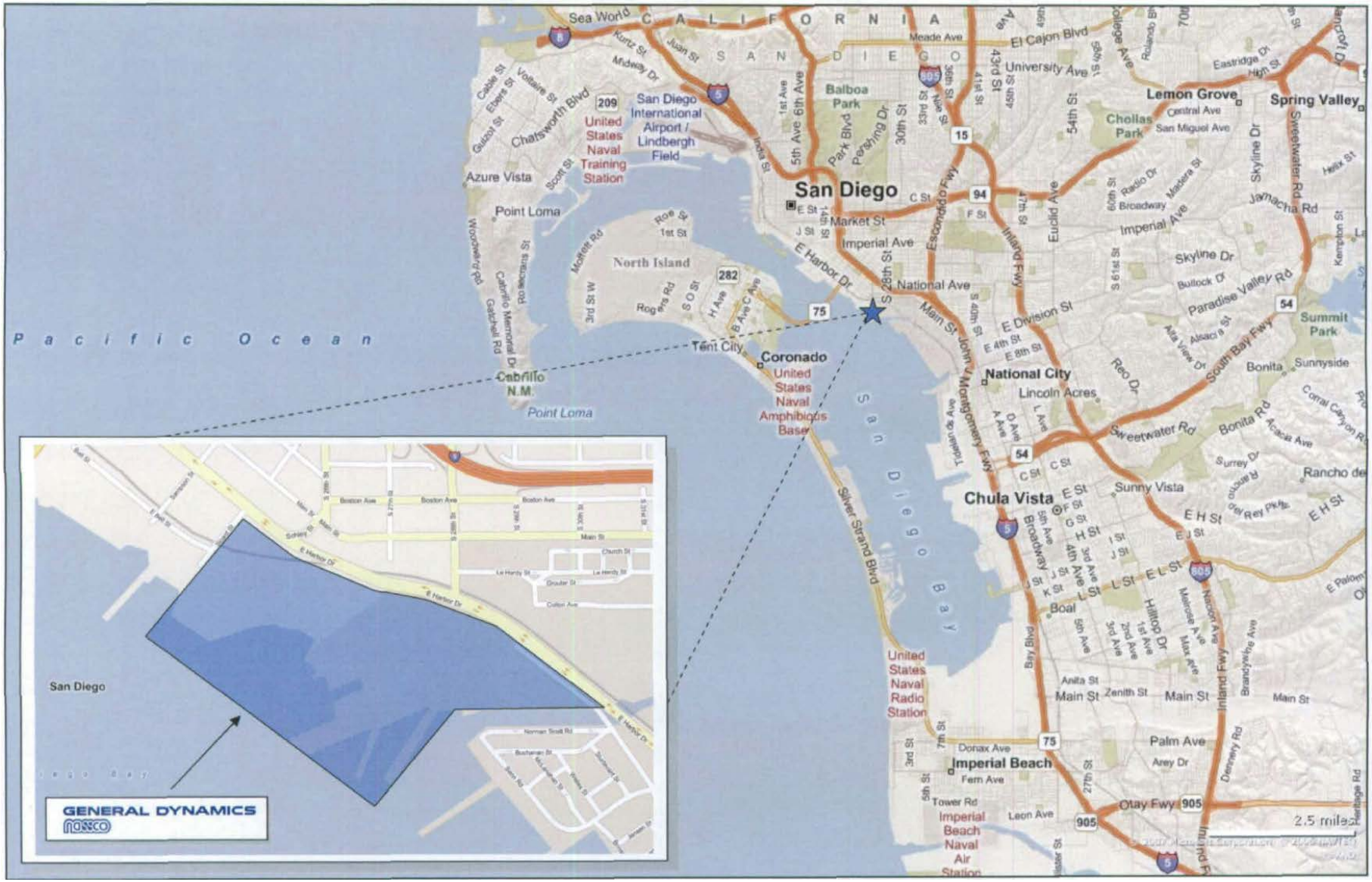
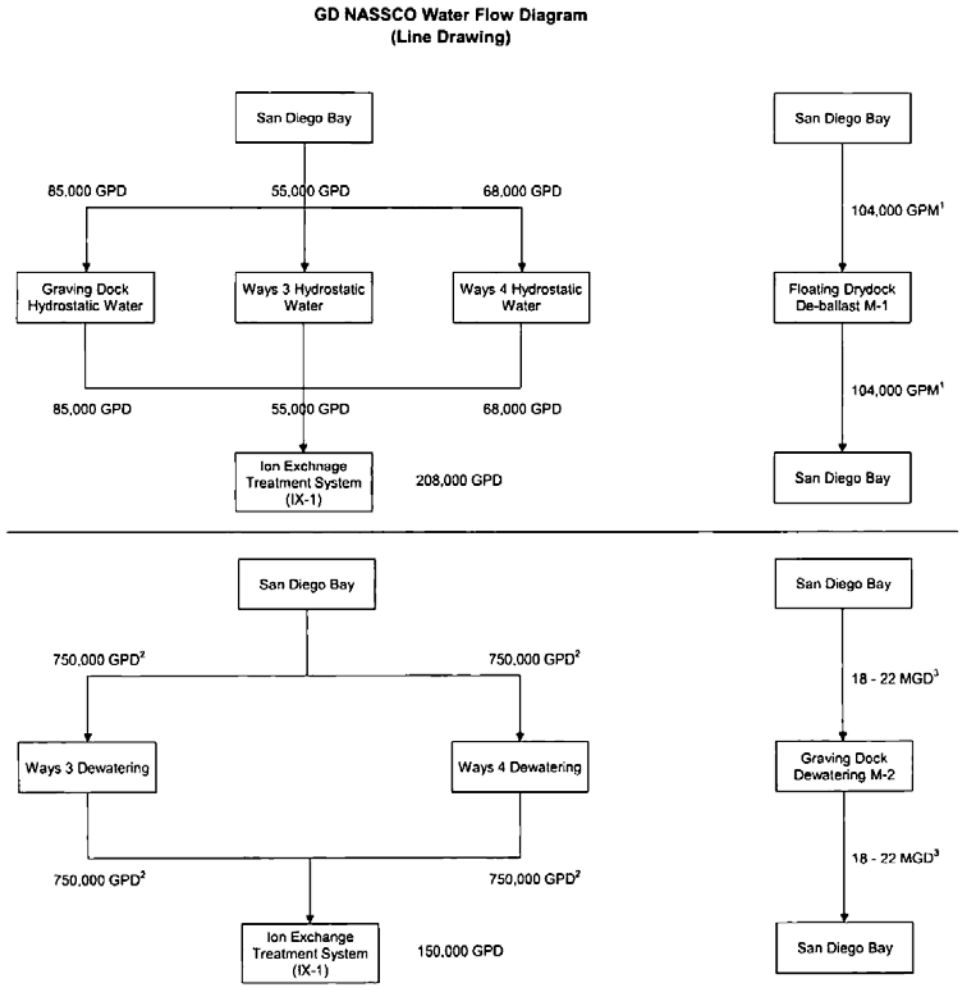


Figure B-2. Facility Map

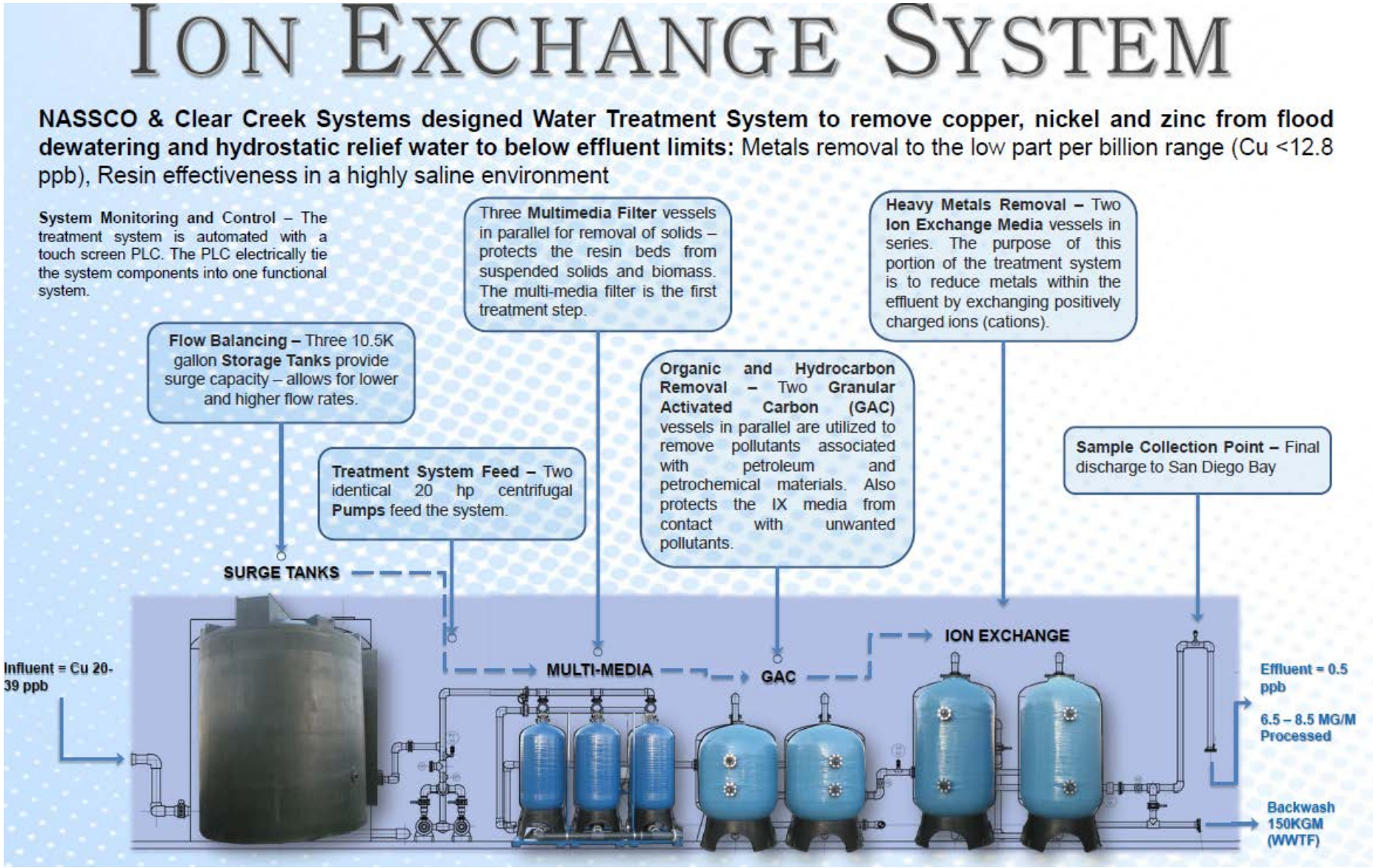
ATTACHMENT C – FLOW SCHEMATICS

Figure C-1. General Flow Schematics



[1] Floating Drydock de-ballasting occurs when the dock is adjusted and deballast at a rate of 104,000 GPM, actual daily volume will vary
[2] Building Ways dewatering is 750,000 gallon per launch event and pumped at a rate of 5,810 GPM
[3] Graving Dock dewatering is ~18 - 22 million gallons per flooding event and pumped at a rate of 18,000 GPM

Figure C-2. Ion Exchange System Flow Schematic



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (Water Code) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (title 40 Code of Federal Regulations (40 CFR) section 122.41(a)).
2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR section 122.41(a)(1)).

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR section 122.41(c)).

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR section 122.41(d)).

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR section 122.41(e)).

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR section 122.41(g)).
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations. (40 CFR section 122.5(c)).

F. Inspection and Entry

The Discharger shall allow the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), State Water Resources Control Board (State Water Board), United Stated Environmental Protection Agency (U.S. EPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR section 122.41(i); Water Code section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR section 122.41(i)(1)).
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR section 122.41(i)(2)).
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR section 122.41(i)(3)).
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR section 122.41(i)(4)).

G. Bypass

1. Definitions
   a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR section 122.41(m)(1)(i)).
   b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR section 122.41(m)(1)(ii)).
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR section 122.41(m)(2)).
3. Prohibition of bypass. Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR section 122.41(m)(4)(i)):
   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR section 122.41(m)(4)(i)(A)).
   b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR section 122.41(m)(4)(i)(B)).
   c. The Discharger submitted notice to the San Diego Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR section 122.41(m)(4)(i)(C)).
4. The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR section 122.41(m)(4)(ii)).

5. Notice

   a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. The notice shall be sent to the San Diego Water Board. As of December 21, 2020, a notice must also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40 CFR section 122.41(m)(3)(i)).

   b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). The notice shall be sent to the San Diego Water Board. As of December 21, 2020, a notice must also be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J below. Notices shall comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40 CFR section 122.41(m)(3)(ii)).

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR section 122.41(n)(1)).

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR section 122.41(n)(2)).

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR section 122.41(n)(3)):

   a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR section 122.41(n)(3)(i)).

   b. The permitted facility was, at the time, being properly operated (40 CFR section 122.41(n)(3)(ii)).

   c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR section 122.41(n)(3)(iii)).

   d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR section 122.41(n)(3)(iv)).

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR section 122.41(n)(4)).

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR section 122.41(f)).

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR section 122.41(b)).

C. Transfers

This Order is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR section 122.41(l)(3); section 122.61).

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR section 122.41(j)(1)).

B. Monitoring must be conducted according to test procedures approved under 40 CFR part 136 for the analyses of pollutants unless another method is required under 40 CFR chapter 1, subchapters N or O. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 CFR part 136 for the analysis of pollutants or pollutant parameters or as required under 40 CFR chapter 1, subchapter N or O. For the purposes of this paragraph, a method is sufficiently sensitive when:

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter or the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge.
2. The method has the lowest ML of the analytical methods approved under 40 CFR part 136 or required under 40 CFR chapter 1, subchapter N or O for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR part 136 or otherwise required under 40 CFR chapter 1, subchapters N or O, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 CFR §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv)).

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by

this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board Executive Officer at any time. (40 CFR section 122.41(j)(2)).

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR section 122.41(j)(3)(i)).
2. The individual(s) who performed the sampling or measurements (40 CFR section 122.41(j)(3)(ii)).
3. The date(s) analyses were performed (40 CFR section 122.41(j)(3)(iii)).
4. The individual(s) who performed the analyses (40 CFR section 122.41(j)(3)(iv)).
5. The analytical techniques or methods used (40 CFR section 122.41(j)(3)(v)).
6. The results of such analyses. (40 CFR section 122.41(j)(3)(vi)).

C. Claims of confidentiality for the following information will be denied (40 CFR section 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR section 122.7(b)(1)).
2. Permit applications and attachments, permits and effluent data. (40 CFR section 122.7(b)(2)).

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the San Diego Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or U.S. EPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the San Diego Water Board, State Water Board, or U.S. EPA copies of records required to be kept by this Order. (40 CFR section 122.41(h); Water Code, section 13267, 13383)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the San Diego Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 CFR section 122.41(k)).
2. All permit applications shall be signed by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (i) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities, provided, the manager is authorized to make management decisions which govern the operation of the regulated facility including having the explicit or implicit duty of making major capital investment recommendations, and initiating and directing other comprehensive measures to assure long term environmental compliance with environmental laws and regulations; the manager can ensure that the necessary systems are established or actions taken to gather complete and accurate information

for permit application requirements; and where authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. (40 CFR section 122.22(a)(1)).

3. All reports required by this Order and other information requested by the San Diego Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

   a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR section 122.22(b)(1)).

   b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR section 122.22(b)(2)).

   c. The written authorization is submitted to the San Diego Water Board and State Water Board. (40 CFR section 122.22(b)(3)).

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the San Diego Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR section 122.22(c)).

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

   "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR section 122.22(d)).

6. Any person providing the electronic signature for documents described in Standard Provisions – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all relevant requirements of 40 CFR part 3 (Cross-Media Electronic Reporting) and 40 CFR part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 CFR section 122.22(e)).

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR section 122.41(l)(4)).

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board for reporting the results of monitoring, sludge use, or disposal practices. As of December

21, 2016 all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J and comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40vi CFR section 122.41(l)(4)(i)).

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR part 136, or another method required for an industry-specific waste stream under 40 CFR chapter 1, subchapters N or O, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the San Diego Water Board. (40 CFR section 122.41(l)(4)(ii)).

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR section 122.41(l)(4)(iii)).

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR section 122.41(l)(5)).

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. All reports shall be submitted electronically as described in Provision VI.B.2 of this Order. (40 CFR section 122.41(l)(6)(i)).

   For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e. combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g. manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

   As of December 21, 2020 all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the San Diego Water Board and must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 CFR. part 3, 40 CFR section 122.22, and 40 CFR part 127. The San Diego Water Board also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 CFR section 122.41(l)(6)(i)).

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR section 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(A)).

b. Any upset that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(B)).

3. The San Diego Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR section 122.41(l)(6)(iii)).

F. Planned Changes

The Discharger shall give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR section 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR section 122.41(l)(1)(i)).
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR section 122.41(l)(1)(ii)).
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR section 122.41(l)(1)(iii)).

G. Anticipated Noncompliance

The Discharger shall give advance notice to the San Diego Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 CFR section 122.41(l)(2)).

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 CFR part 127. The San Diego Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section (40 CFR section 122.41(l)(7)).

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the San Diego Water Board**,** State Water Board, or U.S. EPA, the Discharger shall promptly submit such facts or information. (40 CFR section 122.41(l)(8)).

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 CFR part 127 to the initial recipient defined in 40 CFR section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its

website and in the Federal Register, by State and by NPDES data group [see 40 CFR section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 CFR section 122.41(l)(9)).

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The San Diego Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the San Diego Water Board as soon as they know or have reason to believe (40 CFR section 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(1)):
    a. 100 micrograms per liter (µg/L) (40 CFR section 122.42(a)(1)(i)).
    b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(1)(ii)).
    c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(1)(iii)).
    d. The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(1)(iv)).
2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 CFR section 122.42(a)(2)):
    a. 500 micrograms per liter (µg/L) (40 CFR section 122.42(a)(2)(i)).
    b. 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(2)(ii)).
    c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(2)(iii)).
    d. The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(2)(iv)).

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and sections 122.41(h), (j)-(l), 122.44(i), and 122.48 of title 40 of the Code of Federal Regulations (40 CFR) require that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. Pursuant to this authority, this Monitoring and Reporting Program (MRP) establishes conditions for the General Dynamics National Steel and Shipbuilding Company (NASSCO or Discharger) to conduct routine or episodic self-monitoring of the discharges regulated under this Order at specified influent, internal operations, effluent, and receiving water monitoring locations. The MRP requires the Discharger to report the results to the San Diego Water Board with information necessary to evaluate discharge characteristics and compliance status.

The purpose of the MRP is to determine and ensure compliance with effluent limitations and other requirements established in this Order, assess treatment efficiency, characterize effluents, and characterize the receiving water and the effects of the discharge on the receiving water. The MRP also specifies requirements concerning the proper use, maintenance, and installation of monitoring equipment and methods, and the monitoring type intervals and frequency necessary to yield data that are representative of the activities and discharges regulated under this Order.

Each monitoring section contains an introductory paragraph summarizing why the monitoring is needed and the key management questions the monitoring is designed to answer. In developing the list of key management questions, the San Diego Water Board considered four basic types of information for each question:

(1) Information Need – Why does the San Diego Water Board need to know the answer?

(2) Monitoring Criteria – What monitoring will be conducted for deriving an answer to the question?

(3) Expected Product – How should the answer be expressed and reported?

(4) Possible Management Actions – What actions will be potentially influenced by the answer?

The framework for this monitoring program has three components that comprise a range of spatial and temporal scales: 1. core monitoring, 2. regional monitoring, and 3. special studies.

1. Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.
2. Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. In the event that a regional monitoring effort takes place during the permit cycle in which the MRP does not specifically address regional monitoring, the San Diego Water Board may allow relief from aspects of core monitoring components in order to encourage participation in a coalition pursuant to section V.B and V.C of this MRP.
3. Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often they are used to help understand core or regional monitoring results, where a specific environmental process is not well understood, or to address unique issues of local importance.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitoring flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the San Diego Water Board.

B. Monitoring must be conducted according to U.S. Environmental Protection Agency (U.S. EPA) test procedures approved at 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* as amended, unless other test procedures are specified in this Order and/or in this MRP. Alternative test procedures not specified in this Order are subject to San Diego Water Board and U.S. EPA approval.

C. The monitoring and reports, signed and certified as required by Attachment D, Standard Provisions V.B, of this Order, shall be submitted to electronically in accordance with section VIII.B.1 of this MRP.

D. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring, instrumentation, copies of all reports required by this Order and this MRP, and records of all data used to complete the application for this Order. Records of monitoring information shall include information required under Attachment D, Standard Provisions, section IV. Records shall be maintained for a minimum of five years from the date of sample, measurement, report, or application. This period may be extended by request of this San Diego Water Board or by the U.S. EPA at any time.

E. All analyses shall be performed in a laboratory certified to perform such analyses by the State Water Resources Control Board's (State Water Board) Division of Drinking (DDW) or by a laboratory approved by the San Diego Water Board. The laboratory must be accredited under the DDW Environmental Laboratory Accreditation Program (ELAP) to ensure the quality of analytical data used for regulatory purposes to meet the requirements of this Order. Additional information on ELAP can be accessed at http://www.waterboards.ca.gov/drinking_water/certlic/labs/index.shtml.

F. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

G. The Discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses.

H. Monitoring results shall be reported at intervals and in a manner specified in this Order or in this MRP.

I. This MRP may be modified by the San Diego Water Board as appropriate.

J. This Order may be modified by the San Diego Water Board and the U.S. EPA to enable the Discharger to participate in comprehensive regional monitoring activities. Minor changes may be made without further public notice.

II. MONITORING LOCATIONS

A. Monitoring Station Locations

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
IX-1	IX-1	A location where a representative sample of treated wastewater (hydrostatic relief water and building ways water) from the ion exchange treatment can be obtained: 32º 41' 30" N: -117º 8' 26" W
M-2	M-2	A location where a representative sample of the graving dock flood water can be obtained. For newly constructed vessels, the sample shall be collected when the graving dock is full of water and ready to launch the vessel immediately before the gate is opened. For repair of vessels with a preexisting copper-based antifouling hull coating, samples shall be collected prior to the vessel's entry and exit from the graving dock as follows: For entering vessels, the sample shall be collected when the graving dock is full of water, before the gate is opened, and before the vessel enters the graving dock. For exiting vessels, the sample shall be collected immediately before the flood water is deep enough to reach the vessel hull. 32º 41' 27" N: -117º 8' 25" W
SW-1	SW-1	A location where a representative sample of storm water from the northwest storm water collection system can be obtained 32° 41' 25" N -117° 8' 33" W
SW-2	SW-2	A location where a representative sample of storm water from the northwest storm water collection system can be obtained 32° 41' 21" N -117° 8' 20" W

III. CORE MONITORING REQUIREMENTS

A. Influent Monitoring Requirements – Not Applicable

B. Industrial Process Water Effluent Monitoring Requirements

Effluent monitoring is the collection and analysis of samples or measurements of effluents, after all treatment processes, to determine and quantify contaminants and to demonstrate compliance with applicable effluent limitations, standards, and other requirements of this Order.

Monitoring Questions. Effluent monitoring is necessary to address the following questions:

(1) Does the effluent comply with permit effluent limitations, and other requirements of this Order, thereby ensuring that water quality standards are achieved in the receiving water?

(2) What is the mass of constituents that are discharged daily, monthly, or annually?

(3) Is the effluent concentration or mass changing over time?

(4) Is the Facility being properly operated and maintained to ensure compliance with the conditions of the Order?

1. Monitoring Location IX-1 – Ion Exchange Treatment System

The Discharger shall monitor the discharge from the ion exchange treatment system at Monitoring Location No. IX-1 as follows:

Table E-2. Effluent Monitoring for Ion Exchange Treatment System

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Grab	Monthly	Meter
pH	standard units	Grab	Monthly	[1]
Temperature	°F	Grab	Monthly	[1]
Copper, Total Recoverable	µg/L	Grab	Monthly	[1,2]
Cadmium, Total Recoverable	µg/L	Grab	Quarterly	[1]
Nickel, Total Recoverable	µg/L	Grab	Quarterly	[1]
Zinc, Total Recoverable	µg/L	Grab	Quarterly	[1]
Settleable Solids	mL/L	Grab	Monthly	[1]
Turbidity	NTU	Grab	Monthly	[1]
Total Suspended Solids	mg/L	Grab	Monthly	[1]
Oil and Grease	mg/L	Grab	Monthly	[1]
Total Petroleum Hydrocarbons (TPH)	mg/L	Grab	Semiannually	[1]
Chronic Toxicity	Pass/Fail	Grab	Semiannually	[1,3]
Antimony, Total Recoverable	µg/L	Grab	Semiannually	[1]
Arsenic	µg/L	Grab	Semiannually	[1]
Beryllium	µg/L	Grab	Semiannually	[1]
Chromium III	µg/L	Grab	Semiannually	[1]
Chromium VI	µg/L	Grab	Semiannually	[1]
Silver, Total Recoverable	µg/L	Grab	Semiannually	[1]
Lead, Total Recoverable	µg/L	Grab	Semiannually	[1]
Mercury, Total Recoverable	µg/L	Grab	Semiannually	[1]
Selenium, Total Recoverable	µg/L	Grab	Semiannually	[1]
Thallium	µg/L	Grab	Semiannually	[1]
Cyanide, Total (as CN) [3]	µg/L	Grab	Semiannually	[1]
Asbestos	µg/L	Grab	Semiannually	[1]
2,3,7,8-TCDD (Dioxin)	µg/L	Grab	Semiannually	[1]
Acrolein	µg/L	Grab	Semiannually	[1]
Acrylonitrile	µg/L	Grab	Semiannually	[1]
Benzene	µg/L	Grab	Semiannually	[1]
Bromoform	µg/L	Grab	Semiannually	[1]
Carbon Tetrachloride	µg/L	Grab	Semiannually	[1]
Chlorobenzene	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Chlorodibromomethane	µg/L	Grab	Semiannually	[1]
Chloroethane	µg/L	Grab	Semiannually	[1]
2-Chloroethylvinyl Ether	µg/L	Grab	Semiannually	[1]
Chloroform	µg/L	Grab	Semiannually	[1]
Dichlorobromomethane	µg/L	Grab	Semiannually	[1]
1,1-Dichloroethane	µg/L	Grab	Semiannually	[1]
1,2-Dichloroethane	µg/L	Grab	Semiannually	[1]
1,1-Dichloroethylene	µg/L	Grab	Semiannually	[1]
1,2-Dichloropropane	µg/L	Grab	Semiannually	[1]
1,3-Dichloropropylene	µg/L	Grab	Semiannually	[1]
Ethylbenzene	µg/L	Grab	Semiannually	[1]
Methyl Bromide	µg/L	Grab	Semiannually	[1]
Methyl Chloride	µg/L	Grab	Semiannually	[1]
Dichloromethane (Methylene Chloride)	µg/L	Grab	Semiannually	[1]
Methylene Chloride	µg/L	Grab	Semiannually	[1]
1,1,2,2-Tetrachloroethane	µg/L	Grab	Semiannually	[1]
Tetrachloroethylene	µg/L	Grab	Semiannually	[1]
Toluene	µg/L	Grab	Semiannually	[1]
1,2-Trans-Dichloroethelyene	µg/L	Grab	Semiannually	[1]
1,1,1-Trichloroethane	µg/L	Grab	Semiannually	[1]
1,1,2-Trichloroethane	µg/L	Grab	Semiannually	[1]
Trichloroethylene (Trichloroethene)	µg/L	Grab	Semiannually	[1]
Vinyl Chloride	µg/L	Grab	Semiannually	[1]
2-Chlorophenol	µg/L	Grab	Semiannually	[1]
2,4-Dichlorophenol	µg/L	Grab	Semiannually	[1]
2,4-Dimethylphenol	µg/L	Grab	Semiannually	[1]
2-Methyl-4,6-Dinitophenol	µg/L	Grab	Semiannually	[1]
2,4-Dinitrophenol	µg/L	Grab	Semiannually	[1]
2-Nitophenol	µg/L	Grab	Semiannually	[1]
3-Methyl-4-Chlorophenol	µg/L	Grab	Semiannually	[1]
Pentachlorophenol	µg/L	Grab	Semiannually	[1]
Phenol	µg/L	Grab	Semiannually	[1]
2,4,6-Trichlorophenol	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Acenaphthene	µg/L	Grab	Semiannually	[1]
Acenaphthylene	µg/L	Grab	Semiannually	[1]
Anthracene	µg/L	Grab	Semiannually	[1]
Benzidine	µg/L	Grab	Semiannually	[1]
Benzo(a)Anthracene	µg/L	Grab	Semiannually	[1]
Benzo(a)Pyrene	µg/L	Grab	Semiannually	[1]
Benzo(b)Fluoranthene	µg/L	Grab	Semiannually	[1]
Benzo(ghi)Perylene	µg/L	Grab	Semiannually	[1]
Benzo(k)Fluoranthene	µg/L	Grab	Semiannually	[1]
Bis(2-Chloroethoxy)Methane	µg/L	Grab	Semiannually	[1]
Bis(d-Chloroethyl)Ether	µg/L	Grab	Semiannually	[1]
Bis(2-Chloroisopropyl)Ether	µg/L	Grab	Semiannually	[1]
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Semiannually	[1]
4-Bromophenyl Phenyl Ether	µg/L	Grab	Semiannually	[1]
Butylbenzyl Phthalate	µg/L	Grab	Semiannually	[1]
2-Chloronaphthalene	µg/L	Grab	Semiannually	[1]
4-Chlorophenyl Phenyl Ether	µg/L	Grab	Semiannually	[1]
Chrysene	µg/L	Grab	Semiannually	[1]
Dibenzo(a,h)Anthracene	µg/L	Grab	Semiannually	[1]
1,2 Dichlorobenzene	µg/L	Grab	Semiannually	[1]
1,3 Dichlorobenzene	µg/L	Grab	Semiannually	[1]
1,4 Dichlorobenzene	µg/L	Grab	Semiannually	[1]
3,3'-Dichlorobenzidine	µg/L	Grab	Semiannually	[1]
Diethyl Phthalate	µg/L	Grab	Semiannually	[1]
Dimethyl Phthalate	µg/L	Grab	Semiannually	[1]
Di-n-Butyl Phthalate	µg/L	Grab	Semiannually	[1]
2,4-Dinitrotoluene	µg/L	Grab	Semiannually	[1]
2,6-Dinitrotoluene	µg/L	Grab	Semiannually	[1]
Di-n-Octyl Phthalate	µg/L	Grab	Semiannually	[1]
1,2-Diphenylhydrazine	µg/L	Grab	Semiannually	[1]
Fluoranthene	µg/L	Grab	Semiannually	[1]
Fluorene	µg/L	Grab	Semiannually	[1]
Hexachlorobenzene	µg/L	Grab	Semiannually	[1]
Hexachlorobutadien	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Hexachlorocyclopentadiene	µg/L	Grab	Semiannually	[1]
Hexachloroethane	µg/L	Grab	Semiannually	[1]
Ideno(1,2,3-cd) Pyrene	µg/L	Grab	Semiannually	[1]
Isophorone	µg/L	Grab	Semiannually	[1]
Naphthalene	µg/L	Grab	Semiannually	[1]
Nitrobenzene	µg/L	Grab	Semiannually	[1]
N-Nitrosodimethylamine	µg/L	Grab	Semiannually	[1]
N-Nitrosodi-n-Propylamine	µg/L	Grab	Semiannually	[1]
N-Nitrosodiphenylamine	µg/L	Grab	Semiannually	[1]
Phenanthrene	µg/L	Grab	Semiannually	[1]
Pyrene	µg/L	Grab	Semiannually	[1]
1,2,4-Trichlorobenzene	µg/L	Grab	Semiannually	[1]
Aldrin	µg/L	Grab	Semiannually	[1]
Alpha-BHC	µg/L	Grab	Semiannually	[1]
Beta-BHC	µg/L	Grab	Semiannually	[1]
Gamma-BHC	µg/L	Grab	Semiannually	[1]
Delta-BHC	µg/L	Grab	Semiannually	[1]
Chlordane	µg/L	Grab	Semiannually	[1]
4,4'-DDT	µg/L	Grab	Semiannually	[1]
4,4'-DDE	µg/L	Grab	Semiannually	[1]
4,4'-DDD	µg/L	Grab	Semiannually	[1]
Dieldrin	µg/L	Grab	Semiannually	[1]
Alpha-Endosulfan	µg/L	Grab	Semiannually	[1]
Beta-Endosulfan	µg/L	Grab	Semiannually	[1]
Endosulfan Sulfate	µg/L	Grab	Semiannually	[1]
Endrin	µg/L	Grab	Semiannually	[1]
Endrin Aldehyde	µg/L	Grab	Semiannually	[1]
Heptachlor	µg/L	Grab	Semiannually	[1]
Heptachlor Epoxide	µg/L	Grab	Semiannually	[1]
Polychlorinated Biphenyls (PCBs)	µg/L	Grab	Semiannually	[1]
Toxaphene	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

[1] As specified in 40 CFR part 136.

[2] Influent and effluent samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample that is analyzed by methods 6010B or 200.7 are known.

[3] As specified in Section IV of this MRP.

2. Monitoring Locations M-2 – Graving Dock Flood Water

The Discharger shall monitor the graving dock dewatering flood water at Monitoring Location No. M-2 as follows:

Table E-3. Effluent Monitoring for Graving Dock Flood Water

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	gpd	Grab	Daily[4]	Meter or Estimate
pH	standard units	Grab	Monthly[4]	[1]
Temperature	°F	Grab	Monthly[4]	[1]
Copper, Total Recoverable	µg/L	Grab	Monthly[4]	[1,2]
Nickel, Total Recoverable	µg/L	Grab	Quarterly[4]	[1]
Zinc, Total Recoverable	µg/L	Grab	Monthly[4]	[1]
Settleable Solids	mL/L	Grab	Monthly[4]	[1]
Turbidity	NTU	Grab	Monthly[4]	[1]
Total Suspended Solids	mg/L	Grab	Monthly[4]	[1]
Oil and Grease	mg/L	Grab	Monthly[4]	[1]
Total Petroleum Hydrocarbons (TPH)	mg/L	Grab	Semiannually	[1]
Chronic Toxicity	Pass/Fail	Grab	Semiannually	[1,3]
Antimony, Total Recoverable	µg/L	Grab	Semiannually	[1]
Arsenic	µg/L	Grab	Semiannually	[1]
Beryllium	µg/L	Grab	Semiannually	[1]
Cadmium, Total Recoverable	µg/L	Grab	Semiannually	[1]
Chromium III	µg/L	Grab	Semiannually	[1]
Chromium VI	µg/L	Grab	Semiannually	[1]
Silver, Total Recoverable	µg/L	Grab	Semiannually	[1]
Lead, Total Recoverable	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Mercury, Total Recoverable	µg/L	Grab	Semiannually	[1]
Selenium, Total Recoverable	µg/L	Grab	Semiannually	[1]
Thallium	µg/L	Grab	Semiannually	[1]
Cyanide, Total (as CN) 3	µg/L	Grab	Semiannually	[1]
Asbestos	µg/L	Grab	Semiannually	[1]
2,3,7,8-TCDD (Dioxin)	µg/L	Grab	Semiannually	[1]
Acrolein	µg/L	Grab	Semiannually	[1]
Acrylonitrile	µg/L	Grab	Semiannually	[1]
Benzene	µg/L	Grab	Semiannually	[1]
Bromoform	µg/L	Grab	Semiannually	[1]
Carbon Tetrachloride	µg/L	Grab	Semiannually	[1]
Chlorobenzene	µg/L	Grab	Semiannually	[1]
Chlorodibromomethane	µg/L	Grab	Semiannually	[1]
Chloroethane	µg/L	Grab	Semiannually	[1]
2-Chloroethylvinyl Ether	µg/L	Grab	Semiannually	[1]
Chloroform	µg/L	Grab	Semiannually	[1]
Dichlorobromomethane	µg/L	Grab	Semiannually	[1]
1,1-Dichloroethane	µg/L	Grab	Semiannually	[1]
1,2-Dichloroethane	µg/L	Grab	Semiannually	[1]
1,1-Dichloroethylene	µg/L	Grab	Semiannually	[1]
1,2-Dichloropropane	µg/L	Grab	Semiannually	[1]
1,3-Dichloropropylene	µg/L	Grab	Semiannually	[1]
Ethylbenzene	µg/L	Grab	Semiannually	[1]
Methyl Bromide	µg/L	Grab	Semiannually	[1]
Methyl Chloride	µg/L	Grab	Semiannually	[1]
Dichloromethane (Methylene Chloride)	µg/L	Grab	Semiannually	[1]
Methylene Chloride	µg/L	Grab	Semiannually	[1]
1,1,2,2-Tetrachloroethane	µg/L	Grab	Semiannually	[1]
Tetrachloroethylene	µg/L	Grab	Semiannually	[1]
Toluene	µg/L	Grab	Semiannually	[1]
1,2-Trans-Dichloroethelyene	µg/L	Grab	Semiannually	[1]
1,1,1-Trichloroethane	µg/L	Grab	Semiannually	[1]
1,1,2-Trichloroethane	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Trichloroethylene (Trichloroethene)	µg/L	Grab	Semiannually	[1]
Vinyl Chloride	µg/L	Grab	Semiannually	[1]
2-Chlorophenol	µg/L	Grab	Semiannually	[1]
2,4-Dichlorophenol	µg/L	Grab	Semiannually	[1]
2,4-Dimethylphenol	µg/L	Grab	Semiannually	[1]
2-Methyl-4,6-Dinitophenol	µg/L	Grab	Semiannually	[1]
2,4-Dinitrophenol	µg/L	Grab	Semiannually	[1]
2-Nitophenol	µg/L	Grab	Semiannually	[1]
3-Methyl-4-Chlorophenol	µg/L	Grab	Semiannually	[1]
Pentachlorophenol	µg/L	Grab	Semiannually	[1]
Phenol	µg/L	Grab	Semiannually	[1]
2,4,6-Trichlorophenol	µg/L	Grab	Semiannually	[1]
Acenaphthene	µg/L	Grab	Semiannually	[1]
Acenaphthylene	µg/L	Grab	Semiannually	[1]
Anthracene	µg/L	Grab	Semiannually	[1]
Benzidine	µg/L	Grab	Semiannually	[1]
Benzo(a)Anthracene	µg/L	Grab	Semiannually	[1]
Benzo(a)Pyrene	µg/L	Grab	Semiannually	[1]
Benzo(b)Fluoranthene	µg/L	Grab	Semiannually	[1]
Benzo(ghi)Perylene	µg/L	Grab	Semiannually	[1]
Benzo(k)Fluoranthene	µg/L	Grab	Semiannually	[1]
Bis(2-Chloroethoxy)Methane	µg/L	Grab	Semiannually	[1]
Bis(d-Chloroethyl)Ether	µg/L	Grab	Semiannually	[1]
Bis(2-Chloroisopropyl)Ether	µg/L	Grab	Semiannually	[1]
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Semiannually	[1]
4-Bromophenyl Phenyl Ether	µg/L	Grab	Semiannually	[1]
Butylbenzyl Phthalate	µg/L	Grab	Semiannually	[1]
2-Chloronaphthalene	µg/L	Grab	Semiannually	[1]
4-Chlorophenyl Phenyl Ether	µg/L	Grab	Semiannually	[1]
Chrysene	µg/L	Grab	Semiannually	[1]
Dibenzo(a,h)Anthracene	µg/L	Grab	Semiannually	[1]
1,2 Dichlorobenzene	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
1,3 Dichlorobenzene	µg/L	Grab	Semiannually	[1]
1,4 Dichlorobenzene	µg/L	Grab	Semiannually	[1]
3,3'-Dichlorobenzidine	µg/L	Grab	Semiannually	[1]
Diethyl Phthalate	µg/L	Grab	Semiannually	[1]
Dimethyl Phthalate	µg/L	Grab	Semiannually	[1]
Di-n-Butyl Phthalate	µg/L	Grab	Semiannually	[1]
2,4-Dinitrotoluene	µg/L	Grab	Semiannually	[1]
2,6-Dinitrotoluene	µg/L	Grab	Semiannually	[1]
Di-n-Octyl Phthalate	µg/L	Grab	Semiannually	[1]
1,2-Diphenylhydrazine	µg/L	Grab	Semiannually	[1]
Fluoranthene	µg/L	Grab	Semiannually	[1]
Fluorene	µg/L	Grab	Semiannually	[1]
Hexachlorobenzene	µg/L	Grab	Semiannually	[1]
Hexachlorobutadien	µg/L	Grab	Semiannually	[1]
Hexachlorocyclopentadiene	µg/L	Grab	Semiannually	[1]
Hexachloroethane	µg/L	Grab	Semiannually	[1]
Ideno(1,2,3-cd) Pyrene	µg/L	Grab	Semiannually	[1]
Isophorone	µg/L	Grab	Semiannually	[1]
Naphthalene	µg/L	Grab	Semiannually	[1]
Nitrobenzene	µg/L	Grab	Semiannually	[1]
N-Nitrosodimethylamine	µg/L	Grab	Semiannually	[1]
N-Nitrosodi-n-Propylamine	µg/L	Grab	Semiannually	[1]
N-Nitrosodiphenylamine	µg/L	Grab	Semiannually	[1]
Phenanthrene	µg/L	Grab	Semiannually	[1]
Pyrene	µg/L	Grab	Semiannually	[1]
1,2,4-Trichlorobenzene	µg/L	Grab	Semiannually	[1]
Aldrin	µg/L	Grab	Semiannually	[1]
Alpha-BHC	µg/L	Grab	Semiannually	[1]
Beta-BHC	µg/L	Grab	Semiannually	[1]
Gamma-BHC	µg/L	Grab	Semiannually	[1]
Delta-BHC	µg/L	Grab	Semiannually	[1]
Chlordane	µg/L	Grab	Semiannually	[1]
4,4'-DDT	µg/L	Grab	Semiannually	[1]
4,4'-DDE	µg/L	Grab	Semiannually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
4,4'-DDD	µg/L	Grab	Semiannually	[1]
Dieldrin	µg/L	Grab	Semiannually	[1]
Alpha-Endosulfan	µg/L	Grab	Semiannually	[1]
Beta-Endosulfan	µg/L	Grab	Semiannually	[1]
Endosulfan Sulfate	µg/L	Grab	Semiannually	[1]
Endrin	µg/L	Grab	Semiannually	[1]
Endrin Aldehyde	µg/L	Grab	Semiannually	[1]
Heptachlor	µg/L	Grab	Semiannually	[1]
Heptachlor Epoxide	µg/L	Grab	Semiannually	[1]
Polychlorinated Biphenyls (PCBs)	µg/L	Grab	Semiannually	[1]
Toxaphene	µg/L	Grab	Semiannually	[1]

[1] As specified in 40 CFR part 136.

[2] Influent and effluent samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample that is analyzed by methods 6010B or 200.7 are known.

[3] As specified in Section IV of this MRP.

[4] Sampling is required only when a discharge occurs (i.e. flooding of the graving dock during launch or retrieval evolution).

C. Storm Water Monitoring of Industrial High Risk Areas

1. Monitoring Questions. The industrial storm water monitoring program is designed to address the following primary questions:

(1) Does the storm water discharge meet permit effluent limitations for toxicity thereby ensuring water quality standards are achieved in the receiving water?

(2) Does the storm water discharge meet Numeric Action Levels (NALs)?

(3) Is the Storm Water Pollution Prevention Plan (SWPPP) being properly implemented?

(4) Is the Facility achieving standards of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT)?

2. Non-Storm Water Discharge Visual Observations and Assessment

a. Monthly, the Discharger shall visually assess each drainage area for the presence or indications of prior, current, or potential unauthorized non-storm water discharges and their sources.

b. The monthly visual observations shall include evaluation of the implementation and effectiveness of Best Management Practices (BMPs).

c. The monthly visual observations shall be conducted during daylight hours, on days without precipitation, and during scheduled facility operating hours[1].

d. Visual observations shall document the presence of or the indication of any non-storm water discharge, pollutant characteristics (floating and suspended material, oil and grease, discoloration, turbidity, odor, etc.), and source of the discharge.

e. The Discharger shall maintain records of the personnel performing the visual observations, the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Attachment G of this Order.

f. In the Industrial Storm Water Annual Report referenced in section III.C.7 below, the Discharger shall provide a summary and evaluation of visual observations as well as an explanation for uncompleted monthly visual observations.

3. Industrial Storm Water Diversion System Assessment

a. The Discharger shall conduct annual evaluations of the Storm Water Diversion System (SWDS) including berms, pumps, pipes, tanks, and sewer connections to ensure that all elements are in good repair and in an operational status.

b. The Discharger shall conduct annual visual observations during a precipitation event which produces runoff to observe the perimeter of the Facility and the receiving water to ensure that no storm water discharges are visible during storms less than 3.5 inches.

4. Industrial Storm Water Discharge Visual Observations

a. Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.

b. The Discharger shall ensure that visual observations of discharge(s) from contained storm water are conducted at the time of discharge. If the discharge is not likely to occur during scheduled facility operating hours (based upon rainfall forecasts and containment freeboard), the visual observations of the contained storm water shall be conducted prior to the discharge. Visual observations shall confirm that the discharge is complying with the discharge prohibitions contained in section III of this Order.

c. If the Discharger is employing volume-based or flow-based treatment Best Management Practices (BMPs), any bypass that occurs while the visual observations and/or sampling of storm water discharges are conducted shall be sampled.

d. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any observed pollutants.

[1] Scheduled facility operating hours are the time periods when the Facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

e. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.

f. The Discharger shall maintain records of all visual observations. Records shall include the date, approximate time, locations observed, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.

g. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

h. In the Industrial Storm Water Annual Report referenced in section III.C.7 below, the Discharger shall provide a summary and evaluation of visual observations as well as an explanation for uncompleted visual observations.

5. Industrial High Risk Storm Water Sampling and Analysis

a. A Qualifying Storm Event (QSE) is a precipitation event that:

i. Produces a discharge for at least one drainage area; and

ii. Is preceded by 48 hours with no discharge from any drainage area.

b. The Discharger shall collect storm water samples from two QSEs during each semiannual period (i.e. January – June, July – December). Representative storm water discharge locations for Industrial High Risk Areas, as defined under section IV.A. of this Order, shall be sampled as specified in Table E-4 below.

c. Samples shall be collected from all industrial storm water monitoring locations (Monitoring Location Nos. SW-1 and SW-2) within four hours of the following:

i. The start of the discharge, or

ii. The start of Facility operations if the QSE occurs within the previous 12 hour period (storms that begin the previous night) and representative discharge of the facility is determined to still be occurring. Sample collection is required during scheduled Facility operating hours and when sampling conditions are safe.

d. The Discharger shall visually observe and collect samples of storm water discharges from Discharge Point Nos. SW-001 through SW-009 that represent the quality and quantity of the Facility's industrial storm water discharges from the storm event. Monitoring stations shall be positioned at points where the industrial storm water flow has not commingled with any flow of water from a non-industrial area, and where samples representative of the discharge of storm water runoff associated with industrial activity in the drainage area can be obtained.

e. Monitoring locations shall be identified in the SWPPP, depicted on a site map, and shall not be changed without notice to and the approval of the San Diego Water Board.

f. Sampling of stored or contained storm water shall occur at the time the stored or contained storm water is discharged. Samples shall be collected from two QSEs during each semiannual period (i.e. January –June, July – December).

g. Composite samples shall be flow-weighted storm water samples for the duration of the storm. If composite samples are collected, all parameters identified in Table E-4 with a sample type of grab or composite must be analyzed using composite samples.

h. In the event that the first QSE in a semi-annual period does not produce a discharge that can be sampled at one or more sampling locations, the Discharger shall record which sampling locations were observed that did not discharge, and collect samples from those locations during the next QSE(s) that produces a discharge in that semi-annual period. If the Discharger fails to collect a sample at one or more sampling locations that did produce a discharge, the Discharger is required to fulfill the sampling requirement from an additional QSE that produces a discharge.

i. The industrial storm water discharges from the Industrial High Risk Areas, shall be sampled and analyzed as shown in Table E-4 below.

Table E-4. Monitoring Requirements for Industrial Storm Water Discharges

Parameter	Units	Sample Type	Minimum Frequency[6]	Required Analytical Test Method
Discharge Volume	gallons	Estimate[1]	Two storms per semiannual period	Estimate
Conventional Pollutants				
Chemical Oxygen Demand	mg/L	Grab	Two storms per semiannual period	[2]
Oil and Grease	mg/L	Grab	Two storms per semiannual period	[2]
Total Suspended Solids	mg/L	Grab	Two storms per semiannual period	[2]
Settleable Solids	ml/L	Grab	Two storms per semiannual period	[2]
pH	pH Units	Grab	Two storms per semiannual period	[5]
Priority Pollutants				
Arsenic, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Cadmium, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Chromium, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Copper, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Lead, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Mercury, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Nickel, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Silver, Total Recoverable[7]	µg/L	Grab	Two storms per semiannual period	[2]
Zinc, Total Recoverable	µg/L	Grab	Two storms per semiannual period	[2]
Non-Conventional Pollutants				
Aluminum, Total Recoverable[7]	µg/L	Grab or Composite	Two storms per semiannual period.	[2]
Iron, Total Recoverable[7]	µg/L	Grab or Composite	Two storms per semiannual period.	[2]
Magnesium, Total	µg/L	Grab or Composite	Two storms per	[2]

Parameter	Units	Sample Type	Minimum Frequency[6]	Required Analytical Test Method
Recoverable[7]			semiannual period.	
Nitrate+Nitrite Nitrogen[7]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Phosphorus, Total[7]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Ammonia[7]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Chronic Toxicity	Pass/ Fail, % effect (TST)	Grab	Two storms per semiannual period	[3]
Other Pollutants[4,7]	µg/L	Grab	Two storms per semiannual period	[2]

1 The volume of storm water discharge can be estimated by multiplying: amount of rainfall in feet × square feet of surface area × impervious factor. There are 7.5 gallons per cubic foot.
2 As specified in Table G-1 of Attachment G to this Order or 40 CFR section 136.3.
3 The presence of chronic toxicity in the storm water shall be determined as specified in section IV. of this MRP.
4 Pollutants that are likely to be present in storm water discharges in significant quantities shall be sampled. The pollutants shall be selected based upon the pollutant source assessment required in section VII of the SWPPP requirements contained in Attachment G, visual observations, and inspection records. If these pollutants are not detected in significant quantities after two consecutive sampling events, the Discharger may reduce the pollutant analysis to only the first QSE each year. The Discharger shall select appropriate analytical test methods that indicate the presence of pollutants in storm water discharges in significant quantities.
5 Field test with pre- and post-calibrated portable instrument, or lab sample in accordance with 40 CFR part 136.
6 Sampling shall occur during QSEs, or if collected, prior to release to receiving water. If there are no QSEs during the year, then sampling shall occur as soon as possible. If there are no qualifying storm events during the fifth year and conditions for administrative extension are met, then sampling shall occur as soon as possible.
7 After four consecutive sample events where parameters are not detected or below the Annual Numerical Action Level (NAL) values, analysis for those parameters may be reduced to only the first QSE each year.

j. Sampling Frequency Reduction Certification

i. The Discharger is eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:

a) Results from four consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs; and

b) The Discharger is in full compliance with the requirements of this Order and has updated, certified and submitted all documents, data, and reports required by this Order during the time period in which samples were collected.

c) The Discharger has certified that it meets conditions a) and b) above.

ii. The San Diego Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.

iii. Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from the first QSE within the first half of each reporting year (July 1 to December 31), and the first QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.

iv. A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the San Diego Water Board that: (1) the Sampling Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the San Diego Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted by the Discharger.

v. A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs.

6. Visual Observation and Sample Collection Exceptions

The Discharger shall be prepared to collect samples and conduct visual observations at the beginning of the semiannual period until the minimum requirements of this section are completed with the following exceptions:

a. The Discharger is not required to collect samples or conduct visual observations under the following conditions:

i. During dangerous weather conditions such as flooding and electrical storms; or

ii. Outside of scheduled Facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled facility operation hours.

b. If the Discharger does not collect the required samples or conduct the visual observations during a wet season due to these exceptions, then the Discharger shall include an explanation in the Annual Report why the sampling or visual observations were not conducted.

c. The Discharger shall ensure that all industrial storm water discharge sampling locations are representative of drainage areas associated with industrial activities, where practicable. The storm water discharge observed and collected from these sampling locations shall be representative of the storm water discharge generated in each drainage area. For sheet flow, the Discharger shall determine the appropriate sampling location(s) which represent industrial storm water discharges generated from the corresponding drainage area.

d. The Discharger shall identify practicable alternate sample collection locations representative of the Facility's storm water discharge if:

i. Specific drainage areas at the Facility are affected by storm water run-on from offsite areas or on-site non-industrial areas; or

ii. Specific sampling locations are difficult to sample such as submerged discharge outlets, dangerous discharge location accessibility.

7. Industrial Storm Water Annual Report

The Discharger shall submit an Industrial Storm Water Annual Report by September 1 of each year to the San Diego Water Board. The report shall include the following:

a. A summary and evaluation of visual observations.

b. A certification that the SWDS is in good repair and with an operational status and continues to have capacity to capture a 100-year frequency storm event (equivalent to approximately 3.5 inches of rain in 24 hours).

c. The Annual Comprehensive Site Compliance Evaluation Report as required by section IX of the SWPPP requirements contained in Attachment G.

d. A list of authorized and non-authorized non-storm water discharges.

e. If there were no storm water discharges during the monitoring period, a statement certifying that no storm water discharges occurred during the monitoring period.

f. If there was a storm water discharge during the monitoring period, a discussion describing the discharges including an estimate of the volume discharged, visual observations, size of storm, and circumstances of the discharge(s).

g. All sample data including laboratory reports.

IV. WHOLE EFFLUENT TOXICITY (WET) TESTING REQUIREMENTS

Whole effluent toxicity (WET) refers to the overall aggregate toxic effect of an effluent measured directly by an aquatic toxicity test(s). The control of WET is one approach this Order uses to control the discharge of toxic pollutants. WET tests evaluate the 1) aggregate toxic effects of all chemicals in the effluent including additive, synergistic, or antagonistic effects; 2) the toxicity effects of unmeasured chemicals in the effluent; and 3) variability in bioavailability of the chemicals in the effluent.

The WET testing is designed to address the following primary questions:

(1) Does the effluent meet permit effluent limits for toxicity thereby ensuring that water quality standards are achieved in the receiving water?

(2) If the effluent does not comply with permit effluent limitations for chronic toxicity, are unmeasured pollutants causing risk to aquatic life? Are unmeasured pollutants causing risk to aquatic life?

(3) If the effluent does not comply with permit effluent limitations for chronic toxicity, are pollutants in combinations causing risk to aquatic life? Are conditions in receiving water getting better or worse with regard to toxicity?

A. Monitoring Frequency for Chronic Toxicity

The Discharger shall conduct chronic toxicity monitoring at the frequencies and locations specified in Tables E-2, E-3, E-4, and E-5 of this Order.

B. Marine and Estuarine Species and Test Methods

The Discharger shall conduct a species sensitivity screening for chronic toxicity on a representative sample which shall include one vertebrate, one invertebrate, and one aquatic plant during the first required monitoring period. The species sensitivity screening samples shall also be analyzed for the parameters required for the discharge. The test species that exhibits the highest percent effect at the Instream Waste Concentration (IWC) during a species sensitivity screening (i.e. the most sensitive species) shall be utilized for routine monitoring during the permit cycle.

The Discharger shall follow the methods for chronic toxicity tests as established in 40 CFR section 136.3. The U.S. EPA method manuals referenced therein include *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA-821-R-02-013), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third*

Edition (EPA-821-R-02-014). Additional methods for chronic toxicity monitoring are outlined in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition* (EPA-600-R-95-136).

For discharges to marine and estuarine waters, the Discharger shall conduct a static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.0 (Daily observations for mortality make it possible to calculate acute toxicity for desired exposure periods (i.e. 7-day LC50, 96-hour LC50, etc.)); a static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0); and a static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus,* or the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0 or Embryo-Larval Development Test Method).

If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a static renewal toxicity test with the inland silverside, *Menidia beryllina* (Larval Survival and Growth Test Method 1006.01), found in the third edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002; Table IA, 40 CFR part 136). Additional species may be used by the Discharger if approved by the San Diego Water Board.

The total sample volume shall be determined by the specific toxicity test method(s) used. Sufficient sample volume shall be collected to perform the required toxicity test. Sufficient sample volume shall also be collected during accelerated monitoring for subsequent Toxicity Identification Evaluation (TIE) studies, if necessary, at each sampling event. All toxicity tests shall be conducted as soon as possible following sample collection. The 36-hour sample holding time for test initiation shall be targeted. For static-renewal toxicity tests, each grab or composite sample may also be used to prepare test solutions for renewal at 24 h, 48 h, and/or 72 h after first use, if stored at 0-6 °C, with minimum head space.

C. Compliance Determination

The Maximum Daily Effluent Limitation (MDEL) for chronic toxicity is exceeded and a violation will be flagged when a toxicity test during routine monitoring results in a “Fail” in accordance with the Test of Significant Toxicity (TST) approach and the percent effect is greater than or equal to 50%.

The Median Monthly Effluent Limitation (MMEL) for chronic toxicity is exceeded and a violation will be flagged when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. 2 out of 3) is a “Fail.”

The determination of “Pass” or “Fail” from a single effluent concentration chronic toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

The Discharger shall report the results of reasonable potential analyses, species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a “Pass” or a “Fail” at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC. The methodology for determining “Pass”, “Fail” and “percent effect” is provided below.

Pass

A chronic toxicity test result that rejects the null hypothesis (Ho) below is reported as “Pass” in accordance with the TST approach:

Ho: Mean response (100 percent effluent) ≤ 0.75 × Control mean response

Fail

A chronic toxicity test result that does not reject the null hypothesis (Ho) above is reported as "Fail" in accordance with the TST approach.

Percent Effect

The percent effect at the IWC is calculated for each chronic toxicity test result using the following equation:

$$\%\ Effect\ at\ IWC\ = \frac{Mean\ Control\ Response\ -\ Mean\ IWC\ Response}{Mean\ Control\ Response} * 100$$

D. Chronic Toxicity MDEL Exceedance Follow-up Action

A chronic toxicity test result during routine monitoring indicating a "Fail" with a percent effect at or above 50% is an exceedance of the chronic toxicity MDEL. The Discharger shall implement corrective action to abate the source of the toxicity within 24 hours from the time the Discharger becomes aware of an MDEL exceedance, if the source of toxicity is known (e.g. operational upset). The Discharger shall also conduct an additional toxicity test during the next discharge event after receiving results of an exceedance.

If the additional test result for industrial process wastewater results in a "Pass" or a "Fail at a percent effect less than 25%, the Discharger may return to routine monitoring for the following monitoring period. If the verification test results in a "Fail" at a percent effect greater than or equal to 25%, the Discharger shall implement an accelerated monitoring schedule for chronic toxicity as set forth below in section IV.F of this MRP.

E. Quality Assurance (QA)

Quality assurance (QA) measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified below.

1. The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the TST statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 and Appendix B, Table B-1.
2. For this discharge, a mixing zone or dilution allowance is not authorized. The chronic IWC for this discharge is 100% effluent.
3. Effluent dilution water and control water should be prepared and used as specified in the test methods manual *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995) and/or *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002). If the dilution water is different from test organism culture water, then a second control using culture water shall also be used. If the use of artificial sea salts is considered provisional in the test method, then artificial sea salts shall not be used to increase the salinity of the effluent sample prior to toxicity testing without written approval by the permitting authority.
4. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g. same test duration, etc.).

5. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the test methods manual, then the Discharger must resample and retest within 14 days (or as soon as possible for storm water or flood water).

6. Because this permit requires sublethal hypothesis testing endpoints from test methods in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995), within-test variability must be reviewed for acceptability and a variability criterion (upper Percent Minimum Significant Difference bound) must be applied, as directed under each test method. Based on this review, only accepted effluent toxicity test results shall be reported on the Discharger Monitoring Report (DMR). If excessive within-test variability invalidates a test result, then the Discharger must resample and retest within 14 days.

7. pH drift during the toxicity test may contribute to artifactual toxicity when pH-dependent toxicants (e.g. ammonia, metals) are present in an effluent. To determine whether or not pH drift during the toxicity test is contributing to artifactual toxicity, the Discharger shall conduct three sets of parallel toxicity tests, in which the pH of one treatment is controlled at the pH of the effluent and the pH of the other treatment is not controlled, as described in section 11.3.6.1 of the test methods manual, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002). Toxicity is confirmed to be artifactual and due to pH drift when no toxicity above the chronic WET permit limit or trigger is observed in the treatments controlled at the pH of the effluent. If toxicity is confirmed to be artifactual and due to pH drift, then, following written approval by the permitting authority, the Discharger may use the procedures outlined in section 11.3.6.2 of the test methods manual to control sample pH during the toxicity test.

F. Accelerated Chronic Toxicity Testing Monitoring Schedule

The Discharger shall implement an accelerated chronic toxicity monitoring schedule, as required by section IV.D of this MRP, conducted at approximately two week intervals, over an eight-week period (or as soon as possible for storm or flood water). All toxicity tests conducted during an accelerated monitoring schedule shall, at a minimum, include the IWC and four additional concentrations. The additional effluent concentrations should provide useful information regarding the intensity and persistence of the toxic effect(s). If all of the additional tests result in a “Pass” or “Fail” with less than 25% percent effect, the Discharger may return to routine monitoring for the following monitoring period. If any one of the additional tests result in a “Fail” and exhibit a percent effect equal to or greater than 25%, the Discharger shall implement an approved Toxicity Reduction Evaluation (TRE) Work Plan as set forth below in section IV.G of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point.

G. Toxicity Reduction Evaluation (TRE)

1. **TRE Work Plan Submittal.** The Discharger shall prepare and submit a TRE Work Plan to the San Diego Water Board no later than 30 days from the time the Discharger becomes aware that industrial process water or storm water from an Industrial High Risk Area had a chronic toxicity test result in a “Fail” and exhibit a percent effect greater than or equal to 25% during accelerated monitoring.

2. **TRE Work Plan.** The TRE Work Plan shall be in conformance with the U.S. EPA manual *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989). The TRE Work Plan shall also include the following information:

a. A description of the actions to be undertaken by the Discharger to investigate, identify, and correct the causes of toxicity.

b. If the MDEL noncompliance has not been corrected, the amount of time it is expected to continue.

c. A description of the steps taken or planned to reduce, eliminate and prevent recurrence of the MDEL noncompliance.

d. A schedule for completion of all activities and submission of a final report.

3. **TRE Work Plan Implementation**. The Discharger shall implement the TRE Work Plan unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any additional conditions set by the San Diego Water Board.

4. **TRE Progress Reports.** The Discharger shall prepare and provide written semiannual progress reports which: (1) describe the actions that have been taken toward achieving compliance with the chronic toxicity MDEL for the previous six months; (2) describe all activities including, data collection and other field activities which are scheduled for the next year and provide other information relating to the progress of work; (3) identify any modifications to the compliance plans that the Discharger proposed to the San Diego Water Board or that have been approved by San Diego Water Board during the previous six months; and (4) include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the actions required to attain compliance with the MDEL, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to the San Diego Water Board semiannually by February 1 and August 1 each year following the adoption of this Order in accordance with the reporting schedule in Table E-6. Submission of these progress reports shall continue until compliance with the MDEL is achieved.

5. **Toxicity Identification Evaluation (TIE).** Based upon the magnitude and persistence the chronic toxicity, the Discharger may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996). If a TIE is undertaken, the Discharger shall prepare and submit a work plan to the San Diego Water Board containing the following elements and comply with any conditions set by the Board:

a. Criteria for initiating a TIE on a sample.

b. Roles and responsibilities of the team conducting the TIE.

c. Study design, sample treatments, and chemical analysis.

d. Data evaluation and communication.

e. Follow-up actions.

f. A schedule for status reports at least quarterly.

g. A schedule for completion of all activities and submission of a final report.

H. Violations

An exceedance of the MDEL or MMEL during routine monitoring is a violation. Any exceedances occurring during a required accelerated monitoring period and, if appropriate, a TRE period shall not constitute additional violations provided that (1) the Discharger proceeds with the accelerated monitoring and TRE (if required) in a timely manner; and (2) the accelerated monitoring and TRE are completed within one year of the initial exceedance. The San Diego Water Board has the discretion to impose additional violations and initiate an enforcement action for toxicity tests that result in a "Fail" after one year from the initial violation. Additionally, a discharger's failure to initiate an accelerated monitoring schedule or conduct a TRE, as required by this Order, will result in all exceedances being considered violations of the MDEL or MMEL and may result in the initiation of an enforcement action.

I. Reporting of Chronic Toxicity Monitoring Results

1. The Discharger shall submit:
    a. A full laboratory report for all toxicity testing as an attachment to the monitoring report. The laboratory report shall contain the toxicity test results; the dates of sample collection and initiation of each toxicity test; and all results for effluent parameters monitored concurrently with the toxicity test(s). All toxicity test results (whether identified as valid or otherwise) conducted during the calendar month shall be reported.
    b. The actual test endpoint responses for the control (i.e. the control mean) and the IWC (i.e. the IWC mean) for each toxicity test to facilitate the review of test results and determination of reasonable potential for toxicity by the permitting authority.
    c. A summary of water quality measurements for each toxicity test (e.g. pH, dissolved oxygen, temperature, conductivity, hardness, salinity).
    d. All results for effluent parameters monitored concurrently with the toxicity tests.
    e. Statistical program (e.g. TST Calculator, CETIS, etc.) output results, including graphical plots for each toxicity test.
    f. Any additional Quality Assurance/ Quality Control (QA/QC) documentation or any additional toxicity related information.
2. The Discharger shall notify the San Diego Water Board in writing within 14 days of receipt of any test result with an exceedance of the toxicity limit. This notification shall describe actions the Discharger has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

V. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER

The receiving water and sediment monitoring requirements set forth below are designed to measure the effects of the Facility discharges on San Diego Bay receiving waters.

A. Monitoring Questions: The receiving water and sediment monitoring shall be designed and conducted to address the following primary questions:

(1) Does the discharge cause or contribute to violations of the receiving water limitations in section V of this Order?

(2) Are the receiving water conditions getting better or worse over time?

(3) Does the Facility cause or contribute to violations of the receiving water limitations in section V of this Order?

(4) Is the sediment condition changing over time?

At this time, receiving water and sediment monitoring in the vicinity of the Facility shall be conducted as specified below. This program is intended to document conditions of receiving waters and bay bottom sediments within the vicinity of the Facility discharges. Station location, sampling, sample preservation, and analyses, when not specified, shall be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit proposals, including the supporting rationale, for reductions or other changes to these monitoring requirements that it considers to be appropriate to the San Diego Water Board for approval.

During monitoring events sample stations shall be located using a land-based microwave positioning system or a satellite positioning system such as Global Positioning System (GPS). If an alternate navigation system is proposed, its accuracy should be compared to that of microwave and satellite based systems, and any compromises in accuracy shall be justified.

B. Monitoring Responsibility. Receiving water and sediment monitoring shall be performed individually by the Discharger to assess compliance with receiving water limits or through the Discharger's participation in a regional or water body monitoring coalition or both as determined by the San Diego Water Board. The surface water receiving water monitoring requirements in section VIII.A of Attachment E (MRP) to Order No. R9-2009-0099 shall continue to be implemented until the receiving and sediment monitoring program in this Order below is implemented.

C. Monitoring Coalition Reopener. To achieve maximum efficiency and economy of resources, the Discharger may establish or join a San Diego Bay water body monitoring coalition. If a San Diego Bay monitoring coalition is formed, revised monitoring requirements will be established to ensure that appropriate monitoring is conducted in a timely manner.

D. Water and Sediment Monitoring Plan. The Discharger shall prepare and submit a Water and Sediment Monitoring Plan to assess compliance with receiving water limitations of this Order. The Water and Sediment Monitoring Plan shall be submitted within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan shall contain the following elements:

1. **Quality Assurance Project Plan (QAPP).** A QAPP describing the project objectives and organization, functional activities, and QA/QC protocols for the water and sediment monitoring.

2. **Sampling and Analysis Plan**. A Sampling and Analysis Plan based on methods or metrics described in 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* and the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan). The plan shall include a list of chemical analytes for the water column and sediment as well as frequency and monitoring locations.

3. **Receiving Water Monitoring**

   a. **Frequency**: The Sampling and Analysis Plan must propose the frequency and timing for water column sampling. The minimum frequency of sampling is shown in Table E-5 below. The proposed sampling must be based upon results on the fate and transport of pollutants from the conceptual model (see section V.D.5 below).

   b. **Pollutants**: The Sampling and Analysis Plan must propose what pollutants will be monitored. At a minimum, monitoring must include the pollutants and frequency in Table E-5 below:

Table E-5. Receiving Water Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Copper, Total Recoverable	µg/L	Grab	Monthly	[1,2]
Zinc, Total Recoverable	µg/L	Grab	Quarterly	[1]
Chronic Toxicity	Pass/ Fail	Grab	Annually	[3]
Antimony, Total Recoverable	µg/L	Grab	Annually	[1]
Arsenic	µg/L	Grab	Annually	[1]
Beryllium	µg/L	Grab	Annually	[1]
Cadmium, Total Recoverable	µg/L	Grab	Annually	[1]
Chromium III	µg/L	Grab	Annually	[1]
Chromium VI	µg/L	Grab	Annually	[1]
Silver, Total Recoverable	µg/L	Grab	Annually	[1]
Lead, Total Recoverable	µg/L	Grab	Annually	[1]
Mercury, Total Recoverable	µg/L	Grab	Annually	[1]
Nickel, Total Recoverable	µg/L	Grab	Annually	[1]
Selenium, Total Recoverable	µg/L	Grab	Annually	[1]
Thallium	µg/L	Grab	Annually	[1]
Cyanide, Total (as CN) 3	µg/L	Grab	Annually	[1]
Asbestos	µg/L	Grab	Annually	[1]
2,3,7,8-TCDD (Dioxin)	µg/L	Grab	Annually	[1]
Acrolein	µg/L	Grab	Annually	[1]
Acrylonitrile	µg/L	Grab	Annually	[1]
Benzene	µg/L	Grab	Annually	[1]
Bromoform	µg/L	Grab	Annually	[1]
Carbon Tetrachloride	µg/L	Grab	Annually	[1]
Chlorobenzene	µg/L	Grab	Annually	[1]
Chlorodibromomethane	µg/L	Grab	Annually	[1]
Chloroethane	µg/L	Grab	Annually	[1]
2-Chloroethylvinyl Ether	µg/L	Grab	Annually	[1]
Chloroform	µg/L	Grab	Annually	[1]
Dichlorobromomethane	µg/L	Grab	Annually	[1]
1,1-Dichloroethane	µg/L	Grab	Annually	[1]
1,2-Dichloroethane	µg/L	Grab	Annually	[1]
1,1-Dichloroethylene	µg/L	Grab	Annually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
1,2-Dichloropropane	µg/L	Grab	Annually	[1]
1,3-Dichloropropylene	µg/L	Grab	Annually	[1]
Ethylbenzene	µg/L	Grab	Annually	[1]
Methyl Bromide	µg/L	Grab	Annually	[1]
Methyl Chloride	µg/L	Grab	Annually	[1]
Dichloromethane (Methylene Chloride)	µg/L	Grab	Annually	[1]
Methylene Chloride	µg/L	Grab	Annually	[1]
1,1,2,2-Tetrachloroethane	µg/L	Grab	Annually	[1]
Tetrachloroethylene	µg/L	Grab	Annually	[1]
Toluene	µg/L	Grab	Annually	[1]
1,2-Trans-Dichloroethelyene	µg/L	Grab	Annually	[1]
1,1,1-Trichloroethane	µg/L	Grab	Annually	[1]
1,1,2-Trichloroethane	µg/L	Grab	Annually	[1]
Trichloroethylene (Trichloroethene)	µg/L	Grab	Annually	[1]
Vinyl Chloride	µg/L	Grab	Annually	[1]
2-Chlorophenol	µg/L	Grab	Annually	[1]
2,4-Dichlorophenol	µg/L	Grab	Annually	[1]
2,4-Dimethylphenol	µg/L	Grab	Annually	[1]
2-Methyl-4,6-Dinitophenol	µg/L	Grab	Annually	[1]
2,4-Dinitrophenol	µg/L	Grab	Annually	[1]
2-Nitophenol	µg/L	Grab	Annually	[1]
3-Methyl-4-Chlorophenol	µg/L	Grab	Annually	[1]
Pentachlorophenol	µg/L	Grab	Annually	[1]
Phenol	µg/L	Grab	Annually	[1]
2,4,6-Trichlorophenol	µg/L	Grab	Annually	[1]
Acenaphthene	µg/L	Grab	Annually	[1]
Acenaphthylene	µg/L	Grab	Annually	[1]
Anthracene	µg/L	Grab	Annually	[1]
Benzidine	µg/L	Grab	Annually	[1]
Benzo(a)Anthracene	µg/L	Grab	Annually	[1]
Benzo(a)Pyrene	µg/L	Grab	Annually	[1]
Benzo(b)Fluoranthene	µg/L	Grab	Annually	[1]
Benzo(ghi)Perylene	µg/L	Grab	Annually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Benzo(k)Fluoranthene	µg/L	Grab	Annually	[1]
Bis(2-Chloroethoxy)Methane	µg/L	Grab	Annually	[1]
Bis(d-Chloroethyl)Ether	µg/L	Grab	Annually	[1]
Bis(2-Chloroisopropyl)Ether	µg/L	Grab	Annually	[1]
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Annually	[1]
4-Bromophenyl Phenyl Ether	µg/L	Grab	Annually	[1]
Butylbenzyl Phthalate	µg/L	Grab	Annually	[1]
2-Chloronaphthalene	µg/L	Grab	Annually	[1]
4-Chlorophenyl Phenyl Ether	µg/L	Grab	Annually	[1]
Chrysene	µg/L	Grab	Annually	[1]
Dibenzo(a,h)Anthracene	µg/L	Grab	Annually	[1]
1,2 Dichlorobenzene	µg/L	Grab	Annually	[1]
1,3 Dichlorobenzene	µg/L	Grab	Annually	[1]
1,4 Dichlorobenzene	µg/L	Grab	Annually	[1]
3,3'-Dichlorobenzidine	µg/L	Grab	Annually	[1]
Diethyl Phthalate	µg/L	Grab	Annually	[1]
Dimethyl Phthalate	µg/L	Grab	Annually	[1]
Di-n-Butyl Phthalate	µg/L	Grab	Annually	[1]
2,4-Dinitrotoluene	µg/L	Grab	Annually	[1]
2,6-Dinitrotoluene	µg/L	Grab	Annually	[1]
Di-n-Octyl Phthalate	µg/L	Grab	Annually	[1]
1,2-Diphenylhydrazine	µg/L	Grab	Annually	[1]
Fluoranthene	µg/L	Grab	Annually	[1]
Fluorene	µg/L	Grab	Annually	[1]
Hexachlorobenzene	µg/L	Grab	Annually	[1]
Hexachlorobutadien	µg/L	Grab	Annually	[1]
Hexachlorocyclopentadiene	µg/L	Grab	Annually	[1]
Hexachloroethane	µg/L	Grab	Annually	[1]
Ideno(1,2,3-cd) Pyrene	µg/L	Grab	Annually	[1]
Isophorone	µg/L	Grab	Annually	[1]
Naphthalene	µg/L	Grab	Annually	[1]
Nitrobenzene	µg/L	Grab	Annually	[1]
N-Nitrosodimethylamine	µg/L	Grab	Annually	[1]
N-Nitrosodi-n-Propylamine	µg/L	Grab	Annually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
N-Nitrosodiphenylamine	µg/L	Grab	Annually	[1]
Phenanthrene	µg/L	Grab	Annually	[1]
Pyrene	µg/L	Grab	Annually	[1]
1,2,4-Trichlorobenzene	µg/L	Grab	Annually	[1]
Aldrin	µg/L	Grab	Annually	[1]
Alpha-BHC	µg/L	Grab	Annually	[1]
Beta-BHC	µg/L	Grab	Annually	[1]
Gamma-BHC	µg/L	Grab	Annually	[1]
Delta-BHC	µg/L	Grab	Annually	[1]
Chlordane	µg/L	Grab	Annually	[1]
4,4'-DDT	µg/L	Grab	Annually	[1]
4,4'-DDE	µg/L	Grab	Annually	[1]
4,4'-DDD	µg/L	Grab	Annually	[1]
Dieldrin	µg/L	Grab	Annually	[1]
Alpha-Endosulfan	µg/L	Grab	Annually	[1]
Beta-Endosulfan	µg/L	Grab	Annually	[1]
Endosulfan Sulfate	µg/L	Grab	Annually	[1]
Endrin	µg/L	Grab	Annually	[1]
Endrin Aldehyde	µg/L	Grab	Annually	[1]
Heptachlor	µg/L	Grab	Annually	[1]
Heptachlor Epoxide	µg/L	Grab	Annually	[1]
Polychlorinated Biphenyls (PCBs)	µg/L	Grab	Annually	[1]
Toxaphene	µg/L	Grab	Annually	[1]

[1] As specified in 40 CFR part 136.3

[2] Water samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample that is analyzed by methods 6010B or 200.7 are known.

[3] The presence of chronic toxicity shall be determined as specified in section IV of this MRP.

4. Sediment Monitoring

a. **Frequency**: Sediment chemistry, toxicity, and benthic organism monitoring shall be done, at a minimum twice during the term of this Order. For stations that are consistently classified as unimpacted or likely unimpacted, the frequency may be reduced to once per permit cycle in the next permit.

b. **Station Locations:** Triad station locations shall be identified after evaluating the items in section V.D.5 through V.D.8 below.

c. **Sediment Chemistry, Toxicity, and Benthic Community Condition:** Sediment chemistry, toxicity, and benthic community monitoring shall be done in accordance with, at a minimum, the requirements under the Sediment Quality Plan. The proposal must also include the following:

i. **Sediment Chemistry:** Bulk sediment chemical analysis shall include at a minimum the pollutants identified in Attachment A of the Sediment Quality Plan and listed in Attachment I of this Order.

ii. **Sediment Toxicity:** Short term survival tests and sublethal tests shall be performed as specified in section V.F of Sediment Quality Plan. The results shall be recorded as "percent of control response".

iii. **Benthic Community- Subtidal Habitat:** The benthic community shall be evaluated using the line of evidence approach described in section V.G of the Sediment Quality Plan.

d. **Aquatic-Dependent Wildlife and Human Health Risk Assessments:** An aquatic-dependent wildlife and human health screening-level risk assessment shall be conducted to evaluate if sediment conditions potentially pose an unacceptable risk to aquatic-dependent wildlife and human health. The Tier I screening-level risk assessment shall be based on tissue data derived from the exposure of the clam *Macoma nasuta* to site sediments for 28 days using American Society for Testing and Materials (ASTM) protocols or similar procedures. A risk assessment shall be conducted considering any applicable and relevant information, including California Environmental Protection Agency's (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) policies for fish consumption and risk assessment, Cal/EPA's Department of Toxic Substances Control (DTSC) Risk Assessment, and U.S. EPA Human Health Risk Assessment policies

5. Conceptual Model. A Conceptual Model identifying the physical and chemical factors that control the fate and transport of pollutants and receptors that could be exposed to pollutants in the water and sediment shall be developed and included in the Water and Sediment Monitoring Plan. The Conceptual Model will serve as the basis for assessing the appropriateness of the Water and sediment Monitoring Plan design. The Conceptual Model shall consider:

a. Points of discharge into the segment of the water body or region of interest.

b. Tidal flow and/or direction of predominant currents.

c. Historic or legacy conditions in the vicinity.

d. Nearby land and marine uses or actions.

e. Beneficial uses.

f. Potential receptors of concern.

g. Change in grain size salinity water depth and organic matter.

h. Other sources or discharges in the immediate vicinity.

6. Spatial Representation. The Water and Sediment Monitoring Plan shall be designed to ensure that the sample stations are spatially representative of the water and sediment within the water body segment or region of interest.

7. **Existing Data and Information.** The Water and Sediment Monitoring Plan design shall take into consideration existing data and information of appropriate quality including ongoing monitoring programs conducted by other entities.

8. **Strata.** Identification of appropriate strata shall consider characteristics of the water body including sediment transport, hydrodynamics, depth, salinity, land uses, inputs (both natural and anthropogenic) and other factors that could affect the physical, chemical, or biological condition of the sediment.

9. **Index Period.** All sediment stations shall be sampled between the months of June through September to correspond with the benthic community index period.

10. **Report Completion Schedule.** The Water and Sediment Monitoring Plan shall include a schedule for completion of all sample collection and analysis activities and submission of Water and sediment Monitoring Reports described in section V.F and V.G of this MRP.

E. Water and Sediment Monitoring Plan Implementation. The Discharger or water body monitoring coalition shall implement the Water and Sediment Monitoring Plan in accordance with the schedule contained in the Water and Sediment Monitoring Plan unless otherwise directed in writing by the San Diego Water Board. At the latest, implementation of the receiving water monitoring shall begin within 24 months of the effective date of this Order. Before beginning sample collection activities, the Discharger or water body monitoring coalition shall comply with any conditions set by the San Diego Water Board with respect to sample collection methods such as providing split samples.

F. Receiving Water Monitoring Reports. The Discharger or water body monitoring coalition shall submit Receiving Water Monitoring Reports annually in accordance with the schedule in the Water and Sediment Monitoring Plan. The Receiving Water Monitoring Reports shall contain:

1. **Monitoring Results.** The results of the monitoring in tabular and graphical form.

2. **Data Analysis, Interpretation, and Conclusions.** An analysis of the data to evaluate trends and interpretations and conclusions on the data.

3. **Receiving Water Limitation Compliance Determination.** A determination as to whether applicable receiving water limitations in this Order have been attained.

4. **Sample Location Map.** The locations, type, and number of samples shall be identified and shown on a site map(s).

5. **Laboratory Reports.** The reports from laboratories with the original analysis results including any QA/QC information.

G. Sediment Monitoring Reports. The Discharger or water body monitoring coalition shall submit a Sediment Monitoring Report twice during the term of the permit in accordance with the schedule in the Water and Sediment Monitoring Plan. The Sediment Monitoring Report shall contain the following information:

1. **Aquatic Life Analysis.** The data, analyses, interpretation, and integration of the multiple lines of evidence (MLOE), and station assessment shall be performed using the MLOE approach as prescribed in the Sediment Quality Plan. Compliance with receiving water limitations for sediment quality shall be determined for each station by integrating the sediment chemistry, toxicity, and benthic community lines of evidence to derive a benthic triad station assessment in accordance with the methodology in section V.I of the Sediment Quality Plan.

2. **Aquatic-dependent Wildlife and Human Health.** The data, analyses, interpretation, and results of the screening-level risk assessments for aquatic-dependent wildlife and human health shall be performed in accordance with section VI of the Sediment Quality Plan. Compliance with receiving water limitations for sediment quality shall be determined for the site based on the aquatic-dependent wildlife and human health screening-level risk assessments.
3. **Receiving Water Limitation Compliance Determination.** A determination shall be made for each sediment station of attainment of the applicable receiving water limitations.
4. **Sample Location Map.** The locations, type, and number of samples shall be identified and shown on a site map(s).
5. **Laboratory Reports.** The reports from laboratories with the original analysis results including any quality assurance / quality control information.

VI. REGIONAL MONITORING REQUIREMENTS

Regional receiving water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the coastal marine environment necessary to make assessments over large areas. The large scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of receiving waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in receiving waters enables the development of more rapid and effective response strategies. Based on all of these considerations the San Diego Water Board supports regional approaches to monitoring receiving waters.

The Discharger shall, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for receiving waters in the San Diego Region and discharges to those waters. These programs shall be developed and implemented so as to answer the following primary questions:

(1) What are the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses?

i. Are fish and shellfish safe to eat?

ii. Is water quality safe for swimming?

iii. Are ecosystems healthy?

(2) What are the primary stressors causing or contributing to conditions of concern?

(3) What are the major sources of the stressors causing or contributing to conditions of concern?

(4) How effective (i.e. environmental outcomes) are actions taken to address such stressors and sources?

Development and implementation of new and improved monitoring and assessment programs for receiving waters will be guided by the following:

(1) San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

(2) San Diego Water Board staff report entitled *A Framework for Monitoring and Assessment in the San Diego Region*.

(3) Other guidance materials, as appropriate.

The San Diego Water Board may modify the receiving waters monitoring and reporting requirements, regional monitoring requirements, and/or special studies requirements of this Order as necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

VII. OTHER MONITORING REQUIREMENTS

A. Floating Dry Dock Submergence/Emergence Water Discharge, Shipbuilding Ways Flood Water Discharge, and Graving Dock Flood Water Discharge

1. **Monitoring Questions.** This submergence, flooding monitoring program is designed to answer the following primary questions:

   (1) Are the dry dock, ways, and graving dock adequately cleaned prior to flooding?

   (2) Are pollutants being prevented from contact with San Diego Bay waters prior to flooding?

2. **Submergence or Flooding Notice.** The Discharger shall provide written notification to the San Diego Water Board at least 72 hours prior to the flooding of its floating dry dock, shipbuilding ways, or graving dock. If the dry dock, shipbuilding ways, or graving dock has to be flooded on short notice and the 72 hour notification time cannot be met, the Discharger shall notify the San Diego Water Board as early as possible and include information on why the notification time could not be met.

3. **Submergence or Flooding Records.** The Discharger shall record on forms approved by the San Diego Water Board including photographs the condition of its dry dock, shipbuilding ways, or graving dock immediately prior to each flooding when industrial activity has occurred in the dry dock, building ways, or graving dock. Quarterly as specified in Table E-6, the Discharger shall submit the records to the San Diego Water Board. If flooding is to occur at night, photographs shall be taken during daylight hours as close to flooding as possible. The Discharger does not need to record the condition of the dry dock, building ways, or graving dock prior to the flooding when industrial activity has not occurred and a flooding evolution is required for training or other purposes.

4. **Submergence or Flooding Certification.** Quarterly as specified in Table E-6, the Discharger must submit a certification statement regarding the condition of the dry dock, building ways, and graving dock prior to each flooding event during the reporting period. If the dry dock, building ways, or graving dock was not flooded during the quarter, the Discharger shall document in the quarterly report that no flooding occurred during that monitoring period.

B. Floating Dry Dock Ballast Tank

Monitoring Questions. This ballast tank program is designed to answer the following primary questions:

(1) Are the dry dock ballast tanks in good repair?

(2) Are pollutants being prevented from entering the ballast tanks prior to discharge to San Diego Bay?

The Discharger shall submit U.S. Navy and ASTM reports certifying the integrity of the floating dry dock ballast tanks annually, in accordance with Table E-6.

C. Floating Boom Cleaning

Monitoring Questions. The boom cleaning program is designed to answer the following primary questions:

(1) What is the scope and magnitude of the discharge?

(2) What are the potential impacts to San Diego Bay?

Annually as part of the annual report, the Discharger shall submit a log of in-water floating boom cleaning activities, including the personnel-in-charge of the cleaning, the quantity of the discharge, the date, a summary of any potential impacts to receiving water quality, and a summary regarding the description and location of any boom removed from San Diego Bay to be cleaned because of oil or other pollutants. The annual log shall be submitted with the annual report in accordance with Table E-6.

D. Spill and Illicit Discharge Log

Monitoring Questions. This requirement for a spill and illicit discharge log is designed to answer the following primary monitoring questions:

(1) Are there more frequent and/or bigger spills at this Facility than at other similar facilities?

(2) Are spills and illicit discharges properly addressed and are measures being taken or planned to reduce, eliminate, and prevent recurrence of them in the future?

The Discharger shall log and report all spills of significant quantities to surface waters and all illicit discharges of any quantity within the Facility including spills and illicit discharges from vessels that are at the Facility for service. The spill / illicit discharge reports shall identify the following:

1. The time and date of the spill or illicit discharge.
2. The cause of the spill or illicit discharge.
3. The materials or wastes involved in the spill or illicit discharge.
4. The estimated volume of the spill or illicit discharges.
5. The specific location where the spill or illicit discharge originated including industrial activities in the area.
6. The fate of the spill or illicit discharge (e.g. discharge to San Diego Bay, etc.).
7. The physical extent or size of the area(s) affected by the spill.
8. Whether the spill or illicit discharge contained pollutants.
9. The public agencies notified.
10. The corrective actions taken or planned.
11. The measures taken or planned to prevent or minimize future spills or illicit discharges.

The reports shall be submitted annually to the San Diego Water Board in accordance with Table E-6 of this MRP.

The Discharger shall include in its Annual Report a summary of the spills and illicit discharges that occurred in or on the Facility during the annual reporting period. The spill/illicit discharge summary report shall indicate the total number of spills and illicit discharges for the year, categorize the spills and illicit discharges, and provide the percentages of each type of spill or illicit discharge in a graphical representation. The summary report shall also indicate the efforts the Discharger used during the annual reporting period to reduce, eliminate, and prevent reoccurrence of spills and illicit discharges.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. The Discharger shall submit an annual report discussing the compliance record and corrective actions taken, or which may be taken, or which may be needed to bring the discharge into full compliance with the requirements of this Order.
3. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. If CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.
4. The Discharger shall attach a cover letter to the Self-Monitoring Report (SMR). The information contained in the cover letter shall clearly identify violations of the Waste Discharge Requirements (WDRs); discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. Any reports not in CIWQS shall be submitted electronically to the San Diego Water Board's e-mail at sandiego@waterboards.ca.gov or as otherwise directed by the San Diego Water Board.
2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit monthly, quarterly, semiannual, and annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-6. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with monthly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month	30 days following the end of the monitoring period
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	30 days following the end of the monitoring period
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	30 days following the end of the monitoring period
Annually	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	July 1 through June 30	September 1
Annual Storm Water Report	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	July 1 through June 30	September 1

4. **Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part 136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

   a. Sample results greater than or equal to the RL shall be reported as measured by the laboratory (i.e. the measured chemical concentration in the sample).

   b. Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

      For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

   c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

5. **Compliance Determination.** Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and Attachment A of this Order. For purposes of reporting and administrative enforcement by the San Diego Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).

6. **Multiple Sample Data.** When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

   a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

   b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Discharge Monitoring Reports (DMRs)

1. DMRs are U.S. EPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at: http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring.

2. The purpose of the Discharge Monitoring Report - Quality Assurance (DMR-QA) Study is to ensure the integrity of data submitted by the Discharger for DMR reporting requirements and evaluate performance of the laboratories to analyze wastewater samples. Additional information on the DMR-QA can be found at https://www.epa.gov/compliance/discharge-monitoring-report-quality-assurance-study-program. The Discharger shall ensure that the results of the DMR-QA Study or the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board at the following address:

   State Water Resources Control Board
   Quality Assurance Program Officer
   Office of Information Management and Analysis
   1001 I Street, Sacramento, CA 95814

D. Other Reports

Special Reports. As specified in this Order, special reports or program components shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-7. Reporting Requirements for Special Reports

Report Name	Section No.	Report Due Date
Toxicity Reduction Evaluation (TRE) Work Plan	MRP section IV.G.1	During accelerated monitoring, see Section IV.G.1 of MRP
Water and Sediment Monitoring Plan	MRP section V.D	Within 12 months of the effective date of this Order
Receiving Water Monitoring Reports	MRP section V.F	Annually in accordance with the schedule contained in the Water and Sediment Monitoring Plan
Sediment Monitoring Reports	MRP section V.G	Twice during the permit cycle in accordance with the schedule contained in the Water and Sediment Monitoring Plan

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

A. General Dynamic National Steel and Shipbuilding Company (NASSCO or Discharger) is the owner and operator of General Dynamics NASSCO shipyard facility (Facility) for the construction, conversion, and repair of ships for the U.S. Navy and commercial customers.

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	9 000000066
Discharger	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Name of Facility	General Dynamics National Steel and Shipbuilding Company (NASSCO)
Facility Address	2798 East Harbor Drive
	San Diego, CA 92113
	San Diego County
Facility Contact, Title and Phone	T. Michael Chee, Manager, Environmental Engineering, (619) 544-7778
Authorized Person to Sign and Submit Reports	T. Michael Chee, Manager, Environmental Engineering, (619) 544-7778
Mailing Address	2798 East Harbor Drive, San Diego, CA 92113
Billing Address	2798 East Harbor Drive, San Diego, CA 92113
Type of Facility	Shipbuilding and Repair (SIC Code# 3731)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable
Recycling Requirements	Not Applicable
Facility Permitted Flow	Not Applicable
Facility Design Flow	Not Applicable
Watershed	San Diego Bay
Receiving Water	San Diego Bay and Mouth of Chollas Creek
Receiving Water Type	Enclosed Bay and Estuary

B. The Facility discharges wastewater and storm water to San Diego Bay, a water of the U.S. and conducts activities controlled by Best Management Practices (BMPs) adjacent to the Mouth of Chollas Creek, a water of the U.S. The Discharger was previously regulated by Order R9-2009-0099 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109134, adopted on August 12, 2009 and expired on September 1, 2014. Attachment B provides a map of the Facility and surrounding area. Attachment C provides a flow schematic of the Facility.

Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Resources Control Board (State Water Board), Division of Water Rights, and receive approval for such a change. The State Water Board retains the jurisdictional authority to enforce such requirements under California Water Code (Water Code) section 1211.

C. The Discharger filed a report of waste discharge and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit on March 5, 2013. Supplemental information was provided by the Discharger on April 30, 2014. The application was deemed complete on May 13, 2014. A site visit was conducted on May 24, 2016 to observe operations and collect additional data to develop permit limitations and requirements for waste discharge.

II. FACILITY DESCRIPTION

NASSCO is a business unit of General Dynamics Corporation, located at 2798 East Harbor Drive in San Diego, California. NASSCO provides a full range of ship construction, conversion, and repair capabilities to the U.S. Navy and commercial customers. NASSCO covers approximately 133 acres of tidelands property leased (land and water) from the San Diego Unified Port District. The land portion of the lease covers approximately 85 acres. Improvements to the land lease include approximately 1.6 million square feet of office, shop and warehouse space, and 392,800 square feet of concrete platens used for steel fabrication, a floating dry dock, a graving dock (building dock), two building ways, twelve berths, and a blast and paint facility. A sheet pile bulkhead and a wall along most of the waterfront separate the land and the adjacent receiving waters of San Diego Bay.

A storm water containment berm encompasses the entire shipyard to prevent the discharge of contact storm water and separate the land and the adjacent receiving waters of San Diego Bay.

General industrial processes associated with shipbuilding, conversion, repair, and maintenance include: metal fabrication, welding and brazing, abrasive blasting, hydroblasting, fiberglass work, paint and coating application, mechanical work, electrical work, wood work (including sanding), chemical cleaning of piping, line heating, and hazardous waste storage. Several shipbuilding and repair activities take place over water or near shore locations, while others may be performed in workshops or at work sites located inland on the shipyard property. Crane transportation of components and storage operations are also provided. Ships are constructed in the building ways or the graving dock. Ships can be repaired in the floating dry dock, graving dock, building ways, or pier side.

A. Description of Wastewater

A description of these types of wastewater generated at the Facility is provided in the subsections below.

1. Graving Dock and Building Ways Hydrostatic Relief Water. Hydrostatic relief water is water pumped from the ground to prevent seepage or buckling of the floor or walls of the graving dock and building ways. Discharges from the hydrostatic relief systems are

estimated at 208,000 gallons per day and are directed to the ion exchange treatment system.

2. **Building Ways Flood Water.** Building Ways 3 and Building Ways 4 are flooded with bay water to launch vessels. Flood water discharges from Building Ways 3 and Building Ways 4 are estimated at 750,000 gallons per launch pumped at a rate of 5,810 gallons per minute and are directed to the ion exchange treatment system.

3. **Ion Exchange Treatment System Effluent.** Hydrostatic relief water and flood water from Building Ways 3 and Building Ways 4 are directed to an ion exchange treatment system for treatment to remove copper, nickel, and zinc. The effluent from the ion exchange treatment system is discharged to San Diego Bay. The ion exchange treatment system consists of three 10.5K gallon storage tanks, two centrifugal pumps, three multimedia filter vessels in parallel, two granular activated carbon (GAC) vessels in parallel, and two ion exchange media vessels in series as shown in Flow Schematic C-2.

   The previous permit contained individual outfalls for each of these wastewaters at Discharge Point Nos. HR-1, HR-2, HR-3, M-3, and M-4. These wastewaters are now directed to the ion exchange treatment system prior to discharging from the combined outfall of Discharge Point No. IX-1 to San Diego Bay.

4. **Floating Dry Dock Ballast Water.** The floating dry dock is a vessel which can be submerged and raised to bring another vessel out of the water to conduct repairs. Sinking and floating of the dry dock is accomplished by flooding and emptying the ballast tanks of the floating dry dock. Ballast tanks are also used to adjust the trim of the dock. Ballast water is discharged through Discharge Point No. M-1 to San Diego Bay. Discharges of floating dry dock ballast water are estimated at a maximum of 104,000 gallons per minute. Discharges of ballast water while docking or undocking a vessel are not regulated by this Order but are regulated by United Stated Environmental Protection Agency's (U.S. EPA) Vessel General Permit (VGP) under Permit Tracking No. VPAAO662O. Discharges of ballast water while the dry dock is not operating as a means of transportation, such as when the floating dry dock is at its mooring position to conduct ship repair activity, are regulated by this Order.

5. **Graving Dock Flood Water.** The graving dock is flooded with San Diego Bay water to launch and retrieve vessels. Flood water is discharged to San Diego Bay via Discharge Point No. M-2 when vessels are launched or retrieved. Estimates of the discharge volumes from flooding are approximately 18-22 million gallons per flooding event pumped at a rate of 18,000 gallons per minute. This Order includes a requirement for Best Management Practices (BMPs) for graving dock cleaning to prevent or minimize the discharge of pollutants prior to and during flooding.

   The graving dock is primarily used for new construction of vessels and a non-copper based antifouling hull coating system is applied to new vessels as a best management practice to achieve compliance with the effluent limitation for copper. Occasionally, the graving dock is used for repair or minor maintenance of vessels with existing antifouling hull coating systems which may contain copper. NASSCO has no control over hull coating systems on existing vessels and does not remove or change these hull coating systems without the sole approval of the customer.

6. **Storm Water.** NASSCO operates and maintains a Storm Water Diversion System (SWDS) that is designed to capture storm water runoff from all industrial areas. NASSCO developed the SWDS to eliminate the discharge of industrial storm water to San Diego Bay with a capacity to retain in excess of 33,858,000 gallons, more than enough capacity to capture a 100-year storm event (approximately 3.5 inches of rain in 24 hours). AII

storm water captured within the facility is discharged to the San Diego Metropolitan Sanitary Sewer System (SDMSSS). Storm water that flows into the graving dock during a graving dock flooding event will be discharged to San Diego Bay through Discharge Point No. M-2. Storm water exceeding the capacity of the SWSD will be discharged to San Diego Bay through SW-1 or SW-2.

B. Discharge Points and Receiving Waters

1. Wastewater is discharged into San Diego Bay as summarized in Table F-2 below:

Table F-2. Discharge Points and Receiving Waters

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
IX-1 (Ion Exchange Treatment System)	Treated Hydrostatic Relief and Ways Dewatering	32º 41’ 30” N	-117º 8' 26" W	San Diego Bay
M-1 (Floating Dry Dock)	Ballast Water	32º 41’ 33” N	-117º 8' 37" W	San Diego Bay
M-2 (Graving Dock)	Dewatering Flood Water	32º 41’ 27” N	-117º 8' 25" W	San Diego Bay
SW-1 (North Shipyard)	Northwest Storm Water Collection	32° 41' 25" N	-117° 8' 33" W	San Diego Bay
SW-2 (South Shipyard	Southwest Storm Water Collection	32° 41' 21" N	-117° 8' 20" W	San Diego Bay

C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

1. Discharge prohibitions for all authorized discharges contained in Order No. R9-2009-0099 include:

   a. The Discharger shall comply with all requirements of the Basin Plan Waste Discharge Prohibitions which are hereby included in this Order by reference.

   b. The discharge of sewage, except as noted in the Basin Plan Waste Discharge Prohibitions, to San Diego Bay is prohibited.

   c. The discharge of industrial process water, other than miscellaneous low volume water, is prohibited.

   d. The discharge of the first flush of storm water runoff from high risk areas is prohibited, except if the pollutants in the discharge are reduced to the extent and demonstrated through testing that the discharge achieves compliance with the acute toxicity limitation specified in section IV.A.5 of this Order. The discharge of the remainder of the storm water must also achieve compliance with the acute toxicity limitations specified in section IV.A.5 of this Order but only needs to be demonstrated twice per year unless under accelerated testing.

   e. The discharges of municipal and industrial waste sludge and untreated sludge digester supernatant, centrate, or filtrate to San Diego Bay is prohibited.

   f. The discharge of rubbish, refuse, debris, materials of petroleum origin, waste zinc plates, abrasives, primer, paint, paint chips, solvents, and marine fouling

organisms, and the deposition of such wastes at any place where they could eventually be discharged is prohibited. This prohibition does not apply to the discharge of marine fouling organisms removed from unpainted, uncoated surfaces by underwater operations and discharges that result from floating booms that were installed for "Force Protection" purposes. Rubbish and refuse include, but are not limited to, any cans, bottles, paper, plastic, vegetable matter, or dead animals deposited or caused to be deposited by man.

g. The discharge of materials of petroleum origin in sufficient quantities to be visible is prohibited.

h. The discharge or bypassing of untreated waste to San Diego Bay is prohibited. This prohibition does not apply to non-contact cooling water, miscellaneous low volume water, and fire protection water streams which comply with the requirements of this Order for elevated temperature waste discharges and which do not contain pollutants or waste other than heat.

i. The discharge of polychlorinated biphenyl compounds, such as those used for transformer fluid, is prohibited.

j. The discharge of wastes and pollutants from underwater operations, such as underwater paint and coating removal and underwater hull cleaning, is prohibited. This prohibition does not apply to the discharge of marine fouling organisms removed from unpainted and uncoated surfaces by underwater operations, or to discharges that result from the cleaning of floating booms that were installed for "Force Protection" purposes.

k. The discharge of wastes that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) is prohibited.

l. The discharge of flood waters from the graving dock (M-2), Ways 3 (M-3), and Ways 4 (M-4) more than 15 times per year total is prohibited.

2. Discharge effluent limitations for Discharge Point Nos. HR-1, HR-2, HR-3, M-1, M-2, M-3, M-4, and M-8 contained in the previous Order are summarized in Table F-3.

Table F-3. Previous Effluent Limits and Monitoring Data – Discharge Point Nos. HR-1 through HR-3, M-1 through M-4, and M-8

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Instantaneous Maximum
Oil and Grease	mg/L	25	40	75
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	pH units	--	--	[1]
Temperature	ºF	--	--	[2]
Acute Toxicity	Pass/Fail	--	--	1[3]
Chronic Toxicity	TUc	--	--	1

[1] Within limits of 7.0 – 9.0 at all times.

[2] At no time shall any discharge be greater than 20°F over the natural temperature of the receiving water.

[3] Discharges shall achieve a rating of "Pass" for acute toxicity with compliance determined as specified in section VII.I. of Order No. R9-2009-0099.

3. Discharge effluent limitations for Discharge Point Nos. HR-1, HR-2, and HR-3 contained in the previous Order are summarized in Table F-4.

Table F-4. Previous Effluent Limits – Summary of Additional Effluent Limitations for Hydraulic Relief Water

Discharge Location	Parameter	Units	Effluent Limitations		
			Annual Average	Average Monthly	Maximum Daily
HR-1 (Graving Dock Hydraulic Relief)	Copper, Total Recoverable	µg/L	[1]	--	11.9
	Zinc, Total Recoverable	µg/L	--	31.29	95.14
HR-2 (Ways 3 Hydraulic Relief)	Cadmium, Total Recoverable	µg/L	--	7.66	15.38
	Copper, Total Recoverable	µg/L	[1]	--	8.38
	Nickel, Total Recoverable	µg/L	--	6.84	13.43
	Zinc, Total Recoverable	µg/L	--	36.25	95.14
HR-3 (Ways 4 Hydraulic Relief)	Copper, Total Recoverable	µg/L	[1]	--	11.2
	Nickel, Total Recoverable[2]	µg/L	--	5.40	15.26

[1] Discharges shall achieve an annual average effluent concentration that is no greater than the running annual average of the receiving water concentration. The annual average of the effluent concentrations shall be calculated once each month and compared to the average of the receiving water concentrations for the same 12-month time period.

[2] These effluent limitations do not apply if the Discharger documents that the intake water concentration at the time of the discharge exceeds the effluent limitation. If the intake water concentration exceeds the effluent limitation, the Average Monthly and Maximum Daily effluent limitation shall be equal to the intake water concentration.

4. Discharge effluent limitations for Discharge Point Nos. M-2, M-3, and M-4 contained in the previous Order are summarized in Table F-5.

Table F-5. Previous Effluent Limits – Summary of Additional Effluent Limitations for Flood Dewatering

Discharge Location	Parameter	Units	Effluent Limitations
			Average Monthly
Flood Dewatering (Graving Dock, Building Ways 3, and Building Ways 4)	Copper, Total Recoverable	µg/L	12.8
	Nickel, Total Recoverable[1]	µg/L	13.60

[1] These effluent limitations do not apply if the Discharger documents that the Intake water concentration at the time of the discharge exceeds the effluent limitation. If the intake water concentration exceeds the effluent limitation, the Maximum Daily effluent limitation shall be equal to the intake water concentration.

5. The previous Order contained the following effluent limitation for industrial storm water:

Discharges of industrial contact storm water from the Facility shall achieve a rating of "Pass" for acute toxicity with compliance determined as specified in section VII.H of this Order.

6. Interim Effluent Limitations

a. Interim effluent limitations for Discharge Point Nos. HR-1, HR-2, and HR-3 contained in the previous Order were effective from September 1, 2009 – May 18, 2010, and. are summarized in Table F-6.

Table F-6. Previous Interim Effluent Limitations for Hydraulic Relief

Discharge Location	Parameter	Units	Interim Maximum Daily
HR-1 (Graving Dock Hydraulic Relief	Copper, Total Recoverable	µg/L	13.12
	Zinc, Total Recoverable	µg/L	362
HR-2 (Ways 3 Hydraulic Relief)	Cadmium, Total Recoverable	µg/L	15.38
	Copper, Total Recoverable	µg/L	66.84
	Nickel, Total Recoverable	µg/L	13.60
	Zinc, Total Recoverable	µg/L	331
HR-3 (Ways 4 Hydraulic Relief	Copper, Total Recoverable	µg/L	42.8
	Nickel, Total Recoverable	µg/L	15.26

b. Interim effluent limitations for Discharge Point Nos. M-2, M-2, and M-3 contained in the previous Order were effective from September 1, 2009 – May 18, 2010 and are summarized in Table F-7.

Table F-7. Previous Interim Effluent Limitations for Flood Dewatering

Discharge Location	Parameter	Units	Interim Maximum Daily
M-2 (Graving Dock Flood Dewatering)	Copper, Total Recoverable	µg/L	41.5
	Nickel, Total Recoverable	µg/L	18.7
M-3 (Ways 3 Flood Dewatering)	Copper, Total Recoverable	µg/L	25.9
M-4 (Ways 4 Flood Dewatering)	Copper, Total Recoverable	µg/L	72.8

D. Compliance Summary

The following table summarizes the violations of effluent limitations and facility incidents based on data collected from September 2009 through May 2016.

Table F-8. Compliance Summary

Date	Violation Type	Incident Summary
12/9/2015	Unauthorized Discharge	40-50 gallons of wash water from the floating dry dock discharged into San Diego Bay
12/3/2015	Unauthorized Discharge	Less than two pounds of blast dust was discharged to San Diego Bay
11/13/2015	Unauthorized Discharge	Less than a half pound of blast dust was discharged to San Diego Bay

Date	Violation Type	Incident Summary
12/29/2014	Unauthorized Discharge	Water discharged to San Diego Bay from a pipe near the wastewater treatment facility
12/17/2014	Deficient Monitoring	Storm water discharged to San Diego Bay was not sampled.
8/22/2014	Unauthorized Discharge	Three separate instances of sewage leakages from restroom R-3 that flowed to San Diego Bay carried on into September 2014
6/10/2014	Unauthorized Discharge	5,000 gallons of hydrostatic relief water bypassed part of the ion exchange treatment system and was discharged into San Diego Bay
5/15/2014	Unauthorized Discharge	Paint overspray into San Diego Bay along the Graving Dock caisson gate
6/9/2013	Unauthorized Discharge	500 gallons of fresh water from a broken fresh water main between Buildings 19 and 11 was discharged into San Diego Bay
5/25/2013	Unauthorized Discharge	Sewage from a leaking hose at the head of the Floating Dry-dock was discharged to San Diego Bay
1/20/2013	Unauthorized Discharge	30 gallons of rusty water overflowed into San Diego Bay
11/302012	Late Report	The third Quarter 2012 monitoring report was submitted late
10/29/2012	Unauthorized Discharge	10,000 gallons of saltwater was discharged to San Diego Bay from Pier 12
3/22/2012	Effluent Limitation Violation	The total recoverable zinc concentration of 43 µg/L exceeded the effluent limitation of 31.29 µg/L at HR-1.
12/12/2011	Deficient Monitoring	500 gallons of storm water held in a containment area was discharged into San Diego Bay and not sampled.
6/2/2011	Late Report	The April 2011 monitoring report was submitted late
5/3/2011	Late Report	The March 2011 and first quarter 2011 monitoring reports were submitted late
4/1/2011	Late Report	The February 2011 monitoring report was submitted late
3/18/2011	Unauthorized Discharge	Paint chips, debris, and abrasive dust was observed floating in San Diego Bay on the side of the floating dry dock

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260). This Order is also issued pursuant to Clean Water Act (CWA) section 402 and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). This Order shall serve as an NPDES permit waters authorizing the Discharger to discharge into waters of the U.S. at the discharge location described in Table 2 subject to the WDRs in this Order.

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code, division 13, chapter 3 (commencing with section 21100).

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The San Diego Water Board adopted a Water Quality Control Plan for the San Diego Basin (Basin Plan) on September 8, 1994. The Basin Plan was subsequently approved by the State Water Board on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. The Basin Plan was last amended by the San Diego Water Board on April 15, 2015. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Requirements of this Order implement the Basin Plan. Beneficial uses applicable to the San Diego Bay are as follows:

Table F-9. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
IX-1; M-1; M-2	San Diego Bay and Mouth of Chollas Creek	Existing: Industrial service supply (IND); navigation (NAV); contact water recreation (REC1); non-contact water recreation (REC2); commercial and sport fishing (COMM); preservation of biological habitats of special significance (BIOL); estuarine habitat (EST); wildlife habitat (WILD); preservation of rare, threatened or endangered species (RARE); marine habitat (MAR); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN), and shellfish harvesting (SHELL).

2. **Thermal Plan.** The State Water Board adopted the Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

3. **Sediment Quality Plan.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* (Sediment Quality Plan) on September 16, 2008, and it became effective on August 25, 2009. This plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. Requirements of this Order implement sediment quality objectives of this Plan.

4. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** U.S. EPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, U.S. EPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the

State. The CTR was amended on February 13, 2001. These rules contain federal water quality criteria for priority pollutants.

5. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the priority pollutant objectives established by the San Diego Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

6. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, and 2012. The State Water Board adopted the latest amendment on October 16, 2012, and it became effective on August 19, 2013. Ocean Plan biological characteristic water quality objectives have been included in this Oder as receiving water limitations to protect the beneficial uses of BIOL, COMM, EST, WILD, RARE, MAR, MIGR, SPWN, and SHELL. It is appropriate to use these Ocean Plan objectives because San Diego Bay and the Pacific Ocean are contiguous, have similar salinities, and have many of the same aquatic species.

7. **Antidegradation Policy.** Title 40 Code of Federal Regulations (40 CFR) section 131.12 requires that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16. Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The San Diego Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution 68-16.

8. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

9. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State, including protecting rare, threatened, or endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

10. **Uniform National Discharge Standards (UNDS).** In 1996, Congress passed legislation amending CWA section 312 to provide the Department Of Defense and the U.S. EPA

authority to jointly establish UNDS for incidental discharges from vessels of the Armed Forces in State waters and the contiguous zone. This comprehensive, three-phase, regulatory program applies to vessels of the Armed Forces including, but not limited to, the Navy, Military Sealift Command, Marine Corps, Army, Air Force, and Coast Guard. UNDS is designed to enhance environmental protection of coastal waters by creating protective standards to reduce environmental impacts associated with vessel discharges, stimulate the development of improved pollution control devices, and advance the development of environmentally sound ships by the Armed Forces. The Phase I final rule and preamble language, including a summary of the Phase I process and findings (64 Fed. Reg. 25126; 40 CFR part 1700), was published in the Federal Register on May 10, 1999. Phase I of UNDS determines the types of vessel discharges that require control by a Marine Pollution Control Device (MPCD) and those that do not require control, based on consideration of the anticipated environmental effects of the discharge and other factors listed in the CWA. In Phase I, the U.S. EPA and the Department of Defense identified 25 discharges to be controlled by MPCDs. Phase II of UNDS development focuses on promulgating MPCD performance standards for those vessel discharges identified during Phase I as requiring an MPCD. In this Phase, the Department of Defense and U.S. EPA are establishing discharge performance standards for different classes, types, and sizes of vessels. These standards are specific to existing vessels as well as future (new design) vessels and will be promulgated in batches for efficiency purposes. A draft rule proposing MPCD performance standards for the first batch of 11 discharges was promulgated on February 3, 2014. A Coastal Zone Management Act National Consistency Determination has been developed for the first batch and an Environmental Species Act consolation is underway. For the second batch of 11 discharges, federal and tribal consultations occurred in March 2016 and a Notice of Public Rulemaking is anticipated for Fall 2016 Phase III of UNDS development will focus on establishing requirements for the design, construction, installation, and use of MPCDs. After completion of Phase III, states will be prohibited from regulating these UNDS discharges. In anticipation of the completion of UNDS, this Order does not regulate naval vessel discharges with applicable MPCDs (as BMPs) identified in the draft UNDS rule.

11. **Vessel General Permit.** U.S. EPA issued the Vessel General Permit (VGP) on March 28, 2013, with an effective date of December 19, 2013. The VGP provides NPDES permit coverage for ballast water and for other discharges incidental to the normal operation of commercial vessels greater than or equal to 79 feet in length and operating as a means of transportation. The U.S. EPA issued a Small Vessel General Permit (sVGP) for discharges incidental to the normal operation of small vessels on August 21, 2014. The sVGP provides NPDES permit coverage for small vessels defined as non-military, non-recreational vessels less than 79 feet in length and operating as a means of transportation. Discharges from vessels not operating as a means of transportation as described below are regulated by this Order:

    a. Vessels in a dry dock are not operating as a means of transportation.

    b. Floating dry docks have been determined to be operating as a means of transportation when they are docking or undocking a vessel inclusive of the transition from that operation. Floating dry docks are not operating as a means of transportation when docked at the Facility. Ballast water and other discharges from floating dry docks which are docked at the Facility are regulated by this Order.

D. Impaired Water Bodies on the CWA section 303(d) List

Under Section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On July 30, 2015, the U.S. EPA approved a revised 303(d) List of Water Quality Limited Segments in California. San Diego Bay, as a whole, is listed as impaired for polychlorinated biphenyls (PCBs). Additional portions of San Diego Bay are listed as impaired for additional parameters. Portions of San Diego Bay applicable to the Facility include, "San Diego Bay Shoreline, between Sampson and 28th Streets" and "San Diego Bay Shoreline, near Chollas Creek". These portions of San Diego Bay are listed in the 303(d) list as impaired for: benthic community effects, copper, mercury, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), sediment toxicity, and zinc. The table below lists San Diego Bay impairments near the Facility:

Table F-10. San Diego Bay CWA 303(d) Impairments near the Facility

Waterbody	Location	Constituent
San Diego Bay	San Diego Bay	Polychlorinated biphenyls (PCBs)
San Diego Bay	San Diego Bay Shoreline, between Sampson and 28th Streets	Copper, Mercury, Zinc, Polycyclic Aromatic Hydrocarbons (PAHs), Polychlorinated Biphenyls (PCBs) in Sediment
San Diego Bay	San Diego Bay Shoreline, near Chollas Creek	Benthic Community Effects, Sediment Toxicity

An applicable Total Maximum Daily Load (TMDL) for these impairments has not yet been adopted by the San Diego Water Board and approved by U.S. EPA. Investigative Order No. R9-2015-0058 was issued on October 26, 2015, to NASSCO, the California Department of Transportation, the City of La Mesa, the City of Lemon Grove, the City of San Diego, the San Diego Unified Port District, and the U.S. Navy to address the "San Diego Bay Shoreline, Mouth of Chollas Creek".

Cleanup and Abatement Order No. R9-2012-0024 was issued to the Discharger, BAE Systems San Diego Ship Repair, the City of San Diego, Campbell Industries, San Diego Gas and Electric, the U.S. Navy, the San Diego Unified Port District on March 14, 2012, to address the “San Diego Bay Shoreline, between Sampson and 28th Streets”. The *South Shipyard Remedial Action Plan Implementation Report, San Diego Shipyard Sediment Site – South Shipyard* was submitted to the Water Board in April 2015 and documents and verifies the completion of remedial activities at the South Shipyard portion of the San Diego Shipyard Sediment Site. The report documents South Shipyard compliance with Directives A.2.a and A.2.b of the Cleanup and Abatement Order, while compliance with Directive A.2.c will be determined pending post-remedial monitoring to occur 2 and 5 years after completion of cleanup work at the entire San Diego Shipyard Sediment Site.

E. Other Plans, Polices and Regulations

1. **Bays and Estuaries Policy**. The State Water Board adopted a Water Quality Control Policy for Enclosed Bays and Estuaries of California (Bays and Estuaries Policy) on May 16, 1974 (last amended in 1995). The Bays and Estuaries Policy establishes principles for management of water quality, quality requirements for waste discharges, discharge prohibitions, and general provisions to prevent water quality degradation and to protect

the beneficial uses of waters of enclosed bays and estuaries. These principles, requirements, prohibitions and provisions have been incorporated into this Order.

a. The Bays and Estuaries Policy contains the following principle for management of water quality in enclosed bays and estuaries, which includes San Diego Bay:

   i. The discharge of municipal wastewaters and industrial process waters (exclusive of cooling water discharges) to enclosed bays and estuaries shall be phased out at the earliest practicable date. Exceptions to this provision may be granted by the San Diego Water Board only when the Board finds that the wastewater in question would consistently be treated and discharged in such a manner that it would enhance the quality of receiving waters above that which would occur in the absence of the discharge. For the purpose of this policy, ballast waters and innocuous non-municipal wastewaters such as clear brines, washwater, and pool drains are not necessarily considered industrial process wastes, and may be allowed by the San Diego Water Board under waste discharge requirements that provide protection to the beneficial uses of the receiving water.

   ii. The Bays and Estuaries Policy also prohibits the discharge or by-passing of untreated wastes. This Order prohibits the discharge and by-passing of untreated waste except for non-contact fire protection system water, hydrostatic relief water, and flood water. For the purpose of the Bays and Estuaries Policy and this Order, the discharges of fire protection water; potable water leaks from hoses, and steam condensate leaks from hoses effluent will be considered innocuous non-municipal wastewaters and, as such, will not be considered industrial process wastes.

b. The following Principles for the Management of Water Quality in Enclosed Bays and Estuaries, as stated in the Bays and Estuaries Policy, apply to all of California's enclosed bays and estuaries including San Diego Bay:

   i. Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge.

   ii. Bay or estuarine outfall and diffuser systems shall be designed to achieve the most rapid initial dilution practicable to minimize concentrations of substances not removed by source control or treatment.

   iii. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.

   iv. Waste discharges shall not cause a blockage of zones of passage required for the migration of anadromous fish.

   v. Non-point sources of pollutants shall be controlled to the maximum practicable extent.

The San Diego Water Board has considered the Principles for the Management of Water Quality in Enclosed Bays in Estuaries, in adopting this Order. The terms and conditions of this Order are consistent with the Principles for the Management of Water Quality in Enclosed Bays and Estuaries.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the U.S. The control of

pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A.** This prohibition is based on the requirements of the Basin Plan.
2. **Discharge Prohibition III.B. and III.C.** Ship repair and maintenance activities may result in the discharge of pollutants and wastes to waters of the U.S. Discharge Prohibition III.B prohibits the discharge of wastes associated with ship repair and maintenance activities. These prohibitions are based on the requirements of the Enclosed Bays and Estuaries Policy and 40 CFR section 122.21(a) and Water Code section 13260. Water Code section 13260 requires filing an application and Report of Waste Discharge before a discharge can occur. Discharges not described in the application and Report of Waste Discharge, and subsequently in this Order, are prohibited.
3. **Discharge Prohibition III.D.** This prohibition is based on the requirements of the Enclosed Bays and Estuaries Policy.
4. **Discharge Prohibition III.E**. This prohibition is based on the requirements of the Bays and Estuaries Policy and is consistent with prohibitions established for similar facilities.
5. **Discharge Prohibition III.F.** This Order prohibits the discharge of hazardous substances equal to or in excess of reportable quantities listed in 40 CFR part 117 and/or CFR part 302.
6. **Discharge Prohibition III.G.** This prohibition is based on the requirements of the Bays and Estuaries Policy and is consistent with prohibitions established for similar facilities.
7. **Discharge Prohibition III.H.** This prohibition is retained from the previous Order No. R9-2009-0099 based on the 303(d) listing for PCB compounds in San Diego Bay and prohibits the discharge of PCBs to the Bay.
8. **Discharge Prohibition III.I.** This prohibition is retained from the previous Order No. R9-2009-0099 because the intake water credit effluent limitation for copper is a maximum daily effluent limitation without an average monthly effluent limitation.
9. **Discharge Prohibition III.J.** This requirement prohibits the addition of chlorine or other additive pollutants to the fire protection system, potable water system, steam system, or dry dock ballast tanks to ensure that the minimum of pollutants is discharged.
10. **Discharge Prohibition III.K.** Waste discharges from ship repair and maintenance activities on ships, piers, and shore side facilities can cause high concentrations of copper, zinc, other metals, and oil and grease in industrial storm water runoff. High concentrations of these pollutants in the industrial storm water runoff can be toxic to aquatic organisms. Discharge Prohibition III.E is based on the toxicity requirements contained in the Basin Plan and prohibits the discharge of the first 1 inch (first flush) of storm water runoff from Industrial High Risk Areas, as defined in section IV.A of this Order, unless the discharge can be demonstrated to meet the effluent limitations of this Order.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

Section 301(b) of the CWA and implementing U.S. EPA permit regulations at 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharges authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR section 125.3.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

a. Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including Biochemical Oxygen Demand 5-day @ 20 ºC (BOD), Total Suspended Solids (TSS), fecal coliform, pH, and oil and grease. The BCT standard is established after considering the “cost reasonableness” of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires U.S. EPA to develop effluent limitations, guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of best professional judgment (BPJ) to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the San Diego Water Board must consider specific factors outlined in 40 CFR section 125.3.

2. Applicable Technology-Based Effluent Limitations

a. The State Water Board adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on October 16, 2012, which became effective on August 19, 2013. Although the Ocean Plan is not directly applicable to enclosed bays, such as San Diego Bay, the salinity and beneficial uses of San Diego Bay are similar to those of the ocean waters of the State. Therefore, in order to protect the beneficial uses of San Diego Bay, the previous Order used the Ocean Plan as a reference for developing discharge specifications, receiving water prohibitions, and narrative limitations and to supplement the provisions contained in the CTR, the SIP, and the Bays and Estuaries Policy.

The Ocean Plan establishes water quality objectives, general requirements for management of waste discharged to the ocean, effluent quality requirements for waste discharges, discharge prohibitions, and general provisions. Further, Table 2 of the Ocean Plan establishes technology-based effluent limitations for discharges for which ELGs have not been established pursuant to sections 301, 302, 304, or 306 of the federal CWA.

Based on Table 2 of the Ocean Plan, Board Order No. R9-2009-0099 established numeric effluent limitations for the discharge of industrial discharges from the facility.

The effluent limitations contained in Table 2 of the Ocean Plan are summarized below:

Table F-11. Ocean Plan Table 2 Effluent Limitations

Parameter	Units	Table 2 Effluent Limitations		
		Average Monthly	Weekly Average	Instantaneous Maximum
Oil and Grease	mg/L	25	40	75
Settleable Solids	mL/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	Within 6.0 - 9.0 at all times.		

Effluent limitations for oil and grease, settleable solids, turbidity, and pH have been carried over based on anti-backsliding requirements.

b. In addition to numeric TBELs and in accordance with 40 CFR 122.44(k), the previous Order determined that the implementation of BMPs for the discharge of industrial wastes associated with ship construction, repair and maintenance activities were appropriate. To carry out the purpose and intent of the CWA, the previous Order required the Discharger to develop and implement a BMP plan, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances.

c. The requirement to implement an appropriate BMP plan for non-storm water discharges is carried over from Order No. R9-2009-0099. The BMP plan shall be incorporated into the Facility's Storm Water Pollution Prevention Plan (SWPPP).

d. The requirement to implement appropriate BMPs for shipyard activities to prevent discharges of waste is carried over from Order No. R9-2009-0099, and in the form of a SWPPP.

e. In addition to the retention of BMPs in a SWPPP, this Order establishes Numeric Action Levels (NALs) for storm water from areas identified as Industrial High Risk Areas. The statewide Industrial Storm Water General Permit, *General Permit for Storm Water Discharges Associated with Industrial Activities*, Order No. 2014-00570DWQ, NPDES No. CAS000001, was adopted on April 1, 2014, by the State Water Board and became effective on July 1, 2015. This statewide Industrial Storm Water General Permit contains NALs based on benchmarks in U.S. EPA's *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity* (MSGP) which became effective May 27, 2009. Consistent with the intent of the State Water Board, this Order establishes NALs with a tiered compliance strategy. The San Diego Water Board finds that the State Water Board's NALs

serve as an appropriate set of technology-based, measureable criteria that demonstrate compliance with BAT/BCT.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

CWA Section 301(b) and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 CFR requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State's narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other State plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The beneficial uses applicable to the San Diego Bay and the mouth of Chollas Creek contained in the Basin Plan are summarized in section III.C.1 of this Fact Sheet. The Basin Plan includes both narrative and numeric water quality objectives applicable to the receiving water.

The CTR promulgated toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the State. Priority pollutant water quality criteria in the CTR are applicable to discharges to San Diego Bay. The CTR contains both saltwater and freshwater criteria. Because a distinct separation generally does not exist between freshwater and saltwater aquatic communities, the following apply: in accordance with 40 CFR section 131.38(c)(3), freshwater criteria apply to areas where salinities are at or below 1 part per thousand (ppt) 95 percent or more of the time. The San Diego Water Board has determined that because the discharges are to San Diego Bay, saltwater CTR criteria are applicable. The CTR criteria for saltwater aquatic life or human health for consumption of organisms, whichever is more stringent, are used to prescribe the effluent limitations in this Order to protect the beneficial uses of San Diego Bay, a water of the U.S. in the vicinity of the discharges.

The SIP procedures for implementation of CTR and NTR criteria are applicable to non-storm water discharges. Discharges from the Facility to San Diego Bay include discharges treated hydrostatic relief water and Ways dewatering, floating dry dock

ballast water, and graving dock dewatering. A Reasonable Potential Analysis (RPA) was conducted for the non-storm water discharges to San Diego Bay using all the available data.

The table below summarizes the applicable water quality criteria/objectives for priority pollutants in the effluent or receiving water. These criteria were used in conducting the RPAs for this Order.

Table F-12. Applicable CTR/NTR Water Quality Criteria

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Antimony	4,300	Not Applicable		--	--	Not Applicable	4,300
Arsenic	36			69	36		--
Beryllium	No Criteria			--	--		--
Cadmium	9.4			42	9.4		--
Chromium (III)	No Criteria			--	--		--
Chromium (VI)	50			1,108	50		--
Copper	3.7			5.8	3.7		--
Lead	8.5			221	8.5		--
Mercury	0.051			--	--		0.051
Nickel	8.3			75	8.3		4,600
Selenium	71			291	71		--
Silver	2.2			2.2			--
Thallium	6.3			--	--		6.3
Zinc	86			95	86		--
Cyanide	1			1	1		220,000
Asbestos	No Criteria			--	--		--
2,3,7,8 TCDD	1.40E-08			--	--		1.40E-08
TCDD Equivalents	1.40E-08			--	--		1.40E-08
Acrolein	780			--	--		780
Acrylonitrile	0.66			--	--		0.66
Benzene	71			--	--		71
Bromoform	360			--	--		360
Carbon Tetrachloride	4.4			--	--		4.4
Chlorobenzene	21,000			--	--		21,000
Chlorodibromomethane	34			--	--		34
Chloroethane	No Criteria			--	--		--
2-Chloroethylvinyl ether	No Criteria			--	--		--

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Chloroform	No Criteria			--	--		--
Dichlorobromomethane	46			--	--		46
1,1-Dichloroethane	No Criteria			--	--		--
1,2-Dichloroethane	99			--	--		99
1,1-Dichloroethylene	3.2			--	--		3.2
1,2-Dichloropropane	39			--	--		39
1,3-Dichloropropylene	1,700			--	--		1,700
Ethylbenzene	29,000			--	--		29,000
Methyl Bromide	4,000			--	--		4,000
Methyl Chloride	No Criteria			--	--		--
Methylene Chloride	1600			--	--		1,600
1,1,2,2-Tetrachloroethane	11			--	--		11
Tetrachloroethylene	8.9			--	--		8.85
Toluene	200,000			--	--		200,000
1,2-Trans-Dichloroethylene	140,000			--	--		140,000
1,1,1-Trichloroethane	No Criteria			--	--		--
1,1,2-Trichloroethane	42			--	--		42
Trichloroethylene	81			--	--		81
Vinyl Chloride	525			--	--		525
2-Chlorophenol	400			--	--		400
2,4-Dichlorophenol	790			--	--		790
2,4-Dimethylphenol	2,300			--	--		2,300
4,6-dinitro-o-resol (aka 2-methyl-4,6-Dinitrophenol)	765			--	--		765
2,4-Dinitrophenol	14,000			--	--		14,000
2-Nitrophenol	No Criteria			--	--		--
4-Nitrophenol	No Criteria			--	--		--
3-Methyl-4-Chlorophenol (aka P-chloro-m-resol)	No Criteria			--	--		--
Pentachlorophenol	7.9			13	7.9		8.2
Phenol	4,600,000			--	--		4,600,000
2,4,6-Trichlorophenol	6.5			--	--		6.5
Acenaphthene	2,700			--	--		2,700
Acenaphthylene	No Criteria			--	--		--

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Anthracene	110,000			--	--		110,000
Benzidine	0.00054			--	--		0.00054
Benzo(a)Anthracene	0.049			--	--		0.049
Benzo(a)Pyrene	0.049			--	--		0.049
Benzo(b)Fluoranthene	0.049			--	--		0.049
Benzo(ghi)Perylene	No Criteria			--	--		--
Benzo(k)Fluoranthene	0.049			--	--		0.049
Bis(2-Chloroethoxy)Methane	No Criteria			--	--		--
Bis(2-Chloroethyl)Ether	1.4			--	--		1.4
Bis(2-Chloroisopropyl)Ether	170,000			--	--		170,000
Bis(2-Ethylhexyl)Phthalate	5.9			--	--		5.9
4-Bromophenyl Phenyl Ether	No Criteria			--	--		--
Butylbenzyl Phthalate	5,200			--	--		5,200
2-Chloronaphthalene	4,300			--	--		4,300
4-Chlorophenyl Phenyl Ether	No Criteria			--	--		--
Chrysene	0.049			--	--		0.049
Dibenzo(a,h)Anthracene	0.049			--	--		0.049
1,2-Dichlorobenzene	17,000			--	--		17,000
1,3-Dichlorobenzene	2,600			--	--		2,600
1,4-Dichlorobenzene	2,600			--	--		2,600
3,3 Dichlorobenzidine	0.08			--	--		0.077
Diethyl Phthalate	120,000			--	--		120,000
Dimethyl Phthalate	2,900,000			--	--		2,900,000
Di-n-Butyl Phthalate	12,000			--	--		12,000
2,4-Dinitrotoluene	9.1			--	--		9.1
2,6-Dinitrotoluene	No Criteria			--	--		--
Di-n-Octyl Phthalate	No Criteria			--	--		--
1,2-Diphenylhydrazine	0.54			--	--		0.54
Fluoranthene	370			--	--		370
Fluorene	14,000			--	--		14,000
Hexachlorobenzene	0.00077			--	--		0.00077
Hexachlorobutadiene	50			--	--		50
Hexachlorocyclopentadiene	17,000			--	--		17,000

Constituent	Selected Criteria	Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Hexachloroethane	8.9			--	--		8.9
Indeno(1,2,3-cd)Pyrene	0.049			--	--		0.049
Isophorone	600			--	--		600
Naphthalene	No Criteria			--	--		--
Nitrobenzene	1,900			--	--		1,900
N-Nitrosodimethylamine	8.1			--	--		8.1
N-Nitrosodi-n-Propylamine	1.4			--	--		1.4
N-Nitrosodiphenylamine	16			--	--		16
Phenanthrene	No Criteria			--	--		--
Pyrene	11,000			--	--		11,000
1,2,4-Trichlorobenzene	No Criteria			--	--		--
Aldrin	0.00014			1.3			0.00014
alpha-BHC	0.013			--	--		0.013
beta-BHC	0.046			--	--		0.046
gamma-BHC	0.063			0.16	--		0.063
delta-BHC	No Criteria			--	--		--
Chlordane	0.00059			0.09	0.004		0.00059
4,4'-DDT	0.00059			0.13	0.001		0.00059
4,4'-DDE (linked to DDT)	0.00059			--	--		0.00059
4,4'-DDD	0.00084			--	--		0.00084
Dieldrin	0.00014			0.71	0.0019		0.00014
alpha-Endosulfan	0.0087			0.034	0.0087		240
beta-Endolsulfan	0.0087			0.034	0.0087		240
Endosulfan Sulfate	240			--	--		240
Endrin	0.0023			0.037	0.0023		0.81
Endrin Aldehyde	0.81			--	--		0.81
Heptachlor	0.00021			0.053	0.0036		0.00021
Heptachlor Epoxide	0.00011			0.053	0.0036		0.00011
PCBs sum (2)	0.00017			--	0.03		0.00017
Toxaphene	0.0002			0.21	0.0002		0.00075

b. Section 1.4.2 of the SIP establishes procedures for granting mixing zones and the assimilative capacity of the receiving water. Before establishing a dilution credit for a discharge, it must first be determined if, and how much, receiving water is available to dilute the discharge.

In the absence of a dilution credit, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are applied end-of-pipe with no allowance for dilution within the receiving water.

Dilution was not requested by the Discharger. No supporting documentation for granting dilution was submitted. Thus, no dilution was applied in the implementation of WQBELs for discharges associated with the Facility.

3. Determining the Need for WQBELs

a. Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard.

The San Diego Water Board conducted the RPA in accordance with section 1.3 of the SIP. A summary of the results for the parameters which demonstrated reasonable potential, for each applicable discharge, is provided in the table below.

Table F-13. Summary of RPA Results

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason[1]
IX-1	Copper	2.8	10.0	3.7	B>C & pollutant detected in effluent
M-1	Copper	3.8	10.0	3.7	MEC & B>C
M-2	Copper	22	10.0	3.7	MEC & B>C
	Zinc	90	23	86	MEC>C

[1] MEC = Maximum Effluent Concentration; B = Background Concentration; C = Criteria (Water Quality)
[2] Step 6 of section 1.3 of the SIP states that if B is greater than C and the pollutant is detected in the effluent, an effluent limitation is required and the analysis for the subject pollutant is complete.

4. WQBEL Calculations

a. **Ballast Water.** As shown in Table F-13, the San Diego Water Board finds that discharges of ballast water from the dry dock at Discharge Point No. M-1 have the reasonable potential to exceed water quality criteria for copper. However, section 4.2.3 of the VGP Fact Sheet states that "*vessel operators cannot install equipment onboard their vessels until that equipment has been approved by the Coast Guard and, in some cases, their class societies. Hence, EPA cannot require use of equipment or technologies that would conflict with the requirements of these organizations without fully understanding the implications of such requirements. These factors create a situation where, at this time, it is generally not feasible for EPA to calculate numeric effluent limitations to effectively regulate vessel discharges."* Consistent with the VGP, the San Diego Water Board is not establishing numeric effluent limitations for ballast water in this Order. This Order contains a provision requiring the Discharger to continue the implementation of BMPs to reduce

the discharge of pollutants from ballast water. In addition, this Order prohibits the addition of chlorine or other additives to the ballast water tanks.

b. The WQBEL for pH is based on the water quality objective contained in the Basin Plan, which states, “In bays and estuaries the pH shall not be depressed below 7.0 nor raised above 9.0.” The WQBEL for temperature is based on Part 4.B.(1) of the Thermal Plan.

c. Effluent limitations for copper and zinc were calculated in accordance with section 1.4 of the SIP. The following paragraphs describe the methodology used for calculating effluent limitations for these parameters.

d. Effluent Limitation Calculations. In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$ECA_{acute} = CMC$ $ECA_{chronic} = CCC$

For the human health, agriculture, or other long-term criterion/objective, a dilution credit can be applied. The ECA is calculated as follows:

$ECA_{HH} = HH + D (HH - B)$

where:

ECA_{acute} = effluent concentration allowance for acute (1-hour average) toxicity criterion

$ECA_{chronic}$ = effluent concentration allowance for chronic (4-day average) toxicity criterion

ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective

CMC = criteria maximum concentration (1-hour average)

CCC = criteria continuous concentration (4-day average, unless otherwise noted)

HH = human health, agriculture, or other long-term criterion/objective

D = dilution credit

B = maximum receiving water concentration

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL). Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL}[min(M_A ECA_{acute}, M_C ECA_{chronic})]$$

$$MDEL = mult_{MDEL}[min(M_A ECA_{acute}, M_C ECA_{chronic})]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: mult AMEL = statistical multiplier converting minimum LTA to AMEL
mult MDEL = statistical multiplier converting minimum LTA to MDEL
M A = statistical multiplier converting CMC to LTA
M C = statistical multiplier converting CCC to LTA

WQBELs were calculated for copper and zinc as follows in Tables F-14 and F-15, below.

Table F-14. WQBEL Calculations for Copper

	IX-1		M-2	
	Acute	**Chronic**	**Acute**	**Chronic**
Criteria (µg/L)[1]	5.8	3.7	5.8	3.7
Dilution Credit	No Dilution	No Dilution	No Dilution	No Dilution
ECA	5.8	3.7	5.8	3.7
ECA Multiplier	0.41	0.62	0.40	0.60
LTA	2.4	2.3	2.3	2.3
AMEL Multiplier (95th%)	[2]	1.40	[2]	1.47
AMEL (µg/L)	[2]	**3.2**	[2]	**3.2**
MDEL Multiplier (99th%)	[2]	2.43	[2]	2.77
MDEL (µg/L)	[2]	**5.6**	[2]	**5.7**

[1] CTR Aquatic Life Criteria
[2] Limitations based on chronic LTA (Acute LTA > Chronic LTA)

Table F-15. WQBEL Calculations for Zinc

	M-2	
	Acute	**Chronic**
Criteria	95	86
Dilution Credit	No Dilution	No Dilution
ECA	95	86
ECA Multiplier	0.51	0.70
LTA	48	60
AMEL Multiplier (95th%)	1.28	[2]
AMEL (µg/L)	**62**	[2]
MDEL Multiplier (99th%)	1.98	[2]
MDEL (µg/L)	**95**	[2]

1 CTR Aquatic Life Criteria
2 Limitations based on acute LTA (Chronic LTA > Acute LTA)

e. A summary of the applicable WQBELs for the Discharger are summarized below:

i. The applicable CTR WQBELs are summarized in the following table:

Table F-16. Summary of CTR WQBELs

Discharge Locations	Parameter	Units	Effluent Limitations	
			Average Monthly[1]	Maximum Daily
IX-1	Copper	µg/L	3.2	5.6
M-2	Copper	µg/L	3.2	5.7
	Zinc	µg/L	62	95

[1] Average Monthly Effluent Limitations are not applicable for graving dock flood water discharges (M-2) unless there is a discharge more than one day in a 30 day period due to the short term and intermittent nature of the discharge.

ii. All discharges shall maintain a pH of between 7.0 and 9.0 standard units at all times.

iii. At no time shall any discharge be greater than 20ºF over the natural temperature of the receiving water.

5. Intake Water Credits

Section 1.4.4 of the SIP provides that the San Diego Water Board may consider priority pollutants in intake water, through the application of intake water credits. By request of the Discharger, the previous order established intake water credits for certain discharges, including discharges of hydrostatic relief water at Discharge Point Nos. HR-1, HR-2 and HR-3, and flood water from the building ways and graving dock at Discharge Point Nos. M-2, M-3, and M-4 for copper and nickel. The discharges of hydrostatic relief water at Discharge Point Nos. HR-1, HR-2 and HR-3, and flood water from the building ways at Discharge Point Nos. M-3 and M-4 have been combined into the ion exchange treatment system discharging at Discharge Point No. IX-1.

The SIP gives the San Diego Water Board the discretion to allow intake water credits. Intake water credits are not appropriate for copper at Discharge Point No. IX.1 because the Maximum Effluent Concentration (MEC) for copper is well below the water quality criteria, the background concentration, and the effluent limitations established by this Order. Intake water credits are not appropriate for nickel at Discharge Point No. IX-1 because no reasonable potential was determined for nickel at Discharge Point IX.-1.

Reasonable potential was again determined at Discharge Point No. M-2 for copper, however there is no longer reasonable potential for nickel. Effluent data indicates that the Discharger cannot comply with applicable WQBELs for copper (effluent data ranges from 4.2 µg/L to 22 µg/L, with an average of 9.4 µg/L). This Order continues the application of intake water credits for copper at Discharge Point No. M-2.

The previous Order established intake water credits at Discharge Point No. M-2 based on the background copper concentration of 12.8 µg/L, applied as a maximum daily effluent limitations. The maximum effluent concentration for copper within the receiving water from September 2009 through February 2016 was 10.0 µg/L on February 22, 2011. As such, this Order establishes an intake water credit of 10.0 µg/L for discharges from Discharge Point No. M-2 as a daily maximum effluent limitation.

6. Whole Effluent Toxicity (WET)

a. Background and Rationale

The Basin Plan defines toxicity as the adverse response of organisms to chemicals or physical agents.

The Basin Plan establishes a narrative water quality objective for toxicity:

"All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life."

Order No. R9-2009-0099 established acute toxicity effluent limitations for all discharges. Available acute toxicity data from 2009 through 2016 do not indicate the presence of acute toxicity. Available chronic toxicity data from 2009 through 2016 do not indicate the presence of chronic toxicity. However, reasonable potential for chronic toxicity has been established for Discharge Point No. IX-1 due to copper and for Discharge Point No. M-2 for copper and zinc being present in the discharge of the waters at concentrations greater than applicable aquatic life water quality criteria.

U.S. EPA Region 9 has informed San Diego Water Board staff that the application of chronic toxicity monitoring and effluent limitations for all discharges are more desirable than acute toxicity because chronic toxicity is more conservative and provides a better indicator of chronic effects to organisms in the receiving water, other than percent survival. Chronic effects, such as detrimental physiological responses (affecting fertilization, growth, reproduction, etc.) may be present, even when acute effects such as the death of an organism are not apparent. The use of chronic toxicity allows for a more accurate determination of the narrative water quality objective, which specifies *"detrimental physiological responses"*. Many detrimental physiological responses are not addressed when the test is limited to simply percent survival.

Based on the U.S. EPA Region 9 guidance, chronic toxicity monitoring and effluent limitations are established in this Order for discharges at the Facility. Because chronic toxicity is considered to be a more sensitive indicator of toxicity, and the monitoring of all industrial process wastewater sample locations for both acute and chronic toxicity would be costly and redundant, the monitoring requirements and effluent limitations for acute toxicity have been removed for industrial process water based on the application of the more conservative chronic toxicity requirements. If the Discharger complies with effluent limitations for chronic toxicity, they will achieve water quality greater than that necessary to achieve compliance with acute toxicity effluent limitations.

The San Diego Water Board has considered the following information in developing toxicity monitoring and effluent limitations:

- Discussions with U.S. EPA Region 9.
- U.S. EPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document, An Additional Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data* (EPA 833-R-10-003).
- U.S. EPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, An Additional*

Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data (EPA 833-R-10-004).

• State Water Board's 2015 Ocean Plan.

• The narrative water quality for objective for toxicity contained in the Water Quality Control Plan for the San Diego Basin (Basin Plan).

• An interpretation of applicable State and federal regulations.

Chronic toxicity monitoring requirements and effluent limitations have been established for industrial storm water, ion exchange system, and graving dock flood water discharges demonstrated to have toxic pollutants in toxic concentrations. These chronic toxicity requirements are consistent with U.S. EPA's Test of Significant Toxicity (TST) hypothesis approach. The chronic toxicity effluent limitations are expressed as "Pass" for the median monthly summary results and as "Pass" or "<50% Effect" for each maximum daily individual result.

This Order also requires the Discharger to implement BMPs to prevent or eliminate toxicity, investigate the causes of any toxicity, and identify and implement corrective actions to reduce or eliminate effluent toxicity.

D. Final Effluent Limitation Considerations

1. Applicable TBELs and WQBELs described in sections IV.B and IV.C of this Fact Sheet have been applied in this Order. Both WQBELs and TBELs for pH were applicable the discharges (6.0 – 9.0 standard units and 7.0 – 9.0 standard units, respectively). To insure the protection of water quality, the more stringent lower and upper limitations for pH have been applied as the final effluent limitations in this Order.

2. Discharges from the Facility shall not exceed the effluent limitations summarized below:

Table F-17. Effluent Limitations for All Discharges

Parameter	Units	Effluent Limitations			
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	40	75
Settleable Solids	mL/L	1.0	1.5	1.5	3.0
Turbidity	NTU	75	100	100	225
pH	pH units	--	--	--	[1]
Temperature	^{0}F	--	--	--	[2]
Chronic Toxicity	Pass or Fail	--	--	[3]	--

[1] Within limits of 7.0 - 9.0 at all times

[2] At no time shall any discharge be greater than 20^{0}F over the natural temperature of the receiving water.

[3] Discharges shall achieve compliance with chronic toxicity effluent limitations as specified in section VII.I of this Order.

3. Discharges from the Facility shall meet the location-specific effluent limitations specified below:

Table F-18. Summary of Final Effluent Limitations for Specific Discharge Locations

Discharge Locations	Parameter	Units	Effluent Limitations	
			Average Monthly	Maximum Daily
IX-1	Copper, Total Recoverable	µg/L	3.2	5.6
M-2	Copper, Total Recoverable	µg/L	[1]	10.0
	Zinc, Total Recoverable	µg/L	[1]	95

[1] Average Monthly Effluent Limitations are not applicable for the flood water discharges (M-2, 3, and 4) due to the short term and intermittent nature of the discharges.

4. Satisfaction of Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed.

Numeric effluent limitations have been removed for floating dry dock ballast water (M-1) because of new information pursuant to CWA section 402(o)(2)(B)(i). The floating dry dock is a vessel regulated under the VGP. Section 4.2.3 of the VGP Fact Sheet states that "*vessel operators cannot install equipment onboard their vessels until that equipment has been approved by the Coast Guard and, in some cases, their class societies. Hence, EPA cannot require use of equipment or technologies that would conflict with the requirements of these organizations without fully understanding the implications of such requirements. These factors create a situation where, at this time, it is generally not feasible for EPA to calculate numeric effluent limitations to effectively regulate vessel discharges."* During the previous permit cycle the VGP was issued by U.S. EPA. For the same reasons described by U.S. EPA in the VGP, the San Diego Water Board is not establishing numeric effluent limitations for ballast water in this Order. This Order instead contains a provision requiring the Discharger to continue the implementation of BMPs to reduce or prevent the discharge of pollutants from ballast water. In addition, this Order prohibits the addition of chlorine or other pollutant additives to the ballast water tanks. Removal of the limitations is not expected to negatively impact water quality.

As discussed in section IV.C.5 of this Fact Sheet, discharges from the Facility did not contain reasonable potential for acute toxicity. Further, this Order establishes effluent limitations for chronic toxicity for discharges of storm water, ion exchange treatment system discharge, and graving dock flood water at Discharge Point Nos. SW-1, SW-2, IX-1, and M-2. Chronic toxicity effluent limitations are protective of acute toxicity. The removal of the acute toxicity effluent limitations are consistent with State and federal anti-backsliding requirements and is not expected to negatively impact water quality.

Reasonable potential was not found for nickel in discharges of graving dock flood water from Discharge Point No. M-2 or for nickel, cadmium, or zinc in discharges from the ion exchange treatment system at Discharge Point No. IX.1 so these effluent limitations have been removed from this Order. The removal of these effluent limitations for nickel at Discharge Point No. M-2 and nickel, cadmium, and zinc at Discharge Point No. IX-1 is consistent with State and federal anti-backsliding requirements and is not expected to negatively impact water quality.

With the exception of the removal of effluent limitations discussed above, discharge prohibitions, and specifications in this Order are at least as stringent as the effluent limitations in Order No. R9-2009-0099 and meet State and federal anti-backsliding requirements.

5. **Satisfaction of Antidegradation Policies**

WDRs for the Discharger must conform with federal and State antidegradation policies provided at 40 CFR 131.12 and in State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. The antidegradation policies require that beneficial uses and the water quality necessary to maintain those beneficial uses in the receiving waters of the discharge shall be maintained and protected, and, if existing water quality is better than the quality required to maintain beneficial uses, the existing water quality shall be maintained and protected unless allowing a lowering of water quality is necessary to accommodate important economic and social development or is consistent with maximum benefit to the people of California. When a significant lowering of water quality is allowed by the San Diego Water Board, an antidegradation analysis is required in accordance with the State Water Board's Administrative Procedures Update (July 2, 1990), *Antidegradation Policy Implementation for NPDES Permitting*.

This Order establishes the same BMP requirements as the federal VGP for ballast water discharges from the dry dock in lieu of numeric effluent limitations because the floating dry dock is a vessel already regulated by the VGP. This Order also prohibits the addition of any chlorine or other pollutant additives to the ballast water tanks. Implementation of BMPs in lieu of numeric effluent limitations is expected to reduce or prevent the discharge of pollutants to San Diego Bay and this change is consistent with State and federal antidegradation requirements.

This Order establishes chronic toxicity effluent limitations and removes acute toxicity effluent limitations for Discharge Points SW-1, SW-2, IX-1, and M-2 due to a lack of reasonable potential for acute toxicity and adequate protection provided by the chronic toxicity effluent limitations. Because of a lack of reasonable potential due to an increase in discharge quality, effluent limitations have been removed in this Order for nickel at Discharge Point No. M-2 and nickel, cadmium, and zinc at Discharge Point No. IX-1.

The permitted discharges are consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The changes described above will not result in an increase in mass emissions of pollutants to San Diego Bay from dry dock ballast water.

6. **Stringency of Requirements for Individual Pollutants**

The implementation of BMPs for the discharge of industrial wastes associated with ship construction, repair and maintenance activities are appropriate in accordance with 40 CFR 122.44(k). Section VI.C.3 of this Order requires the continued implementation of a BMP Program. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. All beneficial uses and water quality objectives contained in the Basin Plan

were approved under State law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30,2000, but not approved by U.S. EPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA*" pursuant to section 131.21 (c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

D. Storm Water Risk Level Designation Definition

All industrial areas of the Facility have been designated as Industrial High Risk Areas due to the activities performed on-site and the contact of storm water within the industrial areas of the Facility.

E. Industrial Storm Water Discharge Specifications

1. **Pollutant Reduction to BAT/BCT**. NPDES Permits for storm water discharges must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using BAT and BCT to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards
2. **Storm Water Pollution Prevention Plan (SWPPP) for Industrial Areas**. This Order requires the Discharger to continue to implement and regularly update an adequate SWPPP as specified in Attachment G. The SWPPP requirement is explained in more detail in section IV.B.2 of this Fact Sheet.
3. **Numeric Action Levels (NALs).** Consistent with the direction of the State Water Board, and the Statewide Industrial Storm Water General Permit adopted on April 1, 2014, this Order establishes NALs based on U.S. EPA's benchmarks with a tiered compliance strategy. The Facility was deemed as an Industrial High Risk Area which is defined in section IV.A of this Order and the risk level strategy is explained in more detail in section IV.D. of this Fact Sheet.
4. **Storm Water Retention and Treatment Control BMPs**. The Discharger has installed a Storm Water Diversion System (SWDS) capable of retaining runoff from a 100-year storm event, or 3.5 inches over a 24-hour period. The Discharger is required to maintain and operate the Facility's storm water diversion system. Storm water that flows into the graving dock during a graving dock flooding event will be discharged to San Diego Bay through Discharge Point No. M-2. Storm water exceeding the capacity of the SWSD will be discharged to San Diego Bay through SW-1 or SW-2.

F. Floating Dry Dock, Graving Dock, and Building Ways Discharge Specifications

This Order requires specific BMPs for floating dry dock, graving dock, and building ways operation to prevent or minimize the discharge of pollutants.

G. Land Discharge Specifications – Not Applicable

H. Recycling Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

Receiving water limitations in this Order are derived from the water quality objectives for bays and estuaries established by the Basin Plan (1994), the Bays and Estuaries Policy (1974), the CTR (2000), the State Implementation Policy (2005), the Ocean Plan (2015) and the Sediment Quality Plan (2008). San Diego Bay is listed as impaired for polychlorinated biphenyls (PCBs), sediment copper, sediment mercury, sediment zinc, sediment polycyclic aromatic hydrocarbons (PAHs), sediment PCBs, sediment toxicity, and benthic community in

the area directly off shore of the Facility. This 303(d) impairment and elevated effluent concentrations demonstrates that there is reasonable potential to cause or contribute to an exceedance of the sediment quality objectives which have been included as receiving water limitations.

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 CFR allows the State to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Monitoring and Reporting Program (MRP) Requirements

The Discharger is required to comply with the MRP in Attachment E and submit notifications as provided.

C. Special Provisions

1. Reopener Provisions

This Order includes a list of circumstances when this Order may be reopened.

2. Special Studies and Additional Monitoring Requirements

Requirements for a toxicity reduction evaluation/toxicity investigation evaluation TRE/TIE have been incorporated in the MRP (Attachment E).

3. Best Management Practices

To carry out the purpose and intent of the CWA, the previous Order required the Discharger to develop and implement a BMP Program, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances, and for the control of storm water discharges. This Order requires the Discharger to continue to implement and regularly update a BMP Program which incorporates a SWPPP as specified in Attachment G and addresses, at a minimum, dry dock pre-flood cleaning, building ways pre-flood cleaning, graving dock pre-flood cleaning, dry dock ballast water, and spills of including fire protection water, potable water, steam condensate.

4. Construction, Operation, and Maintenance Specifications – Not Applicable

5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable

6. Other Special Provisions – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the San Diego Water Board to require technical and monitoring reports. The MRP (Attachment E) establishes monitoring and reporting requirements that implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP (Attachment E) for this facility.

A. Influent Monitoring – Not Applicable

B. Effluent Monitoring

Pursuant to the requirements of 40 CFR section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of BMPs and pollution prevention plans, to assess the impacts of the discharge on the receiving water, and determine compliance with effluent limitations.

1. Based on the industrial types of activities that occur on-site, and the types of discharges from the Facility, effluent monitoring at all effluent monitoring locations for settleable solids, turbidity, total suspended solids, oil and grease, total petroleum hydrocarbons, and chronic toxicity have been carried over from MRP No. R9-2009-0099. The frequency of sampling has been increased to annually for the remaining priority pollutants to ensure proper data collection.

2. Ion Exchange Treatment System (Monitoring Location IX-1)

a. Monthly flow monitoring has been retained from the previous permit because three 10,500 gallon surge tanks ensure a generally constant flow rate.

b. Monthly pH and temperature monitoring has been carried over from the previous permit.

c. Annual monitoring for settleable solids, turbidity, total suspended solids, and oil and grease has been increased from annually to monthly to better characterize the effluent.

d. Monthly monitoring for copper and zinc has been carried over from the previous permit.

e. Annual monitoring for total petroleum hydrocarbons has been increased to semiannual.

f. Annual chronic toxicity monitoring has been increased to semiannual from the previous permit to better characterize the effluent and to better understand the impacts of copper and zinc on the receiving water. Acute toxicity monitoring has been eliminated because chronic toxicity monitoring will achieve water quality greater than that necessary to achieve compliance with acute toxicity monitoring as explained in section IV.C.5 of this Fact Sheet, Attachment F to this Order.

g. Monitoring twice per permit term for the remaining CTR priority pollutants has been increased from the previous permit to semiannual monitoring to better characterize the effluent.

3. Ballast Water (Monitoring Location M-1)

Numeric effluent limitations have been removed for ballast water to be consistent with U.S. EPA's VGP. Therefore, all monitoring except submergence/emergence reporting has been eliminated.

4. Graving Dock Flood Water (Monitoring Location M-2)

a. Sampling is only required when a discharge occurs (i.e. flooding of the graving dock during a launch or retrieval evolution)

b. Monthly effluent flow monitoring has been revised from the previous permit to daily flow monitoring to accurately determine the volume of effluent being discharged from the Facility into San Diego Bay. Monitoring is only required when a discharge occurs (i.e. flooding of the graving dock during a launch or retrieval evolution)

c. Monthly effluent monitoring of pH and temperature has been carried over from the previous permit to characterize the discharge of graving dock flood water from the Facility into the San Diego Bay.

d. Annual monitoring for settleable solids, turbidity, total suspended solids, and oil and grease has been increased from annually to monthly to better characterize the effluent.

e. Monthly effluent monitoring for copper has been carried over from the previous permit and quarterly monitoring for zinc has been increased to monthly because reasonable potential was indicated for these pollutants and therefore required monitoring to evaluate compliance with applicable effluent limitations.

f. Annual monitoring for total petroleum hydrocarbons has been increased to semiannual.

g. Annual chronic toxicity monitoring has been revised from the previous permit to semiannual to better characterize the effluent and to better understand the impacts of copper and zinc on the receiving water. Acute toxicity monitoring has been eliminated because chronic toxicity monitoring will achieve water quality greater than that necessary to achieve compliance with acute toxicity monitoring as explained in section IV.C.5 of this Fact Sheet, Attachment F to this Order.

h. Monitoring twice per permit term of the graving dock flood water for the remaining CTR priority pollutants has been changed from the previous permit to semiannual monitoring to better characterize the effluent.

i. The graving dock may be used for constructing new vessels or for repairing existing vessels. When constructing new vessels, the Discharger applies a non-copper-based antifouling hull coating system as a BMP to achieve compliance with the copper effluent limitation at Discharge Point No. M-2. The graving dock can also be used for repair or minor maintenance of vessels with existing antifouling hull coatings which may contain copper. Copper-based antifouling hull coatings are regulated by the California Department of Pesticide Regulation (DPR) and are designed to leach copper into the surrounding water which could cause an exceedance of the numeric copper effluent limitation at Discharge Point No. M-2. Because the leaching of copper from antifouling hull coatings on existing vessels needing repair and maintenance is regulated by DPR, an alternate sample location has been determined appropriate to obtain a sample which is representative of the activities at NASSCO without contributions from the copper-based antifouling hull coating. For vessels with existing copper-based antifouling hull coatings, the Discharger is required to collect the sample of flood water before the vessel hull contacts the flood water.

Representative samples of graving dock flood water shall be collected as follows.

- For newly constructed vessels, the sample shall be collected when the graving dock is full of water and ready to launch the vessel immediately before the gate is opened.
- For repair of vessels with a preexisting copper-based antifouling hull coating, the sample shall be collected when the graving dock is full of water, before the gate is opened, and before the vessel enters the graving dock.
- For launching vessels with a preexisting copper-based antifouling hull coating, the sample shall be collected immediately before the flood water is deep enough to reach the vessel hull.

5. Storm Water Monitoring

The discharge of industrial contact storm water to San Diego Bay may contain pollutants from the surrounding areas which could contribute to the exceedance of the water quality criteria/objectives of the receiving waters. Industrial storm water monitoring requirements have been modified from the previous Order to be consistent with the State Water Board's Statewide Industrial Storm Water Permit. The purpose of the monitoring is to determine the effects of storm water discharges on the receiving water and monitor the effectiveness of the SWPPP to meet applicable effluent limitations, NALs, and receiving water limits. Storm water sampling has been increased from two storms per year to two storms per semiannual period consistent with the Statewide Industrial Storm Water Permit.

C. Whole Effluent Toxicity Testing Requirements

The WET testing is designed to address the following primary questions:

1. Does the effluent meet permit effluent limits for toxicity thereby ensuring that water quality standards are achieved in the receiving water?
2. If the effluent does not comply with permit effluent limitations for chronic toxicity, are unmeasured pollutants causing risk to aquatic life? Are unmeasured pollutants causing risk to aquatic life?
3. If the effluent does not comply with permit effluent limitations for chronic toxicity, are pollutants in combinations causing risk to aquatic life? Are conditions in receiving water getting better or worse with regard to toxicity?

As discussed above in section IV.C.5 of this Fact Sheet, chronic toxicity effluent limitations established in this Order are based on U.S. EPA's TST and percent effect. Chronic toxicity effluent limitations and monitoring are established for industrial storm water, ion exchange treatment system discharges, and graving dock flood water. Chronic toxicity monitoring is required to evaluate compliance with effluent limitations. This Order increases the chronic toxicity monitoring requirement from Order No. R9-2009-00099 of at least two industrial storm water discharge events annually to be consistent with the Statewide Industrial Storm Water Permit of two storms per semiannual period. This Order increases the annual chronic toxicity monitoring from the previous permit for the ion exchange treatment system and graving dock flood water to semiannual monitoring. Acute toxicity monitoring has been eliminated because chronic toxicity monitoring will achieve water quality greater than that necessary to achieve compliance with acute toxicity monitoring as explained in section IV.C.5 of this Fact Sheet, Attachment F to this Order.

This Order requires the Discharger to conduct an additional toxicity test for exceedances of the toxicity effluent limitations. If the additional test demonstrates toxicity, the Discharger is required to implement accelerated monitoring. If an accelerated monitoring test demonstrates

toxicity, the Discharger is required to submit a Toxicity Reduction Evaluation (TRE) Workplan in accordance with U.S. EPA guidance which shall include: further steps taken by the Discharger to investigate, identify, and correct the causes of toxicity; actions the Discharge will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions. This provision also includes requirements to initiate the TRE/TIE process if the results of toxicity testing exceed the effluent limitation for chronic toxicity.

D. Receiving Water Monitoring

1. Monitoring Questions

Receiving water and sediment monitoring shall be designed and conducted to address the following primary questions:

- Does the discharge cause or contribute to violations of the receiving water limitations in section V of this Order?
- Are the receiving water conditions getting better or worse over time?
- Does the Facility cause or contribute to violations of the receiving water limitations in section V of this Order?
- Is the sediment condition changing over time?

2. Water and Sediment Monitoring Plan

The Discharger is required to submit a Water and Sediment Monitoring Plan within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan has all the elements required by the State Water Board's Sediment Quality Plan, which became effective on August 25, 2009, to be implemented for both water and sediment for consistency. A conceptual model, existing data, and ongoing monitoring must be considered in the development of the Water and Sediment Monitoring Plan.

3. Receiving Water Monitoring

a. Monitoring of the receiving water is necessary to determine if the discharges from the Facility are impacting the water quality objectives for San Diego Bay, applicable beneficial uses, and aquatic life.

b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.

c. Monthly monitoring of copper has been retained from the previous permit to help determine future intake credits. Quarterly monitoring of zinc has been retained from the previous permit.

d. This Order establishes annual monitoring of receiving water for chronic toxicity.

e. Annual monitoring of the CTR priority pollutants has been retained from the previous permit.

4. Sediment Monitoring

a. This Order establishes monitoring and analysis requirements consistent with the Sediment Quality Plan.

b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.

c. Sediment chemistry, toxicity, and benthic community monitoring are required in accordance with, and at a minimum, the requirements under the Sediment Quality Control Plan.

5. Monitoring Coalitions

Monitoring coalitions enable the sharing of technical resources, trained personnel, and associated costs and create an integrated water and sediment monitoring program within each water body. Focusing resources on water body issues and developing a broader understanding of pollutants effects in these water bodies enables the development of more rapid and efficient response strategies and facilitates better management of water and sediment quality.

To achieve maximum efficiency and economy of resources, the Discharger may establish or join a San Diego Bay water body monitoring coalition. If a San Diego Bay monitoring coalition is formed, revised monitoring requirements will be established to ensure that appropriate monitoring is conducted in a timely manner.

6. Water and Sediment Monitoring Reports

The Discharger or water body monitoring coalition is required to submit annual Receiving Water Monitoring Reports and a Sediment Monitoring Report at least twice during a permit cycle in accordance with the Water and Sediment Monitoring Plan unless otherwise directed by the San Diego Water Board.

E. Regional Monitoring Requirements

The San Diego Water Board may modify the receiving waters monitoring and reporting requirements, regional monitoring requirements, and/or special studies requirements of this Order as necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

F. Other Monitoring Requirements

1. Monitoring requirements for floating dry dock submergence/emergence, shipbuilding ways flooding, and graving dock flooding; floating dry dock ballast tank monitoring; floating boom cleaning; and spill and illicit discharges have been carried over from Order No. R9-2009-0099 to help determine the effective of the BMP Plan and ensure that appropriate BMPs are properly implemented.

2. Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires major permittees under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S. EPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from its own laboratories or its contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall ensure that the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study are

submitted annually to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

VIII. PUBLIC PARTICIPATION

The San Diego Water Board has considered the issuance of WDRs in this Order that will serve as an NPDES permit for the Discharger. As a step in the adoption process of this Order for the Facility, the San Diego Water Board developed a Tentative Order and encouraged public participation in the Board's proceedings to consider adoption of the Tentative Order in accordance with the requirements of 40 CFR section 124.10 and Water Code section 13167.5.

A. Notification of Public Hearing and Public Comment Period

By electronic mail dated October 10, 2016 the San Diego Water Board notified the Discharger and interested agencies and persons of its intent to consider adoption of the Tentative Order in a public hearing during a regularly scheduled Board Meeting on December 14, 2016. The San Diego Water Board also provided notice that the Tentative Order was posted on the Board website and provided a period of 30 days for public review and comment. On October 10, 2016, notice of the public hearing and public comment period was also published in the San Diego Union Tribune, a daily newspaper within the area affected by the Facility.

The public also had access to the agenda including all supporting documents and any changes in meeting dates and locations through the San Diego Water Board's website at: http://www.waterboards.ca.gov/rwqcb9/.

B. Written Comments and Responses

Interested persons were invited to submit written comments concerning the Tentative Order as provided through the notification process. Written comments or e-mailed comments were required to be received in the San Diego Water Board office at 2375 Northside Drive, Suite 100, San Diego, CA 92108.

To be fully responded to by staff and considered by the San Diego Water Board, the written or e-mailed comments were due at the San Diego Water Board office by 5:00 p.m. on November 9, 2016. The San Diego Water Board provided written responses to all timely received public comments on the Tentative Order and posted the response to comments document on the Board's website in advance of the public hearing date.

C. Public Hearing

The San Diego Water Board held a public hearing on the Tentative Order during its regular Board meeting on the following date and time and at the following location:

Date: December 14, 2016
Time: 9:00 am
Location: San Diego Water Board
Regional Board Meeting Room
2375 Northside Drive, Suite 100, San Diego CA 92108

Interested persons were invited to attend. At the public hearing, the San Diego Water Board heard and considered all comments and testimony pertinent to the discharge and the Tentative Order,. For accuracy of the record, important testimony was requested in writing.

D. Petition for State Water Board Review

Any aggrieved person may petition the State Water Board to review the decision of the San Diego Water Board regarding the final WDRs of this Order/Permit in accordance with Water

Code section 13320 and the CCR, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the adoption date of this Order, except that if the thirtieth day following the adoption date of this Order/Permit falls on a Saturday, Sunday, or State holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the State Water Board website at http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

For instructions on how to file a petition for review, see the State Water Board website at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

E. Public Access to Records

Records pertinent to the San Diego Water Board's proceedings to adopt this Order including but not limited to the Report of Waste Discharge (ROWD), public notices, draft and finalized versions of the Tentative Order, public comments received, Board responses to comments received, and other supporting documents are maintained by the San Diego Water Board. These records are available for public access Monday through Friday between the hours of 8:00 a.m. to 5:00 p.m. at the San Diego Water Board office.

The San Diego Water Board website contains information and instructions on how to request access and obtain copies of these records at: http://www.waterboards.ca.gov/sandiego/about_us/contact_us/records.shtml

Before making a request to view public records in the San Diego Water Board office you may wish to determine if the information is already available on the San Diego Water Board's website at http://www.waterboards.ca.gov/sandiego/

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this Order should contact the San Diego Water Board at the e-mail address below, reference this Facility or Order, and provide a name, address, e-mail address (if available), and phone number.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Kristin Schwall at (619) 521-3368 or kristin.schwall@waterboards.ca.gov or to the San Diego Water Board via e-mail at rb9_questions@waterboards.ca.gov.

ATTACHMENT G – BEST MANAGEMENT PRACTICES PROGRAM AND STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS FOR INDUSTRIAL AREAS

I. IMPLEMENTATION SCHEDULE

The Discharger shall continue to implement the existing storm water pollution prevention plan (SWPPP) until the Discharger has fully completed the implementation of SWPPP requirements specified in section IV.C of this Order. The Discharger shall implement any necessary revisions to its SWPPP to comply with the requirements of this Order within 1 year of the effective date of this Order.

II. SWPPP OBJECTIVES

A. The Discharger's SWPPP shall be prepared to achieve these objectives:

1. To reduce or prevent the discharge of pollutants from industrial activities to the technology –based standards of best available technology economically achievable (BAT) for toxic and non-conventional pollutants, and best conventional pollutant control technology (BCT) for conventional pollutants.
2. To achieve compliance with the receiving water limitations in section V of this Order.
3. To identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of the waters of the State and waters of the U.S.
4. To identify, describe, and implement site-specific Best Management Practices (BMPs) to reduce or prevent the discharge of pollutants associated with industrial activities to waters of the State and waters of the U.S.
5. To identify and implement timely revisions and/or updates to the SWPPP.

B. To achieve the SWPPP objectives, the Discharger shall prepare a written Facility-specific SWPPP in accordance with all applicable SWPPP requirements of this attachment. The SWPPP shall include all required maps, descriptions, schedules, checklists, and relevant copies or specific references to other documents that satisfy the requirements of this attachment. The typical development and implementation steps necessary to achieve the described objectives are summarized in Item A-2, located at the end of this attachment.

III. PLANNING AND ORGANIZATION

A. SWPPP Checklist

The SWPPP shall include a SWPPP Checklist (Example checklist is included as Item A-1 below) located at the end of this section. For each requirement listed, the Discharger shall identify the page number where the requirement is located in the SWPPP (or the title, page number, and location of any reference documents), the implementation date or last revision date, and any SWPPP requirements that may not be applicable to the Facility.

B. Pollution Prevention Team

1. The SWPPP shall identify specific individuals and their positions within the Facility organization as members of a storm water pollution prevention team responsible for developing the SWPPP, assisting the Facility manager in SWPPP implementation and revision, and conducting all monitoring program activities required in Attachment E of this Order.
2. The SWPPP shall clearly identify the responsibilities, duties, and activities of each team member.

3. The SWPPP shall identify, as appropriate, alternative individuals to perform the required SWPPP and monitoring program activities when team members are temporarily unavailable (due to vacation, illness, out of town meetings, etc.).

C. Review Other Requirements and Existing Facility Plans

1. The SWPPP shall be developed, implemented, and revised as necessary to be consistent with any applicable municipal, State, and Federal requirement that pertains to the requirements of this Order.

2. The SWPPP may incorporate or reference the elements of the Discharger's existing plans, procedures, or regulatory compliance documents that contain storm water pollution control practices or otherwise relate to the requirements of this Order. For example, facilities subject to Federal Spill Prevention Control and Countermeasures' requirements should already have instituted a plan to control spills of certain hazardous materials, or facilities subject to regional air quality emission controls may already have evaluated industrial activities that emit dust or particulate pollutants.

IV. SITE MAP

The SWPPP shall include a site map. The site map shall be provided on an 8 ½ x 11 inch or larger sheet and include notes, legends, north arrow, and other data as appropriate to ensure that the site map is clear and understandable. If necessary, the Discharger may provide the required information on multiple site maps. The following information shall be included on the site map:

A. Boundaries and Drainage Ares. Outlines of the Facility boundary, storm water drainage areas within the Facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area; on-site surface water bodies; areas of soil erosion; and location(s) of near-by water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the Facility's storm water discharges and authorized non-storm water discharges.

B. Storm Water Collection and Conveyance System. The location of the storm water collection and conveyance system, associated points of discharge, and direction of flow. Include any structural control measures that affect storm water discharges, authorized non-storm water discharges, and run-on. Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

C. Impervious Ares. The outline of all impervious areas of the Facility, including paved areas, buildings, covered storage areas, or other roofed structures.

D. Materials, Spills, and Leaks Locations. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks, identified in accordance with section VI.A.4 below, have occurred.

E. Ares of Industrial Activity. Areas of industrial activity. Identify all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and reusing areas, and other areas of industrial activity which are potential pollutant sources.

F. Storm Water Risk Level Boundaries. Identify the boundaries of the Industrial High Risk areas as defined in section IV.A of the Order.

V. LIST OF SIGNIFICANT MATERIALS

The SWPPP shall include a list of significant materials handled and stored at the site. For each material on the list, the locations where the material is stored, received, shipped, and handled, as well as the typical quantities and frequencies, shall be described. The materials list shall include raw materials, intermediate products, final or finished products, recycled materials, and waste or disposed materials.

VI. DESCRIPTION OF POTENTIAL POLLUTANT SOURCES

A. For each area identified in section IV.E of this Attachment, the SWPPP shall include a narrative description of the Facility's industrial activities, potential pollutant sources, and potential pollutants that could be exposed to storm water or authorized non-storm water discharges or otherwise be discharged. At a minimum, the following industrial activities shall be described as applicable:

1. **Industrial Processes.** Describe each industrial process including the manufacturing, cleaning, maintenance, recycling, disposal, or other activities related to the process. Include the type, characteristics, and approximate quantity of significant materials used in or resulting from the process. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.

2. **Material Handling and Storage Areas.** Describe each handling and storage area including the type, characteristics, and quantity of significant materials handled or stored, description of the shipping, receiving, and loading procedures, and the spill or leak prevention and response procedures. Areas protected by a containment structure and the corresponding containment capacity shall be identified and described.

3. **Dust and Particulate Generating Activities.** Describe all industrial activities that generate dust or particulates that may be deposited within the Facility's boundaries. Include their discharge locations and the type, characteristics, and quality of dust and particulate pollutants that may be deposited within the Facility's boundaries. Identify the primary areas of the Facility where dust and particulate pollutants would settle.

4. **Significant Spills and Leaks.** Identify and describe materials that have spilled or leaked in significant quantities in storm water discharges or non-storm water discharges. Include toxic chemicals (listed in 40 CFR part 302) that have been discharged to storm water as reported in United Stated Environmental Protection Agency (U.S. EPA) Form R, and oil and hazardous substances in excess of reportable quantities (see 40 CFR parts 110, 117, and 302).

   The description shall include the location, characteristics, and approximate quantity of the materials spilled or leaked, the cleanup or remedial actions that have occurred or are planned, the approximate remaining quantity of materials that may be exposed to storm water or non-storm water discharges; and the preventative measures taken to ensure spills or leaks of the material do no reoccur.

5. **Non-Storm Water Discharges.** The Discharger shall inspect the Facility to identify all non-storm water discharges, sources, and drainage areas. All drains (inlets and outlets) shall be evaluated to identify whether they connect to the storm drain system.

   All non-storm water discharges shall be described. The description shall include the source, quantity, frequency, and characteristics of the non-storm water discharges and associated drainage area and shall identify whether the discharge is an authorized or unauthorized non-storm water discharge. Examples of unauthorized non-storm water discharges are rinse and wash water (whether detergents are used or not, contact and non-contact cooling water, boiler blow-down, etc.

6. **Soil Erosion.** Describe the Facility locations where soil erosion may occur as a result of industrial activity, storm water discharges associated with industrial activity, or authorized non-storm water discharges.

7. **Non-Industrial Storm Water Discharges.** Describe the Facility locations of non-industrial storm water discharges such as parking lots and rooftops. Explain how these discharges are kept separate from industrial activities and industrial materials. Describe good housekeeping and other non-structural BMPs, at a minimum, which are employed to reduce and minimize pollution from these areas.

VII. ASSESSMENT OF POTENTIAL POLLUTANT SOURCES

A. The SWPPP shall include a narrative assessment of all industrial activities and potential pollutant sources as described in accordance with section VI of this Attachment. To determine the likelihood that significant materials will be exposed to storm water or authorized non-storm water discharges, the assessment shall include consideration of the quantity, characteristics, and locations of each significant material handled, produced, stored, recycled, or disposed; the direct and indirect pathways that significant materials may be exposed to storm water or authorized non-storm water discharges; history of spills or leaks; non-storm water discharges; prior sampling; visual observation, and inspection records; discharges from adjoining areas; and the effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. At a minimum, the Discharger shall consider:

1. The quantity, physical characteristics (liquid, powder, solid, etc.), and locations of each significant material handled, produced, stored, recycled, or disposed.

2. The degree pollutants associated with those materials are exposed to and mobilized by contact with storm water.

3. The direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.

4. Sampling, visual monitoring, and inspection records.

5. Effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

B. Based upon the assessment above, the SWPPP shall identify any areas of industrial activity and corresponding pollutant sources where significant materials are likely to be exposed to storm water or authorized non-storm water discharges and where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

VIII. STORM WATER BEST MANAGEMENT PRACTICES

A. The SWPPP shall include a narrative description of BMPs implemented at the Facility. The BMPs, when developed and implemented, shall be effective in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges.

The BMPs narrative description shall include:

1. The type of pollutants the BMPs are designed to reduce or prevent.

2. The frequency, time(s) of day, or conditions when the BMPs are scheduled for implementation.

3. The locations within each area of industrial activity or pollutant source where the BMPs shall be implemented.

4. Identification of the person and/or position responsible for implementing the BMPs.
5. The procedures, including maintenance procedures, and/or instructions to implement the BMPs.
6. The equipment and tools necessary to implement the BMPs.

B. Non-Structural BMPs. The Discharger shall consider non-structural BMPs for implementation at the Facility. Non-structural BMPs generally consist of processes, prohibitions, procedures, training, schedule of activities, etc. that prevent pollutants associated with industrial activity from contact with storm water discharges and authorized non-storm water discharges. Below is a list of non-structural BMPs that shall be considered:

1. **Good Housekeeping.** Good housekeeping generally consists of practical procedures to maintain a clean and orderly facility.
2. **Preventative Maintenance.** Preventative maintenance includes regular inspection and maintenance of storm water structural controls (i.e. catch basins, oil/water separators, etc.) as well as other facility equipment and systems.
3. **Spill Response.** This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.
4. **Material Handling and Storage.** This includes all procedures to minimize the potential for spills and leaks and to minimize exposure to significant materials to storm water and authorized non-storm water discharges.
5. **Employee Training Program.** This includes the development of a program to train personnel responsible for implementing the various compliance activities of this Order including BMPs implementation, inspections and evaluations, monitoring activities, and storm water compliance management. The training program shall include:
    a. A description of the training program and any training manuals or training materials.
    b. A discussion of the appropriate training frequency.
    c. A discussion of the appropriate personnel to receive training.
    d. A training schedule.
    e. Documentation of all completed training classes and the personnel who received training.
6. **Waste Handling/Recycling.** This includes the procedures or processes to handle, store, or dispose of waste or recyclable materials.
7. **Record Keeping and Internal Reporting.** This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations, etc. are developed, retained, and provided, as necessary to the appropriate Facility personnel.
8. **Erosion Control and Site Stabilization.** This includes a description of all sediment and erosion control activities. This may include the planting and maintenance of vegetation, diversion of run-on and runoff, placement of sandbags, silt screens, or other sediment control devices.
9. **Inspections.** Periodic visual inspections of the Facility are necessary to ensure that the SWPPP addresses any significant changes to the Facility's operations or BMP implementation procedures.

a. A minimum of four quarterly visual inspections of all areas of industrial activity and associated potential pollutant sources shall be completed each reporting year. The annual comprehensive site compliance evaluation described in section IX of this attachment may substitute for one of the quarterly inspections.

b. Tracking and follow-up procedures shall be described to ensure appropriate corrective actions and/or SWPPP revisions are implemented.

c. A summary of the corrective actions and SWPPP revisions resulting from quarterly inspections shall be reported in the annual report.

d. Dischargers shall certify in the annual report that each quarterly visual inspection was completed.

e. All corrective actions and SWPPP revisions shall be implemented in accordance with sections XII.D and XII.E of this attachment.

10. **Quality Assurance.** This includes the management procedures to ensure that the appropriate staff adequately implements all elements of the SWPPP and Monitoring Program.

C. Structural BMPs. Where non-structural BMPs identified in section VIII.B above are not effective, structural BMPs shall be considered. Structural BMPs typically consist of structural devices that reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Below is a list of structural BMPs that shall be considered:

1. Overhead Coverage. This includes structures that protect materials, chemicals, and pollutant sources from contact with storm water and authorized non-storm water discharges.

2. Retention Ponds. This includes basins, ponds, surface impoundments, bermed areas, etc. that do not allow storm water to discharge from the Facility.

3. Control Devices. This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.

4. Secondary Containment Structures. This includes containment structures around storage tanks and other areas that collect any leaks or spills.

5. Treatment. This includes inlet controls, infiltration devices, oil/water separators, detention ponds, vegetative swales, etc. which reduce the pollutants in storm water discharges and authorized non-storm water discharges.

D. The SWPPP shall include a summary identifying each area of industrial activity and associated pollutant sources, pollutants, and BMPs in a table similar to Item A-3 at the end of this attachment.

IX. ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION

The Discharger shall conduct one comprehensive site compliance evaluation (evaluation) in each reporting period (July 1 – June 30). Evaluations shall be conducted no less than 8 months from each other. The SWPPP shall be revised, as appropriate, and the revisions implemented within 90 days of the evaluation. Evaluations shall include the following:

A. A review of all visual observation records, inspection records, and sampling and analysis results.

B. A visual inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system. A visual inspection of equipment needed to implement the SWPPP.

C. A review and evaluation of all BMPs, both structural and non-structural, for each area of industrial activity and associated potential pollutant sources to determine whether the BMPs are properly designed, implemented, and are effective in reducing and preventing pollutants in storm water discharges and authorized non-storm water discharges.

D. An evaluation report that includes:

1. Identification of personnel performing the evaluation,
2. Date(s) of the evaluation,
3. Summary and implementation dates of all significant corrective actions and SWPPP revisions for the reporting year,
4. Schedule for implementing any incomplete corrective actions and SWPPP revisions,
5. Any incidents of non-compliance and the corrective actions taken, and
6. A certification that the Discharger has completed the quarterly inspections specified in section VIII.B.9, above and that the Discharger is complying with this Order.
7. The evaluation report shall be submitted as part of the annual report, retained for at least 5 years, and signed and certified in accordance with Standard Provision V.B of Attachment D of this Order.

X. NUMERIC ACTION LEVELS (NALS)

A. Numeric Action Levels (NALs) for all storm water discharges are appropriate numeric thresholds that allow a discharger to take corrective action when the Instantaneous Maximum or Annual Average NAL are exceeded. Exceedances of NAL values are not a violation of the Order. Dischargers that exceed one of the NAL values shall take the appropriate corrective action as set forth in section IV.C.3. of the Order.

NALs are specified as follows:

Table G-1. NALs for Storm Water

PARAMETER	TEST METHOD[1]	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
pH	Field test with calibrated portable instrument, or lab sample in accordance with 40 CFR § 136.	pH units	N/A	6.0-9.0
Suspended Solids (TSS), Total	SM2540-D	mg/L	100	400
Oil & Grease (TOG), Total	EPA 1664A	mg/L	15	25
Zinc, Total (H)	EPA 200.8	mg/L	0.26 [2]	-
Copper, Total (H)	EPA 200.8	mg/L	0.0332 [2]	-
Cyanide, Total	SM 4500-CN C, D, or E	mg/L	0.022	-
Lead, Total (H)	EPA 200.8	mg/L	0.262 [2]	-
Chemical Oxygen Demand	SM 5220C	mg/L	120	-
Aluminum, Total (pH 6.5-9.0)	EPA 200.8	mg/L	0.75	-
Iron, Total	EPA200.8	mg/L	1.0	-
Nitrate + Nitrite	SM 4500-NO3- E	mg/L as N	0.68	-

PARAMETER	TEST METHOD[1]	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
Nitrogen				
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	-
Ammonia	SM 4500-NH3 B+ C or E	mg/L	2.14	-
Magnesium, total	EPA 200.7	mg/L	0.064	-
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	-
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053 [2]	-
Nickel, Total (H)	EPA 200.8	mg/l	1.02 [2]	-
Mercury, Total	EPA 245.1	mg/L	0.0014	-
Selenium, Total	EPA 200.8	mg/L	0.005	-
Silver, Total (H)	EPA 200.8	mg/L	0.0183 [2]	-
Biochemical Oxygen Demand	SM 5210B	mg/L	30	-

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition
EPA – EPA test methods

[1] Test methods with lower detection limits may be necessary when discharging to impaired water bodies. Alternate test methods may be approved by the San Diego Water Board.

[2] The NAL is based on the highest hardness because the water near the mouth of the creeks is very saline.

B. On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations:

1. Industrial Activity BMPs Demonstration. This shall include the following requirements as applicable:

a. A description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);

b. An evaluation of all pollutant source(s) associated with industrial activity that are or may be related to the NAL exceedance(s);

c. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this Order and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;.

d. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this Order but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide the following, in addition to a description and analysis of all implemented BMPs:

i. An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;

ii. An estimated costs of the additional BMPs evaluated; and,

iii. An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.

e. The description and analysis of BMPs required in section X.B.1.d.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,

f. If an alternative design storm standard for treatment control BMPs in lieu of the design storm standard for treatment control BMPs in section IV.C.4 of the Order will achieve compliance with the effluent limitations of the Order, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

2. Non-Industrial Pollutant Source Demonstration. This shall include:

a. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;

b. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance; and,

c. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance that are or may be discharged;

d. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;

e. A summary of all existing BMPs for that parameter; and,

f. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

3. Natural Background Pollutant Source Demonstration. The Natural Background Pollutant Source Demonstration Technical Report shall at a minimum, include the following:

a. A statement that the Discharger has determined that the NAL exceedance of the NAL is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);

b. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;

c. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Demonstration;

d. A map showing the reference site location in relation to facility along with available land cover information;

e. Reference site and test site elevation;

f. Available geology and soil information for reference and test sites;

g. Photographs showing site vegetation;

h. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and

i. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

XI. MONITORING REQUIREMENTS

Monitoring shall be conducted as specified in the Monitoring and Reporting Program (MRP) (Attachment E). The SWPPP shall include a description of the following items:

A. Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.

B. Storm Water Diversion System (SWDS) evaluation procedures.

C. Sampling locations and sample collection procedures. This shall include procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained.

D. Identification of the analytical methods and related method detection limits (if applicable) used to detect pollutants in storm water discharges, including a justification that the method detection limits are adequate.

XII. SWPPP GENERAL REQUIREMENTS

A. The SWPPP shall be retained at the Facility and made available upon request of a representative of the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) or U.S. EPA.

A. Upon notification by the San Diego Water Board and/or U.S. EPA that the SWPPP does not meet one or more of the minimum requirements of this Order or this attachment, the Discharger shall revise the SWPPP and implement additional BMPs that are effective in reducing and eliminating pollutants in storm water discharges and authorized non-storm water discharges. As requested, the Discharger shall provide an implementation schedule and/or completion certification to the San Diego Water Board and/or U.S. EPA.

B. The SWPPP shall be revised, as appropriate, and implemented prior to changes in industrial activities, which

1. May significantly increase the quantities of pollutants in storm water discharges; or

2. Cause a new area of industrial activity at the Facility to be exposed to storm water; or
3. Begin an industrial activity that would introduce a new pollutant source at the Facility.

C. The Discharger shall revise the SWPPP and implement the appropriate BMPs in a timely manner and in no case more than 90 days after a Discharger determines that the SWPPP is in violation of any Order requirement.

D. When any part of the SWPPP is infeasible to implement by the deadlines specified above due to proposed significant structural changes, the Discharger shall:

1. Submit a report to the San Diego Water Board that:
   a. Identifies the portion of the SWPPP that is infeasible to implement by the deadline.
   b. Provides justification for a time extension, provides a schedule for completing and implementing that portion of the SWPPP.
   c. Describes the BMPs that will be implemented in the interim period to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.
2. Comply with any request by the San Diego Water Board to modify the report required in Subsection XII.D.1 above, or provide certification that the SWPPP revisions have been implemented.

E. The SWPPP shall be provided, upon request, to the San Diego Water Board, U.S. EPA, local agency, or Compliance Inspection Designees. The San Diego Water Board under section 308(b) of the Clean Water Act (CWA) considers the SWPPP a report that shall be available to the public.

XIII. AUTHORIZED NON-STORM WATER DISCHARGES SPECIAL REQUIREMENTS

The SWPPP shall address authorized non-storm water discharges and incorporate appropriate BMPs to prevent the discharge of pollutants.

ITEM A-1

STORM WATER POLLUTION PREVENTION PLAN
EXAMPLE CHECKLIST

Facility Name _____

WDID# _____

FACILITY CONTACT
Name _____
Title _____
Company _____
Street _____
Address
City, State _____
ZIP _____

CONSULTANT CONTACT
Name _____
Title _____
Company _____
Street _____
Address
City, State _____
ZIP _____

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification			
Pollution Prevention Team			
Existing Facility Plans			
Facility Site Map(s)			
Facility Boundaries			
Drainage areas			
Direction of flow			
On-site water bodies			
Areas of soil erosion			
Nearby water bodies			
Municipal storm drain inlets			
Points of discharges			
Structural control measures			
Impervious areas (paved areas, buildings, covered areas, roofed areas			
Location of directly exposed materials			
Location of significant spills and leaks			
Storage areas / Storage tanks			
Shipping and receiving areas			
Fueling areas			
Vehicle and equipment storage and maintenance			
Material handling / Material processing			
Waste treatment / Waste Disposal			
Dust generation / Particulate generation			
Cleaning areas / Rinsing areas			
Other areas of industrial activities			
List of Significant Materials			
For each material listed:			
Storage location			

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Receiving and shipping location			
Handling location			
Quantity			
Frequency			
Description of Potential Pollution Sources			
Industrial Processes			
Material handling and storage areas			
Dust and particulate generating activities			
Significant spills and leaks			
Non-storm water discharges			
Soil Erosion			
Assessment of Potential Pollutant Sources			
Areas likely to be sources of pollutants			
Pollutants likely to be present			
Storm Water Best Management Practices			
Non-Structural BMPs			
Good Housekeeping			
Preventative Maintenance			
Spill Response			
Material Handling and Storage			
Employee Training			
Waste Handling / Waste Recycling			
Recordkeeping and Internal Reporting			
Erosion Control and Site Stabilization			
Inspections			
Quality Assurance			
Structural BMPs			
Overhead Coverage			
Retention Ponds			
Control Devices			
Secondary Containment Structures			
Treatment			
Industrial Activity BMPs/Pollutant Summary			
Annual Comprehensive Site Compliance Evaluation			
Review of visual observations, inspections, and sampling analysis			
Visual inspection of potential pollution sources			
Review and evaluation of BMPs			
Evaluation Report			

ITEM A-2

FIVE PHASES FOR DEVELOPING AND IMPLEMENTING INDUSTRIAL STORM WATER POLLUTION PREVENTION PLANS

PLANNING AND ORGANIZATION

*****Form Pollution Prevention Team
*****Review other plans

ASSESSMENT PHASE

*****Develop a site map
*Identify potential pollutant sources
*Inventory of materials and chemicals
*****List significant spills and leaks
*****Identify non-storm water discharges
*****Assess pollutant risks

BEST MANAGEMENT PRACTICES IDENTIFICATION PHASE

*****Non-structural BMPs
*Structural BMPs
*Select activity and site-specific BMPs

IMPLEMENTATION PHASE

*****Train employees
*****Implement BMPs
*****Collect and review records

EVALUATION/MONITORING

*****Conduct annual site evaluation
*****Review monitoring information
*****Evaluate BMPs
*****Review and revise SWPPP

ITEM A-3
EXAMPLE
ASSESSMENT OF POTENTIAL POLLUTION SOURCES AND CORRESPONDING BEST MANAGEMENT PRACTICES SUMMARY

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Vehicle & Equipment Fueling	Fueling	Spills and leaks during delivery	fuel oil	- Use spill and overflow protection - Minimize run-on of storm water into the fueling area - Cover fueling area - Use dry cleanup methods rather than hosing down area - Implement proper spill prevention control program - Implement adequate preventative maintenance program to prevent tank and line leaks - Inspect fueling areas regularly to detect problems before they occur - Train employees on proper fueling, cleanup, and spill response techniques
		Spills caused by topping off fuel tanks	fuel oil	
		Hosing or washing down fuel area	fuel oil	
		Leaking storage tanks	fuel oil	
		Rainfall running off fuel area, and rainfall running onto and off fueling area	fuel oil	

ATTACHMENT H – DISCHARGE PROHIBITIONS CONTAINED IN THE BASIN PLAN

I. BASIN PLAN DISCHARGE PROHIBITIONS

A. The discharge of waste to waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code (Water Code) section 13050, is prohibited.

B. The discharge of waste to land, except as authorized by Waste Discharge Requirements (WDRs) of the terms described in Water Code section 13264 is prohibited.

C. The discharge of pollutants or dredged or fill material to waters of the U.S. except as authorized by an National Pollutant Discharge Elimination System (NPDES) permit or a dredged or fill material permit (subject to the exemption described in Water Code section 13376) is prohibited.

D. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) issues an NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State of California Department of Public Health and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.

E. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

F. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.

G. The dumping, deposition, or discharge of waste directly into waters of the State, or adjacent to such waters in any manner which may permit it being transported into the waters, is prohibited unless authorized by the San Diego Water Board.

H. Any discharge to a storm water conveyance system that is not composed entirely of storm water is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to an NPDES permit and discharges resulting from firefighting activities.] [Section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992.]

I. The unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system is prohibited.

J. The discharge of industrial wastes to conventional septic tank/ subsurface disposal systems, except as authorized by the terms described in Water Code section 13264, is prohibited.

K. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the State is prohibited.

L. The discharge of any radiological, chemical, or biological warfare agent into waters of the State is prohibited.

M. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.

N. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the State or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

O. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.

P. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.

Q. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at MLLW is prohibited.

R. The discharge of treated sewage from vessels, which do not have a properly functioning USCG certified Type 1 or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at MLLW is prohibited.

ATTACHMENT I – SEDIMENT CHEMISTRY ANALYTES

All samples shall be tested for the analytes specified in Table I-1. If other toxic pollutants are believed to pose risk to benthic communities, aquatic-dependent wildlife, or human health, those toxic pollutants shall be identified and included by the Discharger. Analytes not on Attachment A of the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan) cannot be used in the exposure assessment in section V of the Sediment Quality Plan; however the data can be used to conduct more effective stressor identification studies as described in section VII.F of the Sediment Quality Plan.

Table I-1 Sediment Chemistry Analytes.

Chemical Name	Chemical Group
Total Organic Carbon[1]	General
Percent Fines[1]	General
Cadmium[1]	Metal
Copper[1]	Metal
Lead[1]	Metal
Mercury[1]	Metal
Zinc[1]	Metal
Acenaphthene[1]	PAH
Anthracene[1]	PAH
Biphenyl[1]	PAH
Naphthalene[1]	PAH
2,6-dimethylnaphthalene[1]	PAH
Fluorene[1]	PAH
1-methylnaphthalene[1]	PAH
2-methylnaphthalene[1]	PAH
1-methylphenanthrene[1]	PAH
Phenanthrene[1]	PAH
Benzo(a)anthracene[1]	PAH
Benzo(a)pyrene[1]	PAH
Benzo(e)pyrene[1]	PAH
Chrysene[1]	PAH
Dibenz(a,h)anthracene[1]	PAH
Fluoranthene[1]	PAH
Perylene[1]	PAH
Pyrene[1]	PAH
Alpha Chlordane[1]	Pesticide
Gamma Chlordane[1]	Pesticide
Trans Nonachlor[1]	Pesticide
Dieldrin[1]	Pesticide
o,p'-DDE[1]	Pesticide
o,p'-DDD[1]	Pesticide
o,p'-DDT[1]	Pesticide
p,p'-DDD[1]	Pesticide
p,p'-DDE[1]	Pesticide
p,p'-DDT[1]	Pesticide
2,4'-Dichlorobiphenyl[1]	PCB 8 - congener
2,2',5-Trichlorobiphenyl[1]	PCB 18 - congener
2,4,4'-Trichlorobiphenyl[1]	PCB 28 - congener
2,2',3,5'-Tetrachlorobiphenyl[1]	PCB 44 - congener
2,2',5,5'-Tetrachlorobiphenyl[1]	PCB 52 - congener
2,3',4,4'-Tetrachlorobiphenyl[1]	PCB 66 - congener
2,2',4,5,5'-Pentachlorobiphenyl[1]	PCB 101 - congener
2,3,3',4,4'-Pentachlorobiphenyl[1]	PCB 105 - congener
2,3',4,4',5-Pentachlorobiphenyl[1]	PCB 118 - congener
2,2',3,3',4,4'-	PCB 128 - congener

Chemical Name	Chemical Group
2,2',3,3',4,4',5-Heptachlorobiphenyl[1]	PCB 170 - congener
2,2',3,4,4',5,5'-Heptachlorobiphenyl[1]	PCB 180 - congener
2,2',3,4',5,5',6-Heptachlorobiphenyl[1]	PCB 187 - congener
2,2',3,3',4,4',5,6-Octachlorobiphenyl[1]	PCB 195 - congener
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl[1]	PCB 206 - congener
Decachlorobiphenyl[1]	PCB 209 - congener
2,3',6-Trichlorobiphenyl	PCB 27 - congener
2,4,5-Trichlorobiphenyl	PCB 29 - congener
2,4',5-Trichlorobiphenyl	PCB 31 - congener
2,3',4'-Trichlorobiphenyl	PCB 33 - congener
2,2',4,5'-Tetrachlorobiphenyl	PCB 49 - congener
2,3,3',4'-Tetrachlorobiphenyl	PCB 56 - congener
2,3,4,4'-Tetrachlorobiphenyl	PCB 60 - congener
2,3,4',6-Tetrachlorobiphenyl	PCB 64 - congener
2,3',4',5-Tetrachlorobiphenyl	PCB 70 - congener
2,4,4',5-Tetrachlorobiphenyl	PCB 74 - congener
3,3',4,4'-Tetrachlorobiphenyl	PCB 77 - congener
2,2',3,4,5'-Pentachlorobiphenyl	PCB 87 - congener
2,2',3,5',6-Pentachlorobiphenyl	PCB 95 - congener
2,2',3,4',5'-Pentachlorobiphenyl	PCB 97 - congener
2,2',4,4',5-Pentachlorobiphenyl	PCB 99 - congener
2,3,3',4',6-Pentachlorobiphenyl	PCB 110 - congener
2,3,4,4',5-Pentachlorobiphenyl	PCB 114 - congener
3,3',4,4',5-Pentachlorobiphenyl	PCB 126 - congener
2,2',3,4,4',5-Hexachlorobiphenyl	PCB 137 - congener
2,2',3,4,5,5'-Hexachlorobiphenyl	PCB 141 - congener
2,2',3,4',5,5'-Hexachlorobiphenyl	PCB 146 - congener
2,2',3,4',5',6-Hexachlorobiphenyl	PCB 149 - congener
2,2',3,5,5',6-Hexachlorobiphenyl	PCB 151 - congener
2,3,3',4,4',5-Hexachlorobiphenyl	PCB 156 - congener
2,3,3',4,4',5'-Hexachlorobiphenyl	PCB 157 - congener
2,3,3',4,4',6-Hexachlorobiphenyl	PCB 158 - congener
3,3',4,4',5,5'-Hexachlorobiphenyl	PCB 169 - congener
2,2',3,3',4,5,6'-Heptachlorobiphenyl	PCB 174 - congener
2,2',3,3',4,5',6'-Heptachlorobiphenyl	PCB 177 - congener
2,2',3,4,4',5',6-Heptachlorobiphenyl	PCB 183 - congener
2,3,3',4,4',5,5'-Heptachlorobiphenyl	PCB 189 - congener
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	PCB 194 - congener
2,2',3,3',4,5,5',6-Octachlorobiphenyl	PCB 198 - congener
2,2',3,3',4,5,5',6'-Octachlorobiphenyl	PCB 199 - congener
2,2',3,3',4,5,6,6'-Octachlorobiphenyl	PCB 200 - congener
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	PCB 201 - congener
2,2',3,4,4',5,5',6-Octachlorobiphenyl	PCB 203 - congener

Chemical Name	Chemical Group
Hexachlorobiphenyl[1]	
2,2',3,4,4',5'-Hexachlorobiphenyl[1]	PCB 138 - congener
2,2',4,4',5,5'-Hexachlorobiphenyl[1]	PCB 153 - congener

Chemical Name	Chemical Group

[1] From Attachment A of the Sediment Quality Plan

ATTACHMENT
28

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

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San Diego, CA 92108
(619) 516-1990 • Fax (619) 516-1994
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ORDER NO. R9-2015-0117
NPDES NO. CA0109185

WASTE DISCHARGE REQUIREMENTS FOR THE UNITED STATES DEPARTMENT OF THE NAVY NAVAL BASE CORONADO SAN DIEGO COUNTY

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Discharger Information

Discharger	United States Department of the Navy
Name of Facility	Naval Base Coronado (NBC)
Facility Address	937 N. Harbor Drive San Diego, CA 92132-0058 San Diego County
Facility Contact, Title, and Phone at adoption	Mr. Jason Golumbfskie Installation Environmental Program Director for NBC (619) 545-3429
Mailing Address	Naval Base Coronado PWO, Bldg.3 PO Box 357088 San Diego, CA 92135-7088
Type of Facility	Naval Base
Facility Design Flow	Not Applicable
The United States Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) have classified this discharge as a major discharge.	

Table 2. Discharge Location

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Industrial Process Water Effluent Discharges				
SC-001	Steam Condensate	32° 42’ 22” N	117° 11’ 23” W	San Diego Bay
SC-002	Steam Condensate	32° 42’ 22” N	117° 11’ 22” W	San Diego Bay
SC-003	Steam Condensate	32°’ 42” 23” N	117° 11’ 22” W	San Diego Bay
SC-004	Steam Condensate	32° 42’ 21” N	117° 11’ 20” W	San Diego Bay
SC-005	Steam Condensate	32° 42’ 21” N	117° 11’ 18” W	San Diego Bay
SC-006	Steam Condensate	32° 42’ 20” N	117° 11’ 16” W	San Diego Bay
SC-007	Steam Condensate	32° 42’ 20” N	117° 11’ 15” W	San Diego Bay
SC-008	Steam Condensate	32° 42’ 19” N	117° 11’ 13” W	San Diego Bay

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
SC-009	Steam Condensate	32° 42’ 29” N	117° 11’ 23” W	San Diego Bay
SC-010	Steam Condensate	32° 41’ 46” N	117° 11’ 59” W	Pacific Ocean
CW-001	Diesel Engine Cooling Water	32° 41’ 43” N	117° 13’ 36” W	San Diego Bay
UV-001	Utility Vault and Manhole Dewatering	32’ 42° 8” N	117’ 10° 57” W	San Diego Bay
UV-002	Utility Vault and Manhole Dewatering	32° 42’ 17” N	117° 11’ 11” W	San Diego Bay
UV-003	Utility Vault and Manhole Dewatering	32’ 42° 20” N	117’ 11° 27” W	San Diego Bay
UV-004	Utility Vault and Manhole Dewatering	32° 42’ 37” N	117° 11’ 24” W	San Diego Bay
UV-005	Utility Vault and Manhole Dewatering	32° 42’ 36” N	117° 11’ 22” W	San Diego Bay
UV-006	Utility Vault and Manhole Dewatering	32’ 42° 45” N	117, 11° 25” W	San Diego Bay
UV-007	Utility Vault and Manhole Dewatering	32° 42’ 42” N	117° 12’ 12” W	San Diego Bay
UV-008	Utility Vault and Manhole Dewatering	32° 42’ 26” N	117° 11’ 39” W	San Diego Bay
UV-009	Utility Vault and Manhole Dewatering	32° 42’ 15” N	117° 11’ 57” W	San Diego Bay
UV-010	Utility Vault and Manhole Dewatering	32° 42’ 2” N	117° 11’ 25” W	San Diego Bay
UV-011	Utility Vault and Manhole Dewatering	32° 40’ 31” N	117° 9’ 38” W	San Diego Bay
UV-012	Utility Vault and Manhole Dewatering	32° 40’ 23” N	117° 10’ 1” W	San Diego Bay
UV-013	Utility Vault and Manhole Dewatering	32° 35’ 57” N	117° 7’ 25” W	San Diego Bay
PW-001	Pier Washing	32º 41’ 43” N	117º 13’ 36” W	San Diego Bay
Small Military Base Municipal Separate Storm Sewer System (MS4) Outfalls				
See Attachment M of this order	Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean, San Diego Bay, Tijuana River Estuary, San Luis Rey River Watershed, Morena Reservoir, or Canyon City Hydrologic Area
Industrial No Exposure Area Outfalls				
None	Industrial No Exposure Area Storm Water (wet weather) and Non-Storm Water (dry weather)	No Discharge	No Discharge	No Discharge

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Industrial Low Risk Area Outfalls				
See Attachment M of this order	Industrial Low Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean, San Diego Bay, or Tijuana River Estuary
Industrial High Risk Area Outfalls				
See Attachment M of this order	Industrial High Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay

[1] TBD

Table 3. Administrative Information

This Order was adopted by the San Diego Water Board on:	**November 18, 2015**
This Order shall become effective on:	**January 1, 2016**
This Order shall expire on:	**December 31, 2020**
The Discharger shall file a Report of Waste Discharge as an application for renewal of waste discharge requirements in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**180 days prior to this Order expiration date**
The USEPA and the San Diego Water Board have classified this discharge as follows:	**Major**

I, **David W. Gibson**, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of this Order adopted by the California Regional Water Quality Control Board, San Diego Region, on **November 18, 2015**.

David W. Gibson, Executive Officer

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I. FACILITY INFORMATION

Information describing Naval Base Coronado (Facility) is summarized above in Table 1 and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the Facility's permit application.

II. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds:

A. Legal Authorities. This Order serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (CWC) commencing with section 13260. This Order is also issued pursuant to section 402 of the CWA and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the CWC commencing with section 13370. This Order shall serve as an NPDES permit for point source discharges from this facility to surface waters.

B. Background and Rationale for Requirements. The San Diego Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through M are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. Some of the provisions/requirements in subsections VI.A.2 and VI.C.4 of this Order are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

D. Executive Officer Delegation of Authority. The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to CWC section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under CWC section 13223 or this Order explicitly states otherwise.

E. Notification of Interested Parties. Prior to the adoption of this Order, the San Diego Water Board notified the Discharger and other interested agencies and persons of its intent to prescribe WDRs for the discharge and provided them with an opportunity to submit their written comments and recommendations. Details of this notification are provided in the Fact Sheet of this Order.

F. Consideration of Public Comment. The San Diego Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order.

THEREFORE, IT IS HEREBY ORDERED that this Order supersedes Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

III. DISCHARGE PROHIBITIONS

A. The dumping, deposition or discharge of the following wastes directly into Waters of the United States (U.S.), including but not limited to the Pacific Ocean, San Diego Bay, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area, or adjacent to such waters in any manner which may permit its being transported into the waters is prohibited:

1. Paint chips;
2. Blasting materials;
3. Paint over spray;
4. Paint spills;
5. Water contaminated with abrasive blast materials, paint, oils, fuels, lubricants, solvents, or petroleum;
6. Hydro-blast water;
7. Treated or untreated sewage;
8. Tank cleaning water such as to remove sludge and/or dirt;
9. Clarified water from an oil and water separator, except for storm water discharges treated by an oil and water separator and having coverage under this Order;
10. Steam cleaning water;
11. Pipe and tank hydrostatic test water, unless regulated by an NPDES permit;
12. Saltbox water;
13. Hydraulic oil leaks and spills;
14. Fuel leaks and spills;
15. Trash;
16. Refuse and rubbish including but not limited to cans, bottles, paper, plastics, vegetable matter or dead animals;
17. Fiberglass dust;
18. Swept materials;
19. Ship repair and maintenance activity debris;
20. Waste zinc plates;
21. Demineralizer and reverse osmosis brine; and
22. Oily bilge water.

B. Diesel engine cooling water discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.

C. The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into San Diego Bay or the Pacific Ocean is prohibited.

D. The discharge of waste to Waters of the U.S. including but not limited to San Diego Bay, the Pacific Ocean, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area is prohibited except as specifically authorized by this Order or another NPDES permit.

E. All discharges regulated under this Order shall comply with waste discharge prohibitions contained in the San Diego Water Board's *Water Quality Control Plan for the San Diego Basin* (Basin Plan) and other applicable statewide water quality control plans described in Attachment F of this Order. The Basin Plan waste discharge prohibitions are listed in Attachment J to this Order.

F. Except as provided in Non-Storm Water Specifications, section IV.F of this Order or as otherwise regulated by this Order, discharges of liquids or materials others than storm water (i.e. non-storm water discharges) either directly or indirectly to Waters of the U.S., including but not limited to San Diego Bay, the Pacific Ocean, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, or waters in the Canyon City Hydrologic Area are prohibited.

G. The discharge of the first ¼ inch of storm water runoff (First Flush) from all areas designated as Industrial High Risk areas, as defined in section IV.B.1.d of this Order, is prohibited, unless the First Flush complies with the effluent limitations in section IV.C. Effluent limitations contained in section IV.C are applicable to all discharges of storm water from Industrial High Risk Areas on the Facility.

H. The discharge of materials of petroleum origin in sufficient quantities to be visible in the receiving water is prohibited.

I. Discharges to Waters of the U.S., including but not limited to San Diego Bay, the Pacific Ocean, the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area, containing a hazardous substance equal to or in excess of a reportable quantity listed in 40 CFR part 117, *Security Classification Regulations Pursuant To Executive Order 11652*, and/or 40 *CFR part 302, Designation, Reportable Quantities, and Notification*, are prohibited.

J. The discharge of Polychlorinated Biphenyls (PCBs) to Waters of the U.S., including but not limited to San Diego Bay, the Pacific Ocean, and the Tijuana River Estuary, Morena Reservoir, a tributary to the San Luis Rey River watershed, and waters in the Canyon City Hydrologic Area is prohibited.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations for Industrial Process Wastewater

Industrial process wastewater discharges regulated under this order include pier washing, utility vault and manhole dewatering, pier boom cleaning, boat rinsing, steam condensate, and diesel engine cooling water.

1. **BMP Regulated Industrial Process Wastewater.** The discharge of pier washing wastewater at Discharge Point No. PW-001 and Utility Vault and Manhole Dewatering at Discharge Point No. UV-001 through UV-013 in Table 4 is regulated using a narrative effluent limitation BMP approach under section VI.C.3 of this Order. Pier boom cleaning and boat rinsing have no discharge to surface waters require BMPs under section VI.C.3 of this Order to prevent discharges.

Table 4. Industrial Process Wastewaters Regulated with BMPs

Type of Discharge	Discharge Point Nos.
Pier Washing Wastewater	PW-001
Utility Vault and Manhole Dewatering	UV-001 through UV-013
Boat Rinsing	No Discharge
Pier Boom Cleaning	No Discharge

2. **Steam Condensate Discharges.** Effluent Limitations for Steam Condensate – Discharge Point Nos. SC-001 through SC-010

   The Discharger shall maintain compliance with the effluent limitations in Table 5 at Discharge Point Nos. SC-001 through SC-010 with compliance measured at Monitoring Locations SC-001 through SC-010 as described in the Monitoring and Reporting Program (MRP), Attachment E of this Order.

Table 5. Effluent Limitations for Steam Condensate

Parameter	Units	Effluent Limitations				
		6-Month Median	Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Discharges to the San Diego Bay – Discharge Point Nos. SC-001 through SC-009						
Oil and Grease	mg/L	--	25	40	--	75
Turbidity	NTU	--	75	100	--	225
pH	standard units	--	--	--	--	[1]
Settleable Solids	ml/L	--	1.0	1.5	--	3.0
Chronic Toxicity	Pass/Fail	[--]	[2]	--	[2]	--
Arsenic, Total Recoverable	µg/L	--	30	--	59	--
Copper, Total Recoverable	µg/L	--	1.9	--	5.8	--
Lead, Total Recoverable	µg/L	--	3.4	--	12	--
Nickel, Total Recoverable	µg/L	--	6.8	--	14	--
Selenium, Total Recoverable	µg/L	--	58	--	120	--
Zinc, Total Recoverable	µg/L	--	47	--	95	--
2,3,7,8-TCDD	µg/L	--	$1.4x10^{-8}$	--	$2.8x10^{-8}$	--
Bis(2-Ethylhexyl)Phthalate	µg/L	--	5.9	--	12	--
Aldrin	µg/L	--	0.00014	--	0.00028	--
4,4'-DDT	ug/L	--	0.00059	--	0.00118	--
4,4'-DDE	ug/L	--	0.00059	--	0.00118	--
4,4'-DDD	ug/L	--	0.00084	--	0.00169	--
Heptachlor	µg/L	--	0.00021	--	0.00042	--
Heptachlor Epoxide	µg/L	--	0.00011	--	0.00022	--
Discharges to the Pacific Ocean – Discharge Point No. SC-010						
Oil and Grease	mg/L	--	25	40	--	75
Turbidity	NTU	--	75	100	--	225
pH	standard units	--	--	--	[--]	[1]
Settleable Solids	ml/L	--	1.0	1.5	--	3.0
Chronic Toxicity	Pass/Fail	[--]	[2]	--	[2]	--

Parameter	Units	Effluent Limitations				
		6-Month Median	Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Copper, Total Recoverable	µg/L	3	--	--	5.8	30
Lead, Total Recoverable	µg/L	2	--	--	8	20
Zinc, Total Recoverable	µg/L	20	--	--	80	200
TCDD Equivalents	µg/L	--	3.9×10^{-9}	--	--	--
Bis(2-Ethylhexyl)Phthalate	µg/L	--	3.5	--	--	--

[1] Within limits of 7.0 – 9.0 standard units at all times.
[2] As defined in section VII.J of this Order.

3. Diesel Engine Cooling Water Discharges. Effluent Limitations for Diesel Engine Cooling Water – Discharge Point No. CW-001

The Discharger shall maintain compliance with the effluent limitations in Table 6 at Discharge Point No. CW-001 with compliance measured at Monitoring Location CW-001 as described in the MRP, Attachment E of this Order.

Table 6. Effluent Limitations for Diesel Engine Cooling Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Oil and Grease	mg/L	25	40	--	75
Turbidity	NTU	75	100	--	225
pH	standard units	--	--	--	[1]
Settleable Solids	ml/L	1.0	1.5	--	3.0
Chronic Toxicity	Pass/Fail	[2]	--	[2]	--
Arsenic, Total Recoverable	µg/L	20	--	62	--
Chromium VI, Total Recoverable	µg/L	27	--	85	--
Copper, Total Recoverable	µg/L	2.0	--	5.8	--
Lead, Total Recoverable	µg/L	5.8	--	15	--
Nickel, Total Recoverable	µg/L	5.7	--	15	--
Selenium, Total Recoverable	µg/L	58	--	120	--
Zinc, Total Recoverable	µg/L	37	--	95	--
4,4-DDT	µg/L	0.00059	--	0.0017	--
4,4-DDE	µg/L	0.00059	--	0.0012	--
4,4-DDD	µg/L	0.00084	--	0.0017	--

[1] Within the limit of 7.0 – 9.0 standard units at all times.
[2] As defined in section VII.J of this Order.

B. Storm Water Risk Level Designations

1. Storm Water Risk Level Designation Definitions

a. Small (Military Base) Municipal Separate Storm Sewer System (Small Military Base MS4) Areas. Areas where no industrial activities occur. Areas designated as "Small Military Base MS4 Areas" are subject to the technology-based standard of maximum extent practicable (MEP) and Storm Water Management Program (SWMP) requirements contained in section IV.D of this Order.

b. Industrial No Exposure Areas. Areas where all industrial materials and activities are protected by a storm resistant shelter[1] to prevent exposure to rain, snow, snowmelt, and/or runoff. "Industrial materials and activities" include, but are not limited to, material handling[2] equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, and waste products.

c. Industrial Low Risk Areas. All areas where wastes or pollutants from industrial activities are subject to precipitation, run-on, and/or runoff and which are not classified as Industrial No Exposure Areas or Industrial High Risk Areas.

d. Industrial High Risk Areas. All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff.

2. Annual Storm Water Risk Designation Level Report

Annually, the Discharger shall conduct a complete and thorough survey of the Facility to identify and categorize all areas and the associated storm water drainage system(s) and outfall(s) (i.e. discharge point(s)) in accordance with the risk level designations. Storm water drainage systems and outfalls that receive storm water runoff from areas that have multiple risk levels shall be designated as having the highest risk level occurring in that area. The Discharger shall prepare and submit an Annual Storm Water Risk Level Designation Report by September 1 of each year containing the results of the surveys conducted in the previous July 1 through June 30 period including the following information:

a. Master Risk Designation List. An updated list of all facility discharge locations containing discharge point identification numbers, summary activity descriptions of the drainage area(s) tributary to each discharge point, the storm water risk level designation, the longitude and latitude of the outfall location, and the name of the receiving water. The current Storm Water Risk Level Designation Tables are included as Attachment M of this Order and the updated master list shall be in a format suitable for the replacement of Attachment M.

[1] "Storm-resistant shelters" include completely roofed and walled buildings or structures. They also include structures with only a top cover supported by permanent supports but with no side coverings provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), track-out, and there is no storm water discharged from within the structure that has come into contact with any materials.

[2] "Material handling activities" include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, or waste product.

b. Facility Map. A Facility map clearly labeled with (i) storm water discharge points; (ii) storm drain systems, features, drainage basin boundaries, and risk level designations; and (iii) land uses. The current storm water outfall maps are included in Attachment B of this Order and updated maps shall be in a format suitable for the replacement of the figures in Attachment B.

c. Proposed Revisions. A description of any proposed changes to the (i) storm water discharge points; (ii) storm drain systems, features, drainage basin boundaries, and risk levels; and (iii) land use designations from the previous year.

3. Annual Storm Water Risk Level Designation Implementation

The updated Master Risk Designation List and Facility Map in the Annual Storm Water Risk Level Designation Implementation will supersede Attachment M of this Order, except for enforcement purposes, and shall become an enforceable condition of this Order, unless directed otherwise in writing by the San Diego Water Board. The San Diego Water Board retains the right to require revisions to the Discharger designated risk levels based on relevant evidence, whether direct or circumstantial, including but not limited to, evidence in the following categories:

a. Site characteristics and location in relation to potential sources of a discharge;

b. Industry-wide operational practices that have led to discharges;

c. Evidence of poor management of materials or wastes, such as improper storage practices or inability to reconcile inventories;

d. Lack of documentation of responsible management of materials or wastes, such as lack of manifests or lack of documentation of proper disposal;

e. Physical evidence, such as analytical data, soil or pavement staining, or unusual odor or appearance;

f. Reports or complaints;

g. Other agencies' records of possible or known discharges; and

h. Refusal or failure to respond to San Diego Water Board inquires.

4. Storm Water Risk Level Inspections

The Discharger shall conduct periodic inspections throughout the year to ensure that storm water risk level designations remain applicable and on-site operations have not changed sufficiently to warrant a revised risk level. These inspections may be conducted simultaneously with inspections conducted pursuant to other sections of this Order. If at any time the Discharger identifies a necessary revision to an area's risk level, the Discharger shall implement Best Management Practices (BMPs) and other requirements of the area's new risk level by the next storm event, unless additional time is approved by the San Diego Water Board. All risk level revisions shall be included in the Annual Storm Water Risk Level Designation Report.

C. Effluent Limitations for Discharges from Industrial High Risk Areas

For discharges of pollutants in storm water discharges, from areas designated as Industrial High Risk Areas as defined in section IV.B.1.d of this Order, the Discharger shall maintain compliance with the following Maximum Daily Effluent Limitations (MDEL) for acute toxicity with compliance measured at Monitoring Locations as described in the MRP Attachment E and Attachment M as updated annually of this Order:

Table 7. Effluent Limitations for Industrial Storm Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Acute Toxicity	Pass/Fail	--	Pass or % effect <40[a]	--	--

a. Compliance with the Maximum Daily Effluent Limitation shall be based on the procedures specified in section IV. of the MRP, Attachment E, of this Order.

D. Small Military Base MS4 Discharge Specifications

1. **Pollutant Reduction to MEP.** The Discharger shall reduce pollutants in storm water discharges from areas, designated as "Small Military Base MS4 Areas" as defined in section IV.B.1 of this Order, to the technology–based standard of MEP to attain compliance with water quality standards set forth in section V, Receiving Water Limitations of this Order.

2. **Storm Water Management Plan (SWMP) Implementation.** The Discharger shall prepare and submit to the San Diego Water Board, an adequate SWMP no later than 18 months following the effective date of this Order. The Discharger shall implement the SWMP no later than 24 months following the effective date of this Order. The Discharger shall make revisions to the SWMP as necessary or as required by the San Diego Water Board. The SWMP shall be designed to reduce the discharge of pollutants from "Small Military Base MS4 Areas" to the technology–based standard of MEP to protect receiving water quality. The SWMP shall serve as the framework for identification, assignment, and implementation of measures and BMPs to control Small Military Base MS4 discharges. Existing programs such as street sweeping that have storm water quality benefits should be identified in the SWMP and be a part of the Discharger's storm water program. The SWMP shall at a minimum contain the elements described in Attachment L of this Order. A SWMP is not required if the Discharger certifies annually in the Annual Storm Water Risk Designation Level Report the following for any installation unless otherwise directed by the San Diego Water Board in writing within 90 days of submission:

   a. Population of staff and visitors is under 1,000 and;

   b. The installation MS4 system is not contributing substantially to the pollutant loadings of a physically interconnected regulated MS4 and can demonstrate the following:

      i. The installation discharges less than ten percent of its storm water to the regulated MS4 or;

      ii. The installation's discharge makes up less than ten percent of the permitted MS4's total storm water volume; and

   c. If the Installation discharges any pollutants identified as a cause of Clean Water Act Section 303(d) impairment of any water body to which it discharges, storm water

controls are not needed to comply with Waste Load Assessments of an adopted Total Maximum Daily Load that addresses pollutants of concern.

3. **Bacteria Project I – Twenty Beaches and Creeks TMDL.** The Remote Training Site Warner Springs (RTSWS) shall take the following actions to meet the requirements of the TMDL:

   a. Implement the SWMP required by section IV.D.2 of this Order and any other additional measures necessary to achieve reductions in fecal coliform, enterococcus, and total coliform by the final compliance dates as required by the TMDL. The SWMP must include short term and long term BMP strategies appropriate for the prioritization schedule in Attachment A page A-65 of Resolution No. R9 2010- 0001.

   b. Collaborate and coordinate, to the extent feasible, with Phase I MS4s and other responsible parties to the Bacteria TMDL using an adaptive framework approach as part of the waste load reduction planning and implementation strategies in the required SWMP pursuant to section IV.D.2 of this Order. Coordinated efforts by all responsible parties are encouraged by the San Diego Water Board and will accomplish the waste load reductions required in the TMDLs faster and achieve the ultimate goal of improving water quality as soon as possible.

   c. Monitor discharges from their facilities including MS4 discharge locations to demonstrate progress towards compliance with final waste load allocations. The monitoring and assessment results must be submitted as part of the Annual Reports required under section E.16 of this Order.

E. Industrial Storm Water Discharge Specifications – No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas

1. **Pollutant Reduction to Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT).** The Discharger shall reduce pollutants in storm water discharges from areas, designated as Industrial No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas as defined in section IV.B.1 of this Order to do the following:

   a. Attain the technology–based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants; and

   b. Attain compliance with applicable effluent limitations set forth in section IV, Effluent Limitations and Discharge Specifications of this Order and water quality standards set forth in section V, Receiving Water Limitations of this Order.

2. **Storm Water Pollution Prevention Plan (SWPPP) Requirements.**

   a. The Discharger shall continue to maintain and implement an effective SWPPP designed to reduce or prevent the discharge of pollutants from industrial activities conducted in Industrial No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas to the technology–based standards of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.

   b. The SWPPP shall include identification, assignment, and guidance for implementation of measures and BMPs to control discharges from industrial activities in the Industrial No Exposure, Industrial Low Risk and Industrial High Risk Areas of NBC. The BMPs and

measures shall be selected to achieve BAT/BCT and compliance with all receiving water limitations.

c. At a minimum, the SWPPP shall contain the elements and be implemented in accordance with Attachment G of this Order. The Discharger shall implement any necessary revisions to its SWPPP to comply with the requirements of this Order within 1 year of the effective date of this Order and submit the revised SWPPP.

3. Numeric Action Levels (NALs) for Industrial High Risk Areas and Industrial Low Risk Areas.

The NALs described in Table G-1 of Attachment G of this Order are used as numeric thresholds for corrective action. An exceedance of an NAL is not a violation of this Order. The Discharger shall implement corrective actions as described below.

a. NAL Exceedance Determination Method:

i. **Annual NAL Exceedance.** The Discharger shall determine the average concentration for each parameter using the results of all the industrial storm water sampling and analytical results for the entire Facility for the reporting year (i.e., all "effluent" data). This average concentration for each parameter shall be compared to the corresponding annual NAL values in Table G-1. For Dischargers using composite sampling or flow-weighted measurements in accordance with standard practices, the average concentrations shall be calculated in accordance with the USEPA *Industrial Stormwater Monitoring and Sampling Guide*.[3] An annual NAL exceedance occurs when the average of all the analytical results for a parameter from samples taken within a reporting year exceeds an annual NAL value, or is outside the NAL range, for a parameter listed in Table G-1. The Discharger has the option of calculating the flow weighted average concentration for all industrial storm water effluent data for the entire Facility as shown below to compare the corresponding annual NAL values in Table G-1:

$$\text{FWAC} = \frac{\sum_{n=1}^{n=5} Q_n C_n}{\sum_{n=1}^{n=5} Q_n}$$

Where:

FWAC = Flow weighted average concentration
Q_n = Flow rate of discharge at time of sample collection
C_n = Concentration of chemical in the collected sample
n = Number of discharge points

The flow rate for each discharge point is multiplied by the concentration (C) in the sample from that discharge point. This sum is divided by the total flow rate for all of the discharge points.

[3] US EPA. "Industrial Stormwater Monitoring and Sampling Guide." March 2009. EPA 832-B-09-003 Web 7 April 2014. <http://www.epa.gov/npdes/pubs/msgp_monitoring_guide.pdf>.

For calculating the average, all effluent sampling analytical results that are reported by the laboratory as less than the Minimum Level (ML), a value of zero shall be used.

ii. **Instantaneous Maximum NAL Exceedance.** The Discharger shall compare all industrial storm water analytical results from each distinct sample (grab or composite) to the corresponding instantaneous maximum NAL values in Table G-1. An instantaneous maximum NAL exceedance occurs when two or more analytical results from samples taken for any parameter within a reporting year exceed the instantaneous maximum NAL value (TSS, oil and grease), or are outside the NAL range (pH).

iii. Exceedances of the Annual NAL or Instantaneous Maximum NAL are not violations of this Order.

b. NAL Exceedance Response Actions (ERAs)

i. Baseline Status – No Exceedance

(a) The Discharger will automatically be placed in Baseline status at the beginning of the permit term.

ii. Level 1 Status

A Discharger's Baseline status for any given parameter shall change to Level 1 status if sampling results indicate an NAL exceedance for that same parameter. Level 1 status will commence on July 1 following the reporting year during which the exceedance(s) occurred.

(a) Level 1 ERA Evaluation. By October 1 following commencement of Level 1 status for any parameter with sampling results indicating an NAL exceedance, the Discharger shall:

(1) Complete an evaluation of the industrial pollutant sources at the facility that are or may be related to the NAL exceedance(s); and,

(2) Identify in the evaluation the corresponding BMPs in the SWPPP and any additional BMPs and SWPPP revisions necessary to prevent future NAL exceedances and to comply with the requirements of this Order. Although the evaluation may focus on the drainage areas where the NAL exceedance(s) occurred, all drainage areas shall be evaluated.

(b) Level 1 ERA Report. Based on the above evaluation, the Discharger shall, as soon as practicable, but no later than January 1 following commencement of Level 1 status:

(1) Revise the SWPPP as necessary and implement any additional BMPs identified in the evaluation;

(2) Certify and submit a Level 1 ERA Report that includes the following:

a) A summary of the Level 1 ERA Evaluation required in section IV.E.3.b.ii.(a) above; and

b) A detailed description of the SWPPP and any additional BMPs for each parameter that exceeded an NAL.

(c) Return to Baseline. A Discharger's Level 1 status for a parameter will return to Baseline status once a Level 1 ERA report has been completed, all identified additional BMPs have been implemented, and results from four (4) consecutive Qualifying Storm Events (QSEs) that were sampled subsequent to BMP implementation indicate no additional NAL exceedances for that parameter.

(d) NAL Exceedances Prior to Implementation of Level 1 Status BMPs. Prior to the implementation of an additional BMP identified in the Level 1 ERA Evaluation or October 1, whichever comes first, sampling results for any parameter(s) being addressed by that additional BMP will not be included in the calculations of annual average or instantaneous NAL exceedances.

iii. Level 2 Status

A Discharger's Level 1 status for any given parameter shall change to Level 2 status if sampling results indicate an NAL exceedance for that same parameter while the Discharger is in Level 1. Level 2 status will commence on July 1 following the reporting year during which the NAL exceedance(s) occurred.

(a) Level 2 ERA Action Plan

(1) Dischargers with Level 2 status shall certify and submit a Level 2 ERA Action Plan that addresses each new Level 2 NAL exceedance by January 1 following the reporting year during which the NAL exceedance(s) occurred. For each new Level 2 NAL exceedance, the Level 2 Action Plan will identify which of the demonstrations in section X.B of Attachment G the Discharger has selected to perform. A new Level 2 NAL exceedance is any Level 2 NAL exceedance for 1) a new parameter in any drainage area, or 2) the same parameter that is being addressed in an existing Level 2 ERA Action Plan in a different drainage area.

(2) The Level 2 ERA Action Plan shall at a minimum address the drainage areas with corresponding Level 2 NAL exceedances.

(3) All elements of the Level 2 ERA Action Plan shall be implemented as soon as practicable and completed no later than 1 year after submitting the Level 2 ERA Action Plan.

(4) The Level 2 ERA Action Plan shall include a schedule and a detailed description of the tasks required to complete the Discharger's selected demonstration(s) as described below in section X.B of Attachment G.

(b) Level 2 ERA Technical Report

(1) On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations described in section X.B of Attachment G to this order:

a) Industrial Activity BMPs Demonstration:

b) Non-Industrial Pollutant Source Demonstration; or

c) Natural Background Pollutant Source Demonstration.

(2) The San Diego Water Board may review the submitted Level 2 ERA Technical Reports. Upon review of a Level 2 ERA Technical Report, the San Diego Water Board may reject the Level 2 ERA Technical Report and direct the Discharger to take further action(s) to comply with this Order.

(3) Dischargers with Level 2 status who have submitted the Level 2 ERA Technical Report are only required to annually update the Level 2 ERA Technical Report based upon additional NAL exceedances of the same parameter and same drainage area, facility operational changes, pollutant source(s) changes, and/or information that becomes available via compliance activities (monthly visual observations, sampling results, annual evaluation, etc.). The Level 2 ERA Technical Report shall be certified and submitted by the Discharger with each Storm Water Annual Report. If there are no changes prompting an update of the Level 2 ERA Technical Report, as specified above, the Discharger will provide this certification in the Annual Report that there have been no changes warranting re-submittal of the Level 2 ERA Technical Report.

(4) Dischargers are not precluded from submitting a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status if information is available to adequately prepare the report and perform the demonstrations described above. A Discharger who chooses to submit a Level 2 ERA Action Plan or ERA Technical Report prior to entering Level 2 status will automatically be placed in Level 2 in accordance to the Level 2 ERA schedule.

(5) Eligibility for Returning to Baseline Status

a) Dischargers with Level 2 status who submit an Industrial Activity BMPs Demonstration in accordance with section X.B.1 of Attachment G and have implemented BMPs to prevent future NAL exceedance(s) for the Level 2 parameter(s) shall return to baseline status for that parameter, if results from four (4) subsequent consecutive QSEs sampled indicate no additional NAL exceedance(s) for that parameter(s). If future NAL exceedances occur for the same parameter(s), the Discharger's Baseline status will return to Level 2 status on July 1 in the subsequent reporting year during which the NAL exceedance(s) occurred. These Dischargers shall update the Level 2 ERA Technical Report as required above in section IV.E.3.b.iii.(b)(3).

b) Dischargers are ineligible to return to baseline status if they submit any of the following:

(i) A industrial activity BMP demonstration that is not expected to eliminate future NAL exceedance(s) in accordance with section X.B.1.d of Attachment G;

(ii) An non-industrial pollutant source demonstration; or,

(iii) A natural background pollutant source demonstration.

(6) Level 2 ERA Implementation Extension

a) Dischargers that need additional time to submit the Level 2 ERA Technical Report shall be automatically granted a single time extension for up to six (6) months upon submitting the following items as applicable:

(i) Reasons for the time extension;

(ii) A revised Level 2 ERA Action Plan including a schedule and a detailed description of the necessary tasks still to be performed to complete the Level 2 ERA Technical Report; and

(iii) A description of any additional temporary BMPs that will be implemented while permanent BMPs are being constructed.

b) The San Diego Water Board will review Level 2 ERA Implementation Extensions for completeness and adequacy. Requests for extensions that total more than six (6) months are not granted unless approved in writing by the San Diego Water Board. The San Diego Water Board may (1) reject or revise the time allowed to complete Level 2 ERA Implementation Extensions, (2) identify additional tasks necessary to complete the Level 2 ERA Technical Report, and/or (3) require the Discharger to implement additional temporary BMPs.

4. Design Storm Standards for Storm Water Retention and Treatment Control BMPs

All new treatment control BMPs employed by Discharger to comply with this Order shall be designed to comply with minimum design storm standards in this section. A factor of safety shall be incorporated into the design of all treatment control BMPs to ensure that storm water is sufficiently treated throughout the life of the treatment control BMPs. The design storm standards for treatment control BMPs are as follows:

a. **Volume-based BMPs:** The Discharger shall, at a minimum, calculate[4] the volume to be treated using one of the following methods:

i. The volume of runoff produced from an 85th percentile storm event as determined from local, historical rainfall records. Isopluvial maps for the 85th percentile storm event are available on the internet[5];

ii. The volume of runoff produced by the 85th percentile storm event, determined as the maximized capture runoff volume for the facility, from the formula recommended in the Water Environment Federation's (WEF's) Manual of Practice[6]; or,

[4] All hydrologic calculations shall be certified by a California licensed professional engineer in accordance with the Professional Engineers Act (Bus. & Prof. Code § 6700, et seq).
[5] The County of San Diego isopluvial map is located at http://www.sdcounty.ca.gov/dpw/watersheds/susmp/susmppdf/susmp_85precip.pdf may be used.
[6] Water Environment Federation (WEF). Manual of Practice No. 23/ ASCE Manual of Practice No. 87, pg. 175 Equation 5.2 (1998).

iii. The volume of annual runoff required to achieve 80% or more treatment, determined in accordance with the methodology set forth in the latest edition of *California Stormwater Best Management Practices Handbook*[7] using local historical rainfall records.

b. **Flow-based BMPs:** The Discharger shall calculate the flow needed to be treated using one of the following methods:

i. The maximum flow rate of runoff produced from a rainfall intensity of at least 0.2 inches per hour for each hour of a storm event;

ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from local historical rainfall records, multiplied by a factor of two; or,

iii. The maximum flow rate of runoff, as determined using local historical rainfall records, that achieves approximately the same reduction in total pollutant loads as would be achieved by treatment of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

c. In lieu of complying with the design storm standards for treatment control BMPs in this section, the Discharger may certify and submit a BAT/BCT Compliance Demonstration Technical Report.

d. The San Diego Water Board may revise the treatment design storm standard provided in this Order. The revision must be in writing and based upon sampling data indicating that a revised design storm standard would be protective of water quality, or based upon the San Diego Water Board's determination that the treatment technology associated with the revised design storm standard meets BAT/BCT.

F. Non-Storm Water Discharge Specifications

1. Non-Storm Water Discharges. Discharges through the MS4 of material other than storm water to Waters of the U.S. are prohibited, except as allowed under this Provision or as otherwise authorized by a separate NPDES permit. The following non-storm water discharges are authorized under this Order unless the Discharger or the San Diego Water Board identifies the discharges as a significant source of pollutants to Waters of the U.S. as provided in section IV.F.3 below:

a. Diverted stream flows;

b. Rising groundwaters;

c. Uncontaminated groundwater infiltration [as defined at 40 CFR section 35.2005(b)(20)] to MS4s;

d. Uncontaminated pumped groundwater, foundation drains, crawl space pumps and, footing drain discharges not subject to a groundwater extraction permit such as NPDES Permit No. CAG919003, (*General Waste Discharge Requirements for Groundwater*

[7] California Stormwater Quality Association. Stormwater Best Management Practice New Development and Redevelopment Handbook. Web. 28 February 2013. <http://www.cabmphandbooks.com/Development.asp>.

Extraction Discharges to Surface Waters within the San Diego Region) or subsequent superseding NPDES renewal permit;

e. Springs;

f. Drinking fountain water and emergency eye wash/shower station test water;

g. Atmospheric condensate including refrigeration, air conditioning and compressor condensate;

h. Flows from riparian habitats and wetlands;

i. Discharges from potable water sources not subject to an NPDES permit such as NPDES Permit No. CAG140001 (*Statewide National Pollutant Discharge Elimination System (NPDES) Permit for Drinking Water system Discharges to Waters of the United States*) or subsequent superseding NPDES renewal permit;

j. Individual residential car washing;

k. Dechlorinated swimming pool discharges;

   i. Residual chlorine, algaecide, filter backwash, or other pollutants from swimming pools must be eliminated prior to discharging to the MS4; and

   ii. The discharge of saline swimming pool water must be directed to the sanitary sewer, landscaped areas, or other pervious surfaces that can accommodate the volume of water, unless the saline swimming pool water can be discharged via a pipe or concrete channel directly to a naturally saline water body (e.g. San Diego Bay or the Pacific Ocean).

l. Seawater infiltration where the seawater is discharged back into the seawater source;

m. Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) not otherwise regulated by this Order; and

n. Non-storm water discharges explicitly authorized elsewhere in this Order.

2. Conditions for Authorized Non-storm Water Discharges. The non-storm water discharges identified in section IV.F.1 above are authorized by this Order only if all of the following conditions are satisfied:

a. The non-storm water discharges are not in violation of any San Diego Water Board requirement;

b. The non-storm water discharges are not in violation of any municipal or federal agency ordinance or requirement;

c. BMPs are included in the SWMP for Small Military Base MS4 areas and in the SWPPP for industrial areas that are designed to do the following:

   i. Prevent or reduce the contact of non-storm water discharges with significant materials or equipment; and

ii. Minimize, to the extent practicable, the flow or volume of non-storm water discharges;

d. The non-storm water discharges do not contain quantities of pollutants that may cause or contribute to an exceedance of a water quality standard(s);

e. The non-storm water discharges and identified sources in industrial areas are visually inspected quarterly in accordance with the SWPPP to ensure adequate BMP implementation and effectiveness; and

f. The non-storm water discharges from Industrial Low Risk and Industrial High Risk Areas are reported in the Storm Water Annual Report required under section VII.C of the MRP in Attachment E of this Order.

3. **Identification of Non-Storm Water Significant Sources of Pollutants**. Where the Discharger or the San Diego Water Board determines that any individual or category of non-storm water discharge(s) listed in section IV.F.1 above may be a significant source of pollutants to Waters of the U.S. or physically interconnected MS4, or poses a threat to water quality standards (e.g. beneficial uses), the individual or category of non-storm water discharge(s) must be addressed by the Discharger as an illicit discharge(s) and prohibited through ordinance, order, or similar means unless the discharge is from a non-anthropogenic source. For a non-anthropogenic source determined to be a significant source of pollutants, the Discharger must either prohibit the discharge or develop and implement appropriate control measures to prevent the discharge of pollutants to the MS4.

4. **Firefighting Discharges**. Emergency firefighting flows (i.e., flows necessary for the protection of life or property) are excluded from the effective prohibition against non-storm water and need only be addressed where they are identified as significant sources of pollutants to Waters of the U.S. The Discharger should develop and encourage implementation of BMPs to reduce or eliminate pollutants in emergency firefighting discharges to the MS4s and receiving waters within its jurisdiction. During emergency situations, priority of efforts should be directed toward life, property, and the environment (in descending order). BMPs should not interfere with immediate emergency response operations or impact public health and safety.

5. **Non-Fire Fighting Discharges**. Non-emergency firefighting discharges (i.e., discharges from controlled or practice blazes, firefighting training, and maintenance activities not associated with building fire suppression systems) must be addressed by a program, to be developed and implemented by the Discharger, to reduce or eliminate pollutants in such discharges from entering the MS4 or the receiving water. Building fire suppression system maintenance discharges (e.g. sprinkler line flushing) to the MS4 must be addressed as illicit discharges unless BMPs are implemented to prevent pollutants associated with such discharges from entering the MS4.

6. **Utility Vault & Manhole Dewatering (Utility Vault) Discharges**. The Discharger shall reduce or prevent pollutants associated with utility vault and manhole dewatering discharges through implementation of BAT for toxic and non-conventional pollutants, and BCT for conventional pollutants.

7. **Incidental Runoff from Landscaped Areas.** Incidental runoff is defined as unintended amounts (volume) of landscape irrigation that escapes the area of intended use. The Discharger shall control incidental runoff thorough the following means:

a. Detection of leaks (e.g. broken sprinkler heads) and correction of the leaks within 72 hours of learning of the leaks;

b. Proper design and aiming of sprinkler heads; and

c. Elimination of landscape irrigation during precipitation events.

The discharge of incidental runoff from landscaped areas that is not controlled by the above requirements is prohibited.

V. RECEIVING WATER LIMITATIONS

A. The receiving water limitations set forth in sections V.B. and V.C. of this Order for San Diego Bay, the Tijuana River Estuary, the Pacific Ocean, Morena Reservoir, tributaries to the San Luis Rey River, and waters in the Canyon City Hydrologic Area are based on applicable water quality standards contained in water quality control plans and policies and federal regulations listed below. These plans, policies, and regulations set forth limits or levels of water quality characteristics to ensure the reasonable protection of beneficial uses and the prevention of nuisance. The discharges of waste regulated under this Order shall not cause or contribute to violations of these water quality standards.

1. The San Diego Water Board's Basin Plan, including beneficial uses, water quality objectives, and implementation plans;

2. State Water Board water quality control plans and policies including the following:

a. *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries* (Thermal Plan);

b. *Water Quality Control Plan for Ocean Waters of California* (Ocean Plan);

c. *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* (Bays and Estuaries Policy);

d. *Policy for Implementation of Toxics Standards for Inland Surface Waters, and Enclosed Bays, and Estuaries of California* (State Implementation Plan or SIP);

e. *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Bays and Estuaries Plan – Sediment Quality Plan [SQO]); and

f. *The Statement of Policy with Respect to Maintaining High Quality of Waters in California* (State Water Board Resolution No. 68-16).

3. Priority pollutant criteria promulgated by the USEPA through the following:

a. National Toxics Rule (NTR)[8] (promulgated on December 22, 1992 and amended on May 4, 1995); and

b. California Toxics Rule (CTR). [9,10]

[8] 40 CFR 131.36

B. Discharges to San Diego Bay and the Tijuana River Estuary. Discharges from the Facility to San Diego Bay and the Tijuana River Estuary shall not by itself or jointly with any other discharge(s) cause or contribute to violations of the following receiving water limitations:

1. Physical Characteristics

a. Waters shall be fee of coloration that causes nuisance or adversely affects beneficial uses. [Basin Plan]

b. Waters shall not contain oils, greases, waxes, or other materials in concentrations which result in visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or which otherwise adversely affect beneficial uses. [Basin Plan]

c. Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses. [Basin Plan]

d. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. [Basin Plan]

e. Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses. [Basin Plan]

f. Waters shall not contain taste or odor producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. [Basin Plan]

g. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. In addition, within San Diego Bay, the transparency of bay waters, insofar as it may be influenced by any controllable factor, either directly or through induced conditions, shall not be less than 8 feet in more than 20 percent of the readings in any zone, and measured by a standard Secchi disk. Wherever the water is less than 10 feet deep, the Secchi disk reading shall not be less than 80 percent of the depth in more than 20 percent of the readings in any zone. [Basin Plan]

h. The discharge of waste shall not cause the temperature of the receiving water to be altered in a manner that adversely impacts beneficial uses. [Thermal Plan]

2. Chemical Characteristics

a. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally. The pH shall not be depressed below 7.0 nor raised above 9.0. [Basin Plan]

b. The dissolved oxygen concentration shall not at anytime be less than 5.0 mg/L. The annual mean dissolved oxygen concentration shall not be less than 7 mg/L more than 10 percent of the time. [Basin Plan]

c. San Diego Bay waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses. [Basin Plan]

[9] 65 Federal Register 31682-31719 (May 18, 2000), adding section 131.38 to 40 CFR
[10] If a water quality objective and a CTR criterion are in effect for the same priority pollutant, the more stringent of the two applies

d. The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/L (as N) in the San Diego Bay. [Basin Plan]

e. No individual pesticide or combination of pesticides shall be present in the water column, sediments, or biota at concentration(s) that adversely affect beneficial uses. Pesticides shall not be present at levels which will bioaccumulate in aquatic organisms to levels which are harmful to human health, wildlife, or aquatic organisms. [Basin Plan]

3. Biological Characteristics

a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded. [Ocean Plan-BPJ][11]

b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered. [Ocean Plan-BPJ]

c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health. [Ocean Plan-BPJ]

4. Bacterial Characteristics

a. The most probable number of total coliform organisms in the upper 60 feet of the water column shall be less than 1,000 organisms per 100 ml (10 organisms per ml); provided that not more than 20 percent of the samples at any sampling station, in any 30-day period, may exceed 1,000 organisms per 100 ml (10 per ml); and provided further that no single sample shall exceed 10,000 organisms per 100 ml as described in the Basin Plan. [Basin Plan]

b. The median total coliform concentration throughout the water column for any 30-day period shall not exceed 70 organisms per 100 ml nor shall more than 10 percent of the samples collected during any 30-day period exceed 230 organisms per 100 ml for a five-tube decimal dilution test or 330 organisms per 100 ml when a three-tube decimal dilution test is used where shellfish harvesting is designated. [Basin Plan]

c. Where bay waters are used for whole fish handling, the density of E. coli shall not exceed 7 organisms per ml in more than 20 percent of any 20 daily consecutive samples of bay water. [Basin Plan]

5. Radioactivity

a. Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal or aquatic life. [Basin Plan]

b. The radioactivity in the receiving waters shall not exceed limits specified in title 17, division 1, chapter 5, subchapter 4, group 3, article 1, section 30253 of the California Code of Regulations (CCR).

[11] Ocean Plan-BPJ means that Best Professional Judgment (BPJ) was used to apply standards from the Ocean Plan to San Diego Bay.

6. Toxicity

a. All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods as specified by the Regional Board. [Basin Plan]

b. Pollutants in sediments shall not be present in quantities that, alone or in combination, are toxic to benthic communities. [Bays and Estuaries Plan - SQO]

c. Pollutants shall not be present in sediments at levels that will bioaccumulate in aquatic life to levels that are harmful to human health. [Bays and Estuaries Plan - SQO]

C. Discharges to the Pacific Ocean. Discharges from the Facility to the Pacific Ocean shall not by itself or jointly with any other discharge(s) cause or contribute to violations of the following receiving water limitations:

1. Bacterial Characteristics

a. Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone used for water contact sports, as determined by the Regional Board (i.e., waters designated as REC-1), but including all kelp beds, the following bacterial objectives shall be maintained throughout the water column:

i. 30-day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each site:

(a) Total coliform density shall not exceed 1,000 per 100 mL;

(b) Fecal coliform density shall not exceed 200 per 100 mL; and

(c) Enterococcus density shall not exceed 35 per 100 mL. [Ocean Plan]

ii. Single Sample Maximum:

(a) Total coliform density shall not exceed 10,000 per 100 mL;

(b) Fecal coliform density shall not exceed 400 per 100 mL;

(c) Enterococcus density shall not exceed 104 per 100 mL; and

(d) Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform/total coliform ratio exceeds 0.1. [Ocean Plan]

b. At all areas where shellfish may be harvested for human consumption, as determined by the Regional Board, the following bacterial objectives shall be maintained throughout the water column:

i. The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL. [Ocean Plan]

2. Physical Characteristics

a. Floating particulates and grease and oil shall not be visible. [Ocean Plan]

b. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface. [Ocean Plan]

c. Natural light shall not be significantly reduced as the result of the discharge of waste. [Ocean Plan]

d. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded. [Ocean Plan]

e. The discharge of waste shall not cause the temperature of the receiving water to be altered in a manner that adversely impacts beneficial uses. [Thermal Plan]

3. Chemical Characteristics

a. The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials. [Ocean Plan]

b. The pH shall not be changed at any time more than 0.2 units from that which occurs naturally. [Ocean Plan]

c. The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions. [Ocean Plan]

d. The concentration of substances set forth in the Ocean Plan chapter II, Table 1, in marine sediments shall not be increased to levels which would degrade indigenous biota. [Ocean Plan]

e. The concentration of organic materials in marine sediments shall not be increased to levels which would degrade marine life. [Ocean Plan]

f. Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota. [Ocean Plan]

4. Numerical Water Quality Objectives

a. Ocean Plan Table 1 water quality objectives apply to all discharges under this Order that are within the jurisdiction of the Ocean Plan. Unless otherwise specified, all metal concentrations are expressed as total recoverable concentrations. [Ocean Plan]

5. Biological Characteristics

a. Marine communities, including vertebrate, invertebrate, and plant species, shall not be degraded. [Ocean Plan]

b. The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered. [Ocean Plan]

c. The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health. [Ocean Plan]

6. Radioactivity

a. The discharge of radioactive waste shall not degrade marine life. [Ocean Plan]

b. The radioactivity in the receiving waters shall not exceed limits specified in title 17, division 1, chapter 5, subchapter 3, group 3, article 3, section 30253 of the CCR.

D. Discharges to Inland Surface Waters. Discharges from the Facility to Morena Reservoir, tributaries to the San Luis Rey River, or waters in the Canyon City Hydrologic Area shall not by itself or jointly with any other discharge(s) cause or contribute to violations of the following receiving water limitations:

1. Bacterial Characteristics

a. **Total Coliform Organisms [Basin Plan]:** Total coliform organisms concentration shall not exceed the following:

i. 1,000 MPN/100 mL geometric mean, based on a minimum of not less than five samples for any 30-day period; and

ii. 10,000 MPN/100 mL at any time.

b. **Fecal Coliform [Basin Plan]:** Fecal coliform organisms concentration shall not exceed the following:

i. 200 MPN/100 mL geometric mean, based on a minimum of not less than five samples for any 30-day period; and

ii. 400 MPN/100 mL for more than 10 percent of the total samples during any 30-day period.

c. **Enterococci [Basin Plan]:** Enterococci concentration shall not exceed the following:

i. 33 MPN/100 mL geometric mean, based on all samples during a 30-day period; and

ii. 61 MPN/100 mL at any time.

d. **Escherichia coli [Basin Plan]:** Escherichia coli concentration shall not exceed the following:

i. 126 MPN/100 mL geometric mean, based on all samples during a 30-day period; and

ii. 235 MPN/100 mL at any time.

2. Chemical Characteristics

a. The dissolved oxygen concentration shall not at any time be less than five mg/L in inland surface waters with designated WARM beneficial use or less than six mg/L in waters designated COLD beneficial use. The annual mean dissolved oxygen concentration shall not be less than seven mg/L more than 10 percent of the time. [Basin Plan]

b. Changes in normal ambient pH levels shall not exceed 0.5 units. The pH shall not be depressed below 6.5 nor raised above 8.5. [Basin Plan]

c. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. [Basin Plan]

d. The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH3) to exceed 0.025 mg/L as nitrogen. [Basin Plan]

3. Physical Characteristics

a. Water shall be free of coloration that causes nuisance or adversely affects beneficial uses. The natural color of fish, shellfish, or other resources shall not be impaired. [Basin Plan]

b. Waters shall not contain oils, greases, waxes, or other materials in concentrations which result in a visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or otherwise adversely affect beneficial uses. [Basin Plan]

c. Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses. [Basin Plan]

d. The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses. [Basin Plan]

e. Waters shall not contain suspended and settleable solids in concentrations of solids that cause nuisance or adversely affect beneficial uses. [Basin Plan]

f. Waters shall not contain taste or odor producing substances at concentrations which cause a nuisance or adversely affect beneficial uses. [Basin Plan]

g. Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

h. The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the San Diego Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any waters with designated cold freshwater habitat be increased more than 5°F above the natural receiving water temperature.

4. Toxicity. All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or

aquatic life. Compliance will be determined by use of indicator organisms, analysis of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods, as specified by the San Diego Water Board.

5. **Radioactivity.** Radionuclides shall not be present in concentrations that are harmful/deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

E. Corrective Actions for Receiving Water Limitations Violations

Upon determination by the Discharger or written notification by the San Diego Water Board that storm water discharges are causing or contributing to an exceedance of Receiving Water Limitations in section V of this Order, the Discharger shall implement the following corrective actions at a minimum:

1. Notify the San Diego Water Board that discharges are causing or contributing to an exceedance of Receiving Water Limitations in section V of this Order.

2. Conduct a facility evaluation to determine whether there are pollutant source(s) within the Facility and whether BMPs described in the SWPPP, the SWMP, BMP Plans, the Pollution Prevention Plan (PPP), and other requirements of this Order have been properly implemented.

3. Conduct an assessment of the Facility's SWPPP, SWMP, BMP Plans, PPP, and other requirements of this Order to determine whether additional BMPs or implementation measures are necessary to prevent or reduce pollutants in storm water discharges to meet Receiving Water Limitations set forth in section V of this Order.

4. Prepare a certification statement, based upon the Facility evaluation and assessment required above, that one of the following applies:

    a. Additional BMPs and/or implementation measures have been identified and included in the appropriate plan to meet Receiving Water Limitations, as specified in section V of this Order; or

    b. No additional BMPs or implementation measures are required to reduce or prevent pollutants in storm water discharges to meet Receiving Water Limitations, as specified in section V of this Order; or

    c. There are no sources of the pollutants at the Facility causing or contributing to the Receiving Water Limitations exceedance(s).

5. If a certification statement provides that no additional BMPs or implementation measures are required to reduce or prevent pollutants in storm water discharges to comply with Receiving Water Limitations specified in section V of this Order, the Discharger must demonstrate why the exceedance occurred and why it will not occur again under similar circumstance.

6. Implement additional BMPs and corrective measures as soon as is practicable in accordance with an approved schedule.

7. Prepare and submit a report, within 60 days from the date of the determination of the exceedance of Receiving Water Limitations, to the San Diego Water Board that does the following:

a. Describes the facility evaluation;

b. Describes the assessment of the SWPPP, SWMP, BMP Plans, PPP, and other requirements of this Order;

c. Identifies the BMPs and corrective actions that are currently being implemented to assure compliance with Receiving Water Limitations;

d. Identifies additional BMPs and corrective actions that will be implemented to assure compliance with Receiving Water Limitations with an implementation schedule for any additional BMPs or corrective actions not yet implemented; and

e. Includes the certification required above. The implementation schedule shall not exceed 90 days from the date of the determination of the exceedance of Receiving Water Limitations as specified in section V of this Order.

8. Submit any modifications to the report required by the San Diego Water Board within 30 days of notification.

9. Within 30 days following submittal of the report or modifications to the San Diego Water Board, the Discharger shall revise the SWPPP, SWMP, BMP Plans, PPP, and other plan required by this Order and monitoring program to incorporate a) the additional BMPs and corrective actions that have been and will be implemented, b) the implementation schedule, and c) a description of any additional monitoring required.

10. Nothing in this section shall prevent the San Diego Water Board from enforcing any provisions of this Order while the Discharger prepares and implements the report described above.

11. So long as the Discharger has complied with the procedures set forth above and is implementing the actions, the Discharger does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the San Diego Water Board.

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.

2. **San Diego Water Board Standard Provisions.** The Discharger shall comply with the following provisions:

a. The Discharger shall comply with all applicable federal, state, and local laws and regulations for handling, transport, treatment, or disposal of waste or the discharge of waste to Waters of the State in a manner which causes or threatens to cause a condition of pollution, contamination or nuisance as those terms are defined in CWC section 13050.

b. This Order expires on December 31, 2020, after which, the terms and conditions of this permit are automatically continued pending issuance of a new Order, provided that all requirements of USEPA' s NPDES regulations at 40 CFR section 122.6 and the state's regulations at CCR title 23, section 2235.4 regarding the continuation of expired Orders and waste discharge requirements are met.

c. A copy of this Order shall be maintained on-site at the Facility, and shall be available to San Diego Water Board, State Water Board, and USEPA personnel and/or their authorized representative at all times.

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP and future revisions thereto, in Attachment E of this Order.

2. Reports required to be submitted to the San Diego Water Board shall be sent to the following address and phone numbers unless required to be submitted electronically:

   Executive Officer
   California Regional Water Quality Control Board
   San Diego Region
   2375 Northside Drive, Suite 100
   San Diego, CA 92108

   Notifications required to be provided to this San Diego Water Board shall be made to:

   Telephone – (619) 516-1990
   Facsimile – (619) 516-1994

C. Special Provisions

1. Reopener Provisions

a. This Order may be re-opened and modified in accordance with NPDES regulations at 40 CFR parts 122 and 124, as necessary, to include additional conditions or limitations based on newly available information or to implement any USEPA approved, new, state water quality objective.

b. This Order may be modified, revoked and reissued or terminated for cause in accordance with the provisions of 40 CFR parts 122, 124, and 125 at any time prior to its expiration under any of the following circumstances:

   i. Violations of any terms or conditions of this Order;

   ii. Endangerment to human health or the environment resulting from the permitted activity;

   iii. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts; or

iv. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

c. This Order may be re-opened and modified for cause at any time prior to its expiration under any of the following circumstances:

i. Present or future investigations demonstrate that the discharge(s) regulated by this Order may have the potential to cause or contribute to adverse impacts on water quality and/or beneficial uses.

ii. New or revised Water Quality Objectives come into effect, or any total maximum daily load (TMDL) is adopted or revised that is applicable to the Discharger.

iii. Modification is warranted to those provisions of this Order addressing compliance with water quality standards in the receiving water or those provisions of this Order laying out an iterative process for implementation of management practices to achieve compliance with water quality standards in the receiving water.

iv. Modification is warranted to incorporate additional effluent limitations, prohibitions, and requirements, based on the results of additional monitoring required by the MRP in Attachment E of this Order.

v. Modification of the receiving waters monitoring and reporting requirements and/or special studies requirements of this Order is necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

vi. Modification is warranted to address acute or chronic toxicity in Facility wastewater discharges, storm water discharges, or receiving waters through new or revised effluent limitations or other permit toxicity requirements or to implement new, revised, or newly interpreted water quality standards applicable to acute or chronic toxicity.

vii. The Discharger has requested, and submitted technical information demonstrating to the satisfaction of the San Diego Water Board, that technology-based or water quality based effluent limitations may be adjusted on a pollutant-by-pollutant or discharge by discharge basis to reflect credit for pollutants in the Discharger's intake water in conformance with the applicable requirements of 40 CFR section 122.45(g) and section 1.4.4 of the State Water Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (SIP).

viii. The Discharger has submitted technical information in accordance with the Ocean Plan to the satisfaction of the San Diego Water Board documenting the basis for a mixing zone of initial dilution for storm water discharges to the Pacific Ocean.

d. The filing of a request by the Discharger for modifications, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.

2. Special Studies, Technical Reports and Additional Monitoring Requirements[12]

a. Future Development of Chronic Toxicity Effluent Limitations for Industrial High Risk Storm Water Areas

The San Diego Water Board may establish chronic toxicity effluent limitations for Industrial High Risk Areas storm water discharges in the future. In developing such effluent limitations, an instream waste concentration (IWC) of 100 percent will be assumed whenever mixing zones or dilution credits are not authorized by the San Diego Water Board.

The Discharger may, at their discretion, propose a work plan for a detailed study to support a Basin Plan Amendment on the possible application of chronic toxicity effluent limitations with mixing zones and dilution credits applicable to industrial storm water discharges to San Diego Bay. The study may also encompass the possible application of mixing zones and dilution credits applicable to municipal storm water discharges.

The work plan shall include the following elements:

i. A detailed proposal describing the goals, technical approach, methods, data evaluation framework, and a schedule for completion of all study activities and submission of a draft Basin Plan Amendment for consideration of adoption by the San Diego Water Board;

ii. Formation of a stakeholder advisory panel with the San Diego Water Board, USEPA, federal and state resource agencies, representatives of environmental non-governmental organizations, San Diego County Department of Health Services, and representatives of storm water dischargers to San Diego Bay. The panel shall be notified of proposed work and results; and the panel shall be provided opportunity for comment;

iii. An analysis of storm water impacts to San Diego Bay that considers circulation and flushing, pollutant movement and accumulation, and fate to determine mixing zones and dilution factors appropriate for storm water discharges to San Diego Bay. The analysis shall include consideration of relevant State of California and USEPA polices and guidance pertaining to the establishment of mixing zones and dilution credits in receiving waters; and

iv. Provisions for establishment of an external scientific peer review panel comprised of experts in the fields of plume dilution modeling, toxicology, and marine ecology to guide the technical approach, review the study results and make recommendations for a proposed Basin Plan amendment and toxicity monitoring strategies for storm water discharges.

3. Best Management Practices (BMP) and Pollution Prevention Plan (PPP)

[12] See section V.F of the MRP (Attachment E) for an overview of TRE Requirements

a. **BMP and PPP for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan)**

The Discharger shall continue to implement a Utility Vault Plan for utility vault and manhole dewatering discharges to prevent the discharge of pollutants into the receiving waters at levels that would contribute to the degradation of the receiving waters or otherwise adversely affect the beneficial uses of the receiving water. At a minimum, the Utility Vault Plan shall be maintained and implemented in accordance with Attachment H to prevent, or minimize the potential for, the release of pollutants to Waters of the State and Waters of the U.S.

b. **BMP Plan for Pier Washing, Pier Boom Cleaning, and Boat Rinsing**

The Discharger shall develop and implement a BMP Plan for discharges from pier washing that prevents the discharge of pollutants at Discharge Point No. PW-001 into the receiving waters at levels that would contribute to the degradation of the receiving waters or otherwise adversely affect the beneficial uses of the receiving water. Additionally within the BMP Plan, the Discharger shall include BMPs to prevent discharges to Waters of the U.S. from pier boom cleaning and boat rinsing activities performed at NBC. At a minimum, the BMP Plan shall be developed and implemented in accordance with Attachment I of this Order to prevent, or minimize the potential for, the release of pollutants to Waters of the State and Waters of the U.S.

c. PPP for Industrial Storm Water

The Discharger shall prepare and implement a PPP for storm water discharges associated with the Industrial High Risk Areas for acute toxicity and copper and zinc (Discharge Points specified in Attachment M of this Order, as updated annually pursuant to section IV.B.2 of this Order).

The PPP shall be developed in accordance with CWC section 13263.3(d)(2). The minimum requirements for the PPP are outlined in the Fact Sheet of this Order, Attachment F, section VII.C.3.c. A work plan and time schedule for preparation of the PPP shall be completed and submitted to the San Diego Water Board within 90 days of the effective date of this Order. The PPP shall be completed and submitted to the San Diego Water Board within 9 months of the effective date of this Order.

4. Flood and Runoff Protection Requirements

a. All waste treatment, containment, and disposal facilities shall be protected against 100-year peak stream flows as defined by the San Diego County Flood Control Agency.

b. All waste treatment, containment, and disposal facilities shall be protected against erosion, overland runoff, and other impacts resulting from a 100-year frequency 24-hour storm.

5. Other Special Provisions – Not Applicable

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below.

A. General

Compliance with effluent limitations shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purpose of reporting and administrative enforcement by the San Diego Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the constituent in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL) or lowest quantifiable level.

B. Multiple Sample Data

When determining compliance with an average annual effluent limitation (AAEL), average monthly effluent limitation (AMEL) or maximum daily effluent limitation (MDEL) and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determination of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, following by quantified values (if any). The order of individual ND or DNQ determinations is unimportant.

2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

C. Mass Emission Rate

The mass emission rate (MER), in pounds per day, shall be obtained from the following calculation for any calendar day:

Mass Emission Rate (lb/day) = 8.34 x Q x C

In which Q and C are the flow rate in million gallons per day and the constituent concentration in mg/L, respectively, and 8.34 is a conversion factor. Q is the flow rate for the two hours of chlorination and C is the concentration during a chlorination event. If a composite sample is taken, then C is the concentration measured in the composite sample and Q is the average flow rate occurring during the period over which the samples are composited.

D. Average Monthly Effluent Limitation (AMEL)

If the average (or when applicable, the median determined by section VII.B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation for the purpose of assessing mandatory

minimum penalties under CWC section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

E. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge (or when applicable, the median determined by section VII.B above for multiple sample data of a daily discharge) exceeds the MDEL for a given parameter, the Discharger will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

F. Instantaneous Minimum Effluent Limitation

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of 2 grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

G. Instantaneous Maximum Effluent Limitation

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of 2 grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in 2 instances of non-compliance with the instantaneous maximum effluent limitation).

H. Median Monthly Effluent Limit (MMEL)

If the median result of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST is a “fail” (i.e. two out of three is “fail”), this will represent a single violation for the purpose of assessing mandatory minimum penalties under CWC section 13385, though the Discharger will be considered out of compliance for each discharge day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month) for discretionary penalties. If median result is “fail”, the Discharger will be considered out of compliance for days when the discharge occurs. For any one calendar month during which fewer than 3 samples are taken, no compliance determination can be made for that calendar month.

I. Acute Toxicity for Discharges

1. The Maximum Daily Effluent Limitation (MDEL) for acute toxicity is exceeded and a violation will be flagged when a toxicity test results in a “fail” in accordance with the TST approach and the percent effect is greater than or equal to 40%.

2. The determination of "Pass" or "Fail" from a single-effluent concentration acute toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

3. The Discharger shall report the results of reasonable potential analyses (RPA), species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a "pass" or a "fail" at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC.

Pass

A test result that rejects the null hypothesis (Ho) below is reported as "Pass" in accordance with the TST approach:

Ho: Mean response (100 percent effluent) ≤ 0.80 × Control mean response

Fail

A test result that does not reject the null hypothesis (Ho) above is reported as "Fail" in accordance with the TST approach.

4. The presence or absence of acute toxicity shall be determined as specified in section IV of the MRP.

J. Chronic Toxicity

The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010)*, Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is: Mean discharge IWC response ≤0.75 × Mean control response. A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as "Fail". The relative "Percent Effect" at the discharge IWC is defined and reported as: ((Mean control response - Mean discharge IWC response) ÷ Mean control response)) × 100. This is a t-test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (i.e., a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control (the test result is "Pass" or "Fail")). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

The Maximum Daily Effluent Limitation (MDEL) for chronic toxicity is exceeded and a violation will be flagged when a chronic toxicity test, analyzed using the TST statistical approach, results in "Fail" and the "Percent Effect" is ≥50%.

The Median Monthly Effluent Limitation (MMEL) for chronic toxicity is exceeded and a violation will be flagged when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. 2 out of 3) is a "fail." The MMEL for chronic toxicity shall only apply when there is a discharge more than one day in a calendar

month period. During such calendar months, up to three independent toxicity tests may be conducted when one toxicity test results in “Fail”.

The chronic toxicity MDEL and MMEL are set at the IWC for the discharge (100% effluent) and expressed in units of the TST statistical approach (“Pass” or “Fail”, “Percent Effect”). All NPDES effluent compliance monitoring for the chronic toxicity MDEL and MMEL shall be reported using the 100% effluent concentration and negative control, expressed using the TST outcome and percent effect. The TST hypothesis (Ho) (see above) is statistically analyzed using the IWC and a negative control. Effluent toxicity tests shall be run using a multi-concentration test design when required by *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014)*. Standard Operating Procedures used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent (and receiving water) toxicity test measurement results from the TST statistical approach, including those that incorporate a consideration of concentration-response patterns, must be submitted to the Regional Water Board (40 CFR section 122.41(h)). The Regional Water Board will make a final determination as to whether a toxicity test result is valid, and may consult with the Discharger, USEPA, the State Water Board’s Quality Assurance Officer, or the State Water Board’s Environmental Laboratory Accreditation Program as needed. The Board may consider results of any TIE/TRE studies in an enforcement action.

ATTACHMENT A – ABREVIATIONS AND GLOSSARY

Part 1 – Abbreviations

Abbreviation	Definition
AAEL	Average Annual Effluent Limitation
AMEL	Average Monthly Effluent Limitation
ASBS	Areas of Special Biological Significance
AWEL	Average Weekly Effluent Limitation
Basin Plan	Water Quality Control Plan for the San Diego Basin
BAT	Best Available Technology Economically Achievable
BCT	Best Conventional Pollutant Control Technology
BMP	Best Management Practices
BOD_5	Biochemical Oxygen Demand (5-Day at 20^oC)
BPJ	Best Professional Judgment
BPT	Best Practicable Treatment Control Technology
CCR	California Code of Regulations
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CIWQS	California Integrated Water Quality System
CNRSW	Commander, Navy Region Southwest
CTR	California Toxics Rule
CV	Coefficient of Variation
CWA	Clean Water Act
CWC	California Water Code
DMR	Discharger Monitoring Report
DNQ	Detected, but Not Quantified
DoD	Department of Defense
ECA	Effluent Concentration Allowance
ERA	Exceedance Response Action
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
gpd	gallons per day
gpm	gallons per minute
IWC	Instream Waste Concentration
lbs/day	Pounds per Day
MDEL	Maximum Daily Effluent Limitation
MDL	Method Detection Limit
MEP	Maximum Extent Practicable
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
ML	Minimal Level
ml/L	Milliliters per Liter
MMEL	Median Monthly Effluent Limitation
MPCD	Marine Pollution Control Device
MPN	Most Probable Number
MRP	Monitoring and Reporting Program

Abbreviation	Definition
MS4	Municipal Separate Storm Sewer System
NAB	Naval Amphibious Base, Coronado
NAL	Numeric Action Level
NASNI	Naval Air Station, North Island
NBC	Naval Base Coronado
ND	Not Detected
NOEL	No Observed Effect Level
NOLF	Naval Outlying Landing Field, Imperial Beach
NPDES	National Pollutant Discharge Elimination System
NR	Not Reported
NTR	National Toxics Rule
Ocean Plan	California Ocean Plan, Water Quality Control Plan Ocean Waters Of California
PCB	Polychlorinated Biphenyls
PMP	Pollutant Minimization Program
PPP	Pollution Prevention Plan
QAPP	Quality Assurance Project Plan
QSE	Qualifying Storm Event
REC-1	Contact Water Recreation Beneficial Use
RL	Reporting Level
ROWD	Report of Waste Discharge
RPA	Reasonable Potential Analysis
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SCCWRP	Southern California Coastal Waters Research Project
Sediment Quality Plan	Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality
SIP	State Implementation Plan
SQO	Sediment Quality Objective
SSTC	Silver Strand Training Complex
State Water Board	State Water Resources Control Board
SWMP	Storm Water Management Plan
SWPPP	Storm Water Pollution Prevention Plan
TBEL	Technology-Based Effluent Limitations
Thermal Plan	Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries
TIE	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TRE	Toxicity Reduction Evaluation
TSS	Total Suspended Solids
TST	Test of Significant Toxicity
U.S.	United States
UNDS	Uniform National Discharge Standards
USEPA	United Stated Environmental Protection Agency
WDR	Waste Discharge Requirements
WEF	Water Environment Federation

Abbreviation	Definition
WET	Whole Effluent Toxicity
WLA	Wasteload Allocation
WQBEL	Water Quality-Based Effluent Limitation
µg	Microgram
µg/L	Micrograms per Liter

Part 2 – Glossary of Common Terms

Acute Toxicity Tests
A measurement of the adverse effect (usually mortality) of a waste discharge or ambient water sample on a group of test organisms during a short-term exposure.

Arithmetic Mean (µ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$

where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Armed Forces Vessel
A vessel owned or operated by the United States Department of Defense or the United States Coast Guard, other than time or voyage chartered vessels, vessels of the U.S. Army Corps of Engineers, vessels that are memorials or museums, vessels under construction, or vessels in drydock.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)
The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Bioaccumulative Pollutants
Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Best Management Practices (BMPs)
Schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of Waters of the United States (U.S.). The BMPs also include treatment measures, operating procedures, and practices to control facility site runoff,

spillage or leaks, sludge or waste disposal, or drainage from raw material storage. The BMPs may include any type of pollution prevention and pollution control measure necessary to achieve compliance with this Order.

Best Professional Judgment (BPJ)
The method used by permit writers to develop technology-based NPDES permit conditions on a case by-case basis using all reasonably available and relevant data.

Carcinogenic
Carcinogenic pollutants are substances that are known to have the potential to cause cancer in living organisms.

Clean Water Act (CWA)
The Federal Water Pollution Control Act enacted by Public Law 92-500 as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; 33 USC 1251 et seq.

Chronic Toxicity Tests
A measurement of the sub-lethal effects of a discharge or ambient water sample (e.g. reduced growth or reproduction). Certain chronic toxicity tests include an additional measurement of lethality.

Coefficient of Variation (CV)
CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Contamination
"Contamination" means an impairment of the quality of the Waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. "Contamination" includes any equivalent effect resulting from the disposal of waste, whether or not Waters of the State are affected. [CWC section 13050(k)]

Daily Discharge
Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

Dilution Credit
Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation (WQBEL), based on the allowance of a specified mixing zone. It is

calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Discharge incidental to the normal operation of a vessel
A discharge, including, but not limited to: graywater, bilgewater, cooling water, weather deck runoff, ballast water, oil water separator effluent, and any other pollutant discharge from the operation of a marine propulsion system, shipboard maneuvering system, crew habitability system, or installed major equipment, such as an aircraft carrier elevator or a catapult, or from a protective, preservative, or absorptive application to the hull of a vessel; and a discharge in connection with the testing, maintenance, and repair of any of the aforementioned systems whenever the vessel is waterborne, including pierside. A discharge incidental to normal operation does not include:
(1) Sewage;
(2) A discharge of rubbish, trash, or garbage;
(3) A discharge of air emissions resulting from the operation of a vessel propulsion system, motor driven equipment, or incinerator;
(4) A discharge that requires a National Pollutant Discharge Elimination System (NPDES) permit under the Clean Water Act; or
(5) A discharge containing source, special nuclear, or byproduct materials regulated by the Atomic Energy Act.

Effluent Concentration Allowance (ECA)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

Estimated Chemical Concentration
The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

Estuaries
Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

Facility
Naval Base Coronado (NBC). NBC consists of the following eight installations: Naval Air Station, North Island (NASNI), Naval Amphibious Base, Coronado (NAB), Naval Outlying Landing Field, Imperial Beach (NOLF), Silver Strand Training Complex (SSTC), formerly known as the Naval Radio Receiving Facility (NRRF), Naval Auxiliary Landing Field, San Clemente Island (NALF), Remote Training Site Warner Springs (RTSWS), Camp Michael Monsoor, and Camp Morena. Of the eight installations aligned under NBC, only seven are regulated by this Order. NALF is located in the Los Angeles Regional Water Quality Control Board jurisdictional area and, therefore, is not regulated by this Order.

Industrial High Risk Areas
All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substances, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff.

Industrial Low Risk Areas
All areas where wastes or pollutants from industrial activities are subject to precipitation, run-on, and/or runoff which are not classified as Industrial No Exposure Areas or Industrial High Risk Areas.

Industrial No Exposure Areas
Areas where all industrial materials and activities are protected by a storm resistant shelter[1] to prevent exposure to rain, snow, snowmelt, and/or runoff. "Industrial materials and activities" include, but are not limited to, material handling[2] equipment or activities, industrial machinery, raw materials, intermediate products, by-products, final products, or waste products.

Inland Surface Waters
All surface Waters of the State that do not include the ocean, enclosed bays, or estuaries.

Instantaneous Maximum Effluent Limitation
The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation
The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Instream Waste Concentration (IWC)
The concentration of a toxicant or effluent in the receiving water after mixing (the inverse of the dilution factor). A discharge of 100 percent effluent will be considered the IWC whenever mixing zones or dilution credits are not authorized by the applicable Water Board.

Marine Pollution Control Device, (MPCD)
Any equipment or management practice installed or used on an Armed Forces vessel that is

[1] "Storm-resistant shelters" include completely roofed and walled buildings or structures. They also include structures with only a top cover supported by permanent supports but with no side coverings provided material within the structure is not subject to wind dispersion (sawdust, powders, etc.), track-out, and there is no storm water discharged from within the structure that has come into contact with any materials.

[2] "Material handling activities" include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, or waste product.

designed to receive, retain, treat, control, or discharge a discharge incidental to the normal operation of a vessel, and that is determined by the Administrator of USEPA and Secretary of the Department of Defense to be the most effective equipment or management practice to reduce the environmental impacts of the discharge consistent with the considerations in Clean Water Act section 312(n)(2)(B).

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Maximum Extent Practicable (MEP)
MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water must meet. MEP is the result of emphasizing pollution prevention and source control BMPs as the first lines of defense in combination with structural and treatment methods where appropriate serving as additional lines of defense.

Median Monthly Effluent Limitation (MMEL)
An effluent limit based on the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST. The MMEL is exceeded when the median result (i.e. two out of three) is a "fail."

Median
The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2)+1})/2$ (i.e., the midpoint between the $n/2$ and $n/2+1$).

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

Minimum Level (ML)
ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Mixing Zone
Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Non-Storm Water Discharge
Any discharge to storm sewer systems that is not composed entirely of storm water.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Nuisance
"Nuisance" means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of waste. [CWC section 13050(m)]

Numeric Action Level (NAL)
Numeric Action Levels (NALs), found in Table G-1of Attachment G and Table H-1 of Attachment H of this Order are used as numeric thresholds for corrective action. An exceedance of an NAL is not a violation of this Order.

Ocean Waters
The territorial marine Waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Percent Effect
The value that denotes the difference in response between the IWC and the control, divided by the mean response, and multiplied by 100 using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response - Mean IWC Response}}{\text{Mean Control Response}} * 100$$

Persistent Pollutants
Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant
"Pollutant" means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean: (a) Sewage from vessels; or (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well, used either to facilitate production or for disposal purposes, is approved by authority of the state in which the well is located, and if the state determines that the injection or disposal will not result in the degradation of ground or surface water resources. NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator-produced isotopes. See Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1 (1976). (40 CFR section 122.2)

Pollution
"Pollution" means an alteration of the quality of the Waters of the State by waste to a degree which unreasonably affects either of the following: (A) The waters for beneficial uses. (B) Facilities which serve these beneficial uses. "Pollution" may include "contamination." [CWC section 13050(l)]

Pollution Prevention
Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation

(as defined in CWC section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or San Diego Water Board.

Pollution Prevention Plan (PPP)
A PPP is a plan for implementing pollution prevention containing, at a minimum, the elements identified in CWC section 13263.3(d)(2).

Priority Pollutants
Priority pollutants are all compounds with criteria in the California Toxics Rule (CTR).

Qualifying Storm Event
A Qualifying Storm Event (QSE) is a precipitation event that produces a discharge for at least one drainage area; and is preceded by 48 hours with no discharge from any **drainage area.**

Reporting Level (RL)
RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the San Diego Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

San Diego Water Board
As used in this document the term "San Diego Water Board" is synonymous with the term "Regional Board" as defined in CWC section 13050(b) and is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in CWC section 13200.

Significant Materials
Raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101 (14) of Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); and chemicals the facility is required to report pursuant to section 313 of title III of Superfund Amendments and Reauthorization Act (SARA); fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be discharged.

Significant Quantities
Volumes, concentrations, or masses of pollutants that can cause or threaten to cause pollution, contamination, or nuisance; adversely impact human health or the environment; and/or cause or contribute to a violation of any applicable water quality standard for the receiving water or any receiving water limitation.

Significant Spills
Include, but are not limited to, releases of oil or hazardous substances in excess of reportable quantities under section 311 of the CWA (see 40 CFR part 110 and section 117.21) or section 102 of CERCLA (see 40 CFR section 302.4).

Small Military Base Municipal Separate Storm Sewer System (Small Military Base MS4) Areas
Areas where no industrial activities occur. Areas designated as "Small Military Base MS4 Areas" shall be applicable to the Storm Water Management Program (SWMP) requirements contained within section IV.D.2 of this Order.

Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

- x is the observed value;
- μ is the arithmetic mean of the observed values; and
- n is the number of samples.

Storm Water
Includes storm water runoff, snowmelt runoff, and storm water surface runoff and drainage. It excludes infiltration and runoff from agricultural land.

Storm Water Discharge Associated with Industrial Activity
The discharge from any conveyance that is used for collecting and conveying storm water and that is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR part 122. The term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters; sites used for residual treatment, storage areas (including tank farms) for raw materials, and intermediate and final products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the purposes of this paragraph, material handling activities include storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, final product, by-product, or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are federally, state, or municipally owned or operated that meet the description of the facilities referenced in this paragraph) include those facilities designated under 40 CFR section 122.26(a)(1)(v).

Storm Water Management Plan (SWMP)
The Storm Water Management Plan (SWMP) is a written plan to reduce the discharge of pollutants from "Small Military Base MS4 Areas" to the technology–based standard of MEP to protect receiving water quality.

Storm Water Pollution Prevention Plan (SWPPP)
A SWPPP is a written document that identifies the industrial activities conducted at the site, including any structural control practices, which the industrial facility operator will implement to prevent pollutants from making their way into storm water runoff. The SWPPP also must include descriptions of other relevant information, such as the physical features of the facility, and procedures for spill prevention, conducting inspections, and training of employees. The SWPPP is intended to be a "living" document, updated as necessary, such that when industrial activities or

storm water control practices are modified or replaced, the SWPPP is similarly revised to reflect these changes.

Test of Significant Toxicity (TST)
A statistical approach used to analyze toxicity test data. The TST incorporates a restated null hypothesis, Welch's t-test, and biological effect thresholds for chronic and acute toxicity.

Toxicity Reduction Evaluation (TRE)
TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

Vessel
Includes every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on navigable Waters of the U.S. or waters of the contiguous zone, but does not include amphibious vehicles.

Water Quality Objectives
Numerical or narrative limits on constituents or characteristics of water designed to protect designated beneficial uses of the water.

Water Quality Standards
Water quality standards, as defined in CWA section 303(c) and 40 CFR131.6, consist of 1) the beneficial uses of a water body, 2) criteria (referred to as water quality objectives in California law) to protect those uses, and 3) an anti-degradation policy. Under state law, the water boards establish beneficial uses and water quality objectives in their water quality control or basin plans. Together with an anti-degradation policy (State Water Board Resolution 68-16), these beneficial uses and water quality objectives serve as water quality standards under the CWA. In CWA parlance, state beneficial uses are called "designated uses" and state water quality objectives are called "criteria." Throughout this Order, the relevant term is used depending on the statutory scheme. The water quality standards described in section V of this Order are enforceable receiving water limitations for the surface water bodies for which they are established.

Waters of the State
Waters of the State means any surface water or groundwater, including saline waters, within the boundaries of the state.

Waters of the United States (U.S.)
Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purpose by

industries in interstate commerce; (d) All impoundments of waters otherwise defined as Waters of the U.S. under this definition: (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the U.S. do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA." (40 CFR section 122.2)

Whole Effluent Toxicity (WET)
The aggregate toxic effect of a waste discharge measured directly by a chronic or acute toxicity test.

ATTACHMENT B – MAPS

Figure B-1. NBC Installations

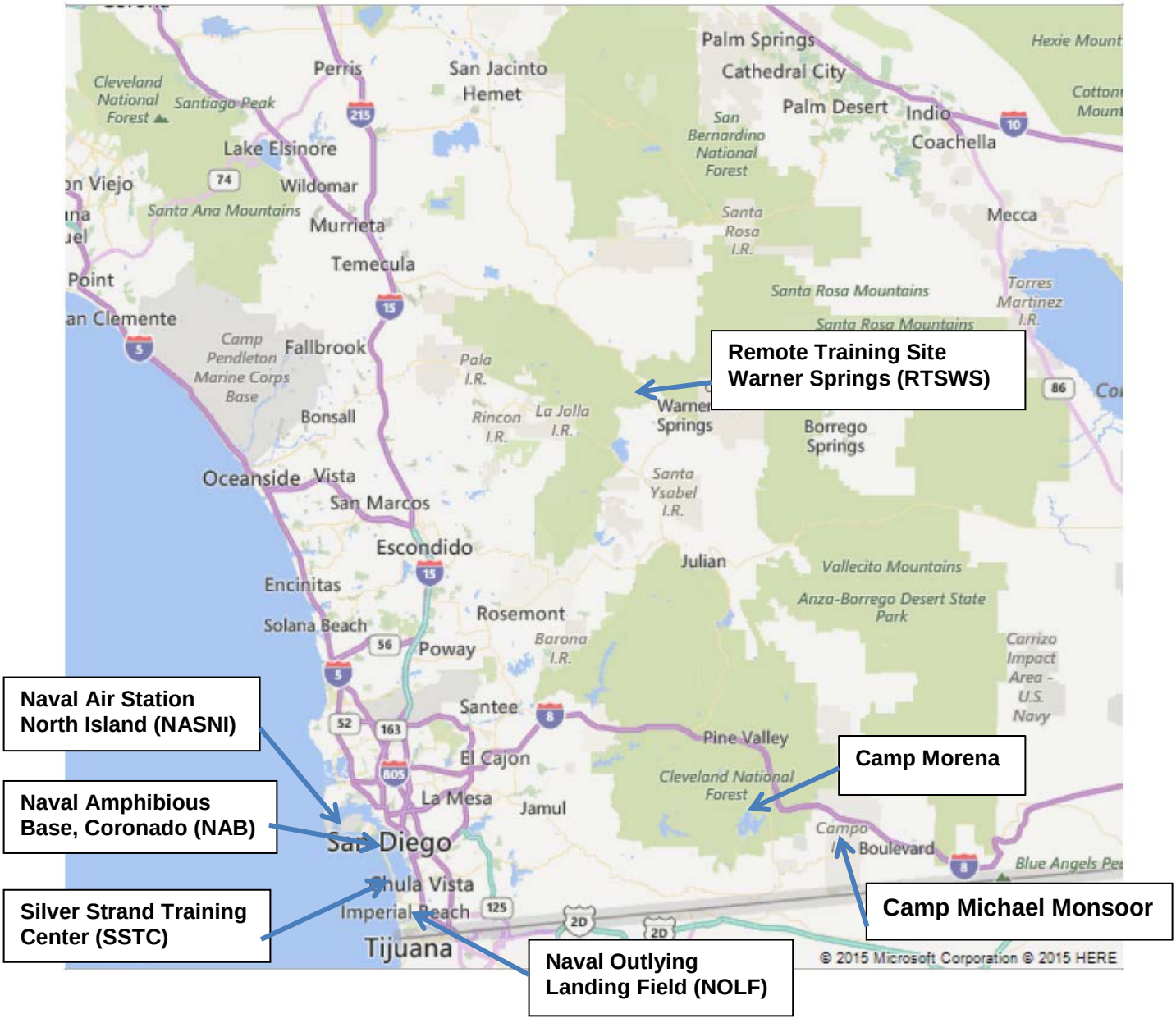


Figure B-2. NBC Installations Detail

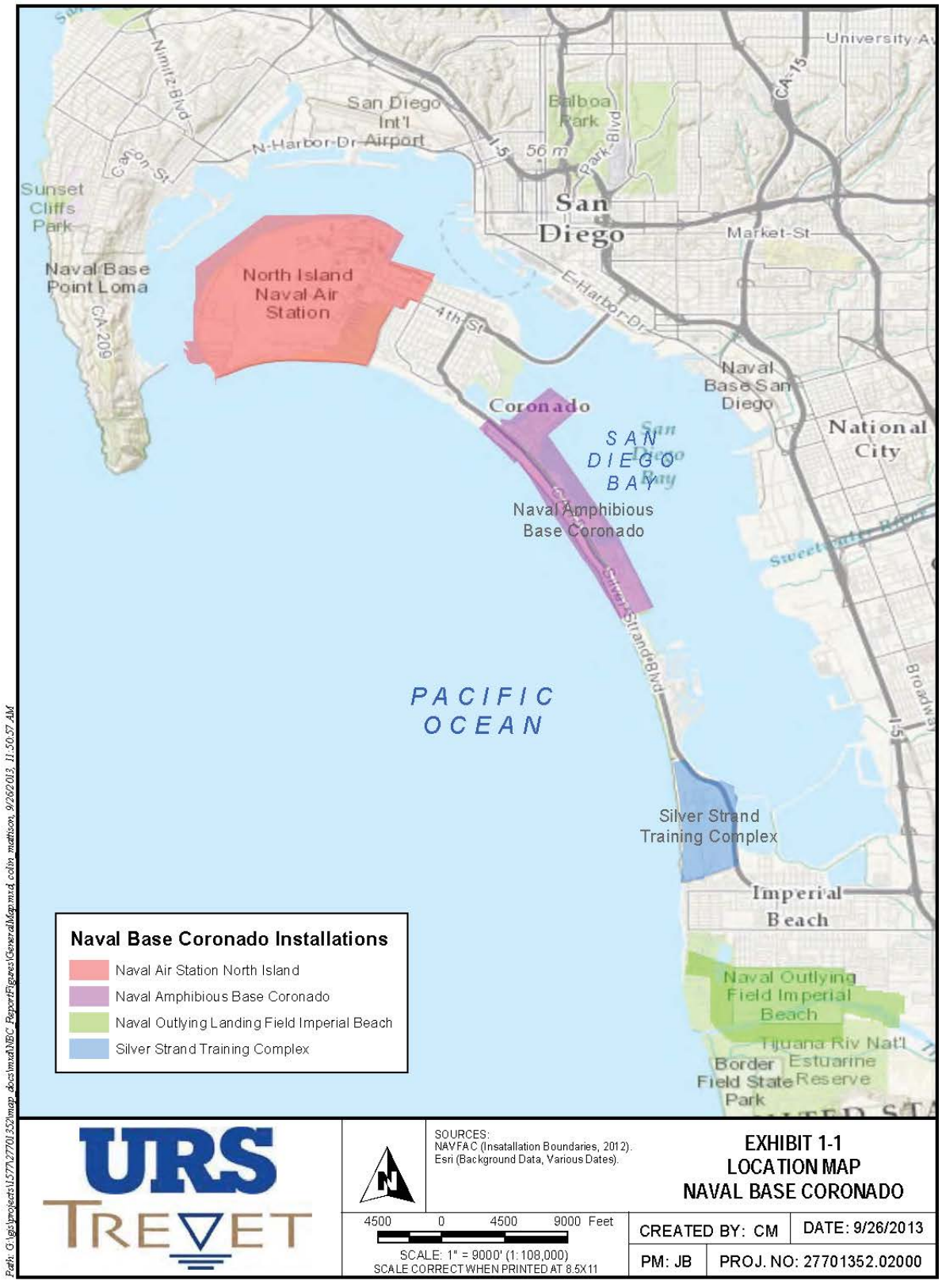


Figure B-3. NBC Topographic Map

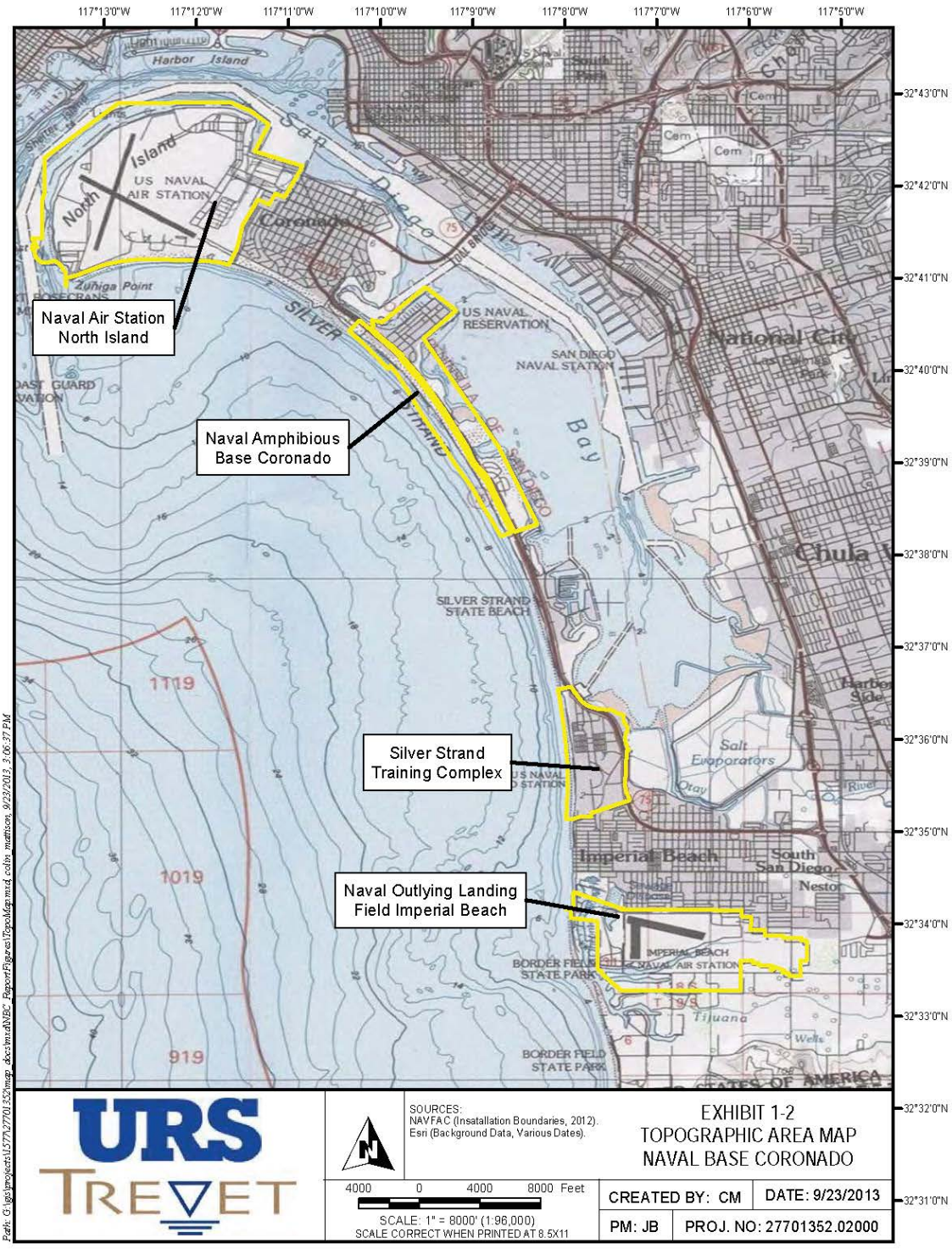


Figure B-4. NBC Steam Condensate Discharge Locations at NASNI

Figure B-5. NBC Diesel Engine Cooling Water Discharge Location at NASNI

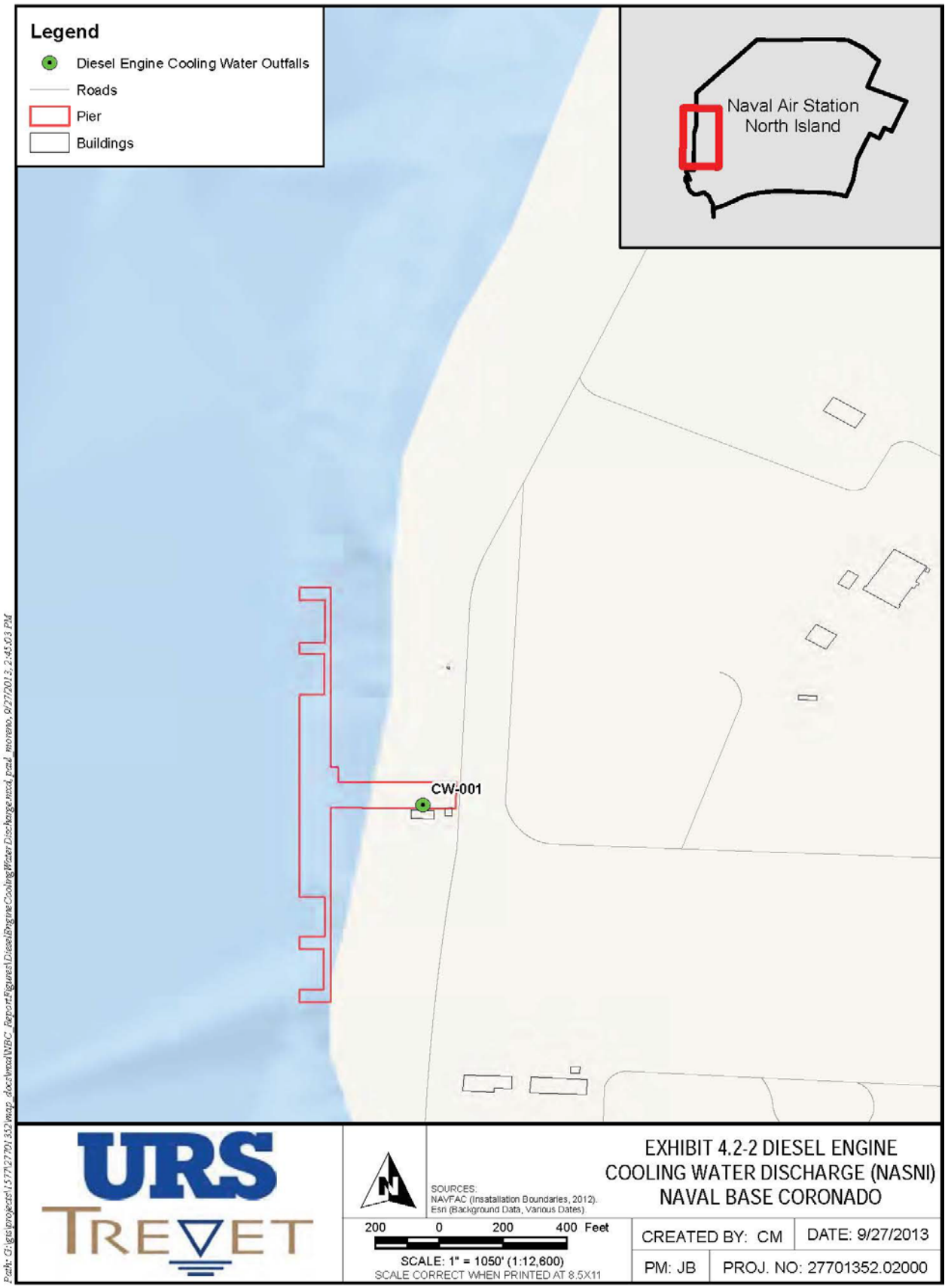


Figure B-6. NBC Utility Vault and Manhole Dewatering Discharge Locations at NASNI

Figure B-7. NBC Utility Vault and Manhole Dewatering Discharge Locations at NAB

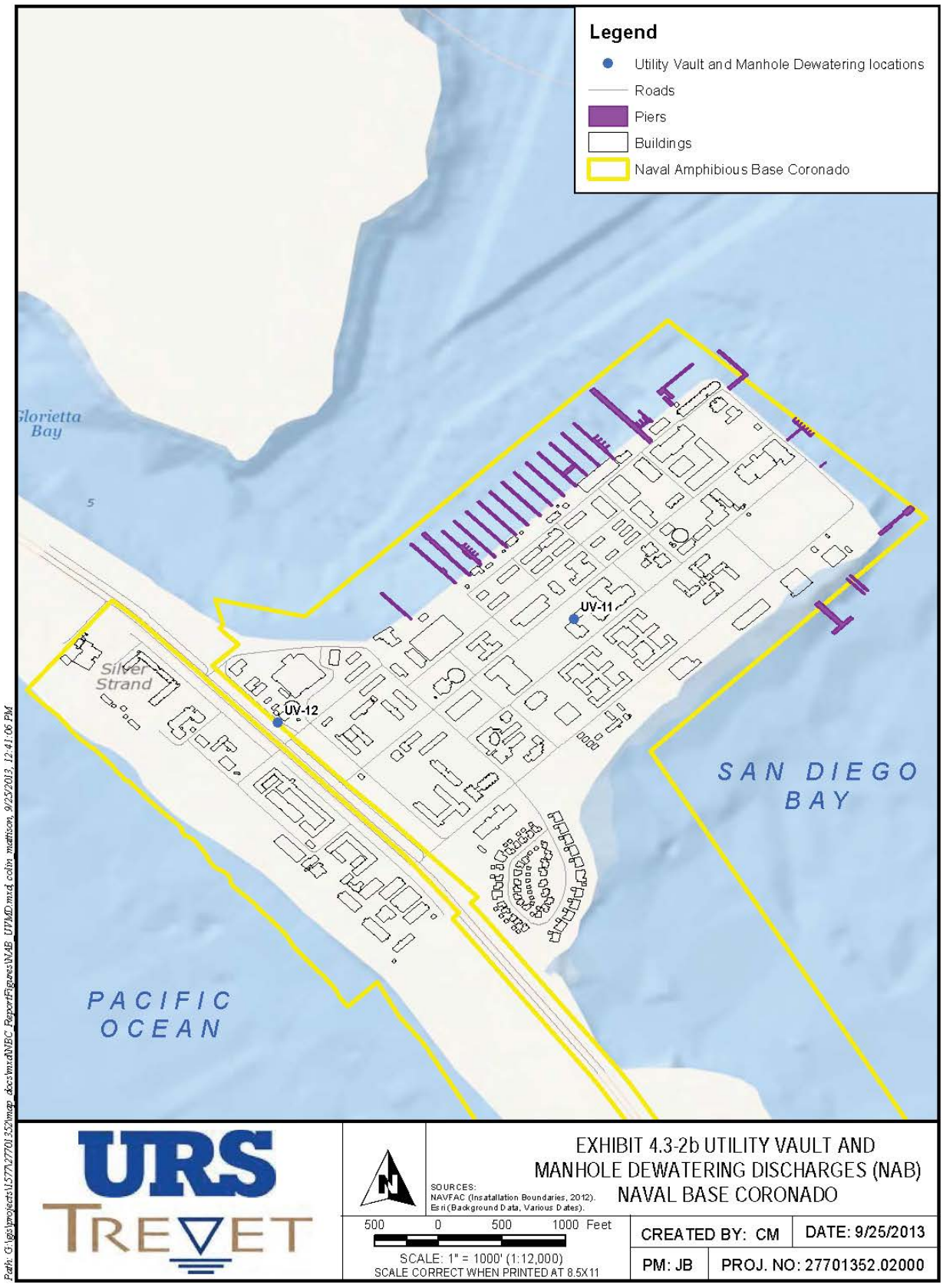


Figure B-8. NBC Utility Vault and Manhole Dewatering Discharge Locations at SSTC

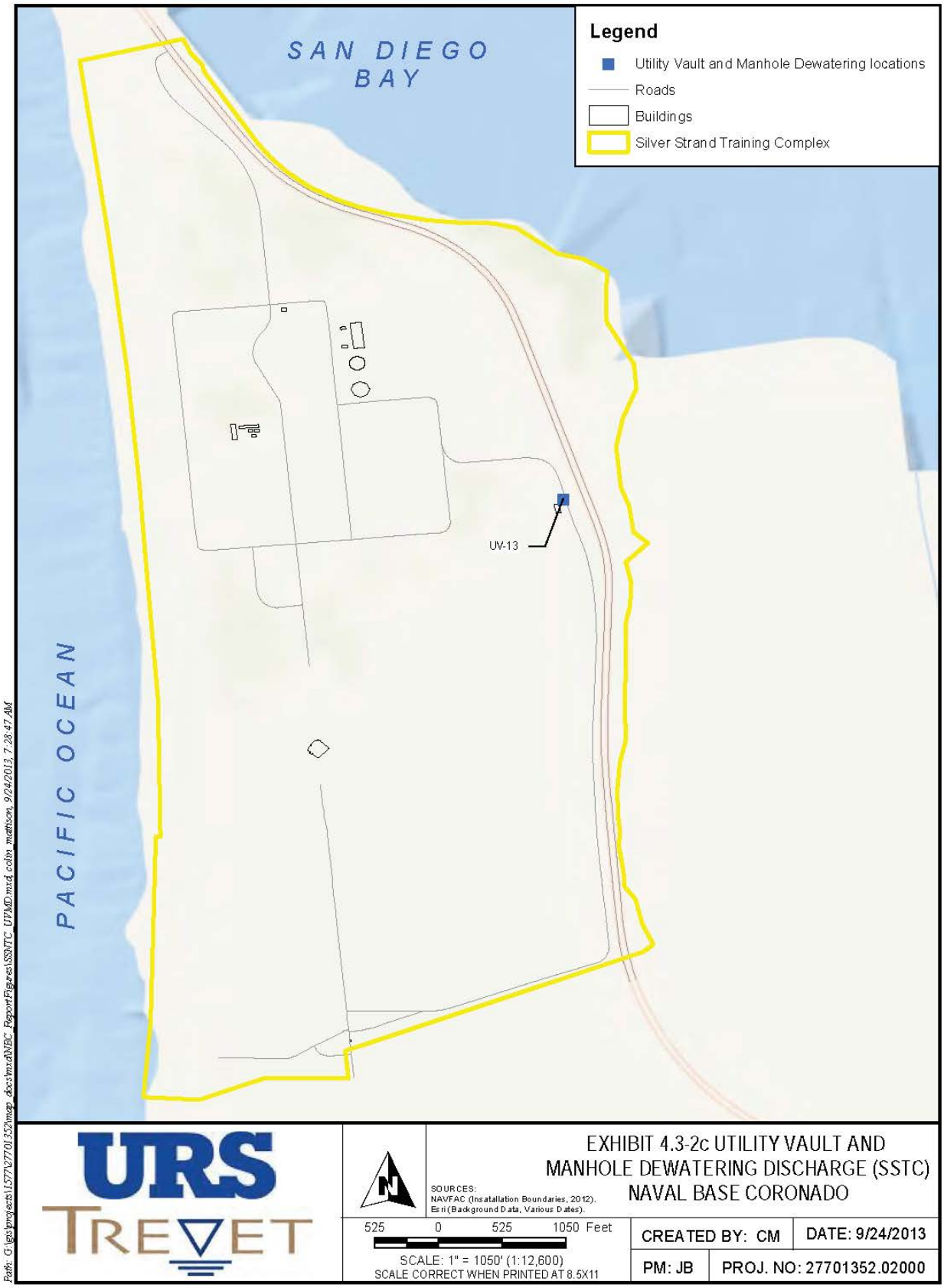


Figure B-9. NBC Pier Washing Discharge Locations at NASNI

Figure B-10. NBC Industrial Storm Water Dischare Locations at NASNI

Figure B-11. NBC Industrial Storm Water Dischare Locations at NAB

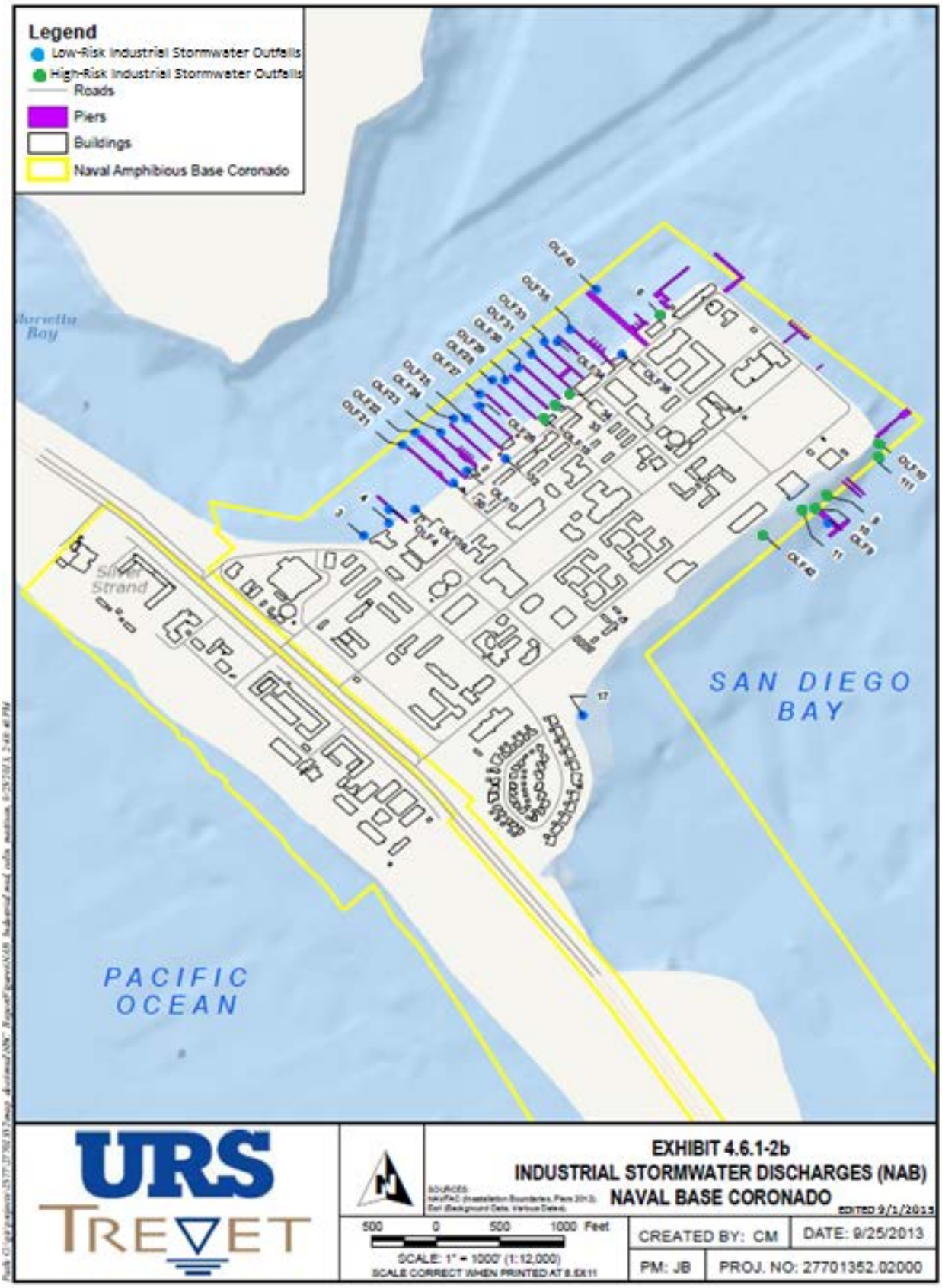


Figure B-12. NBC Industrial Stormwater Dischare Locations at NOLF

Figure B-13. NBC Small Military Base MS4 Discharge Locations at NASNI

Figure B-14. NBC Small Military Base MS4 Discharge Locations at NAB

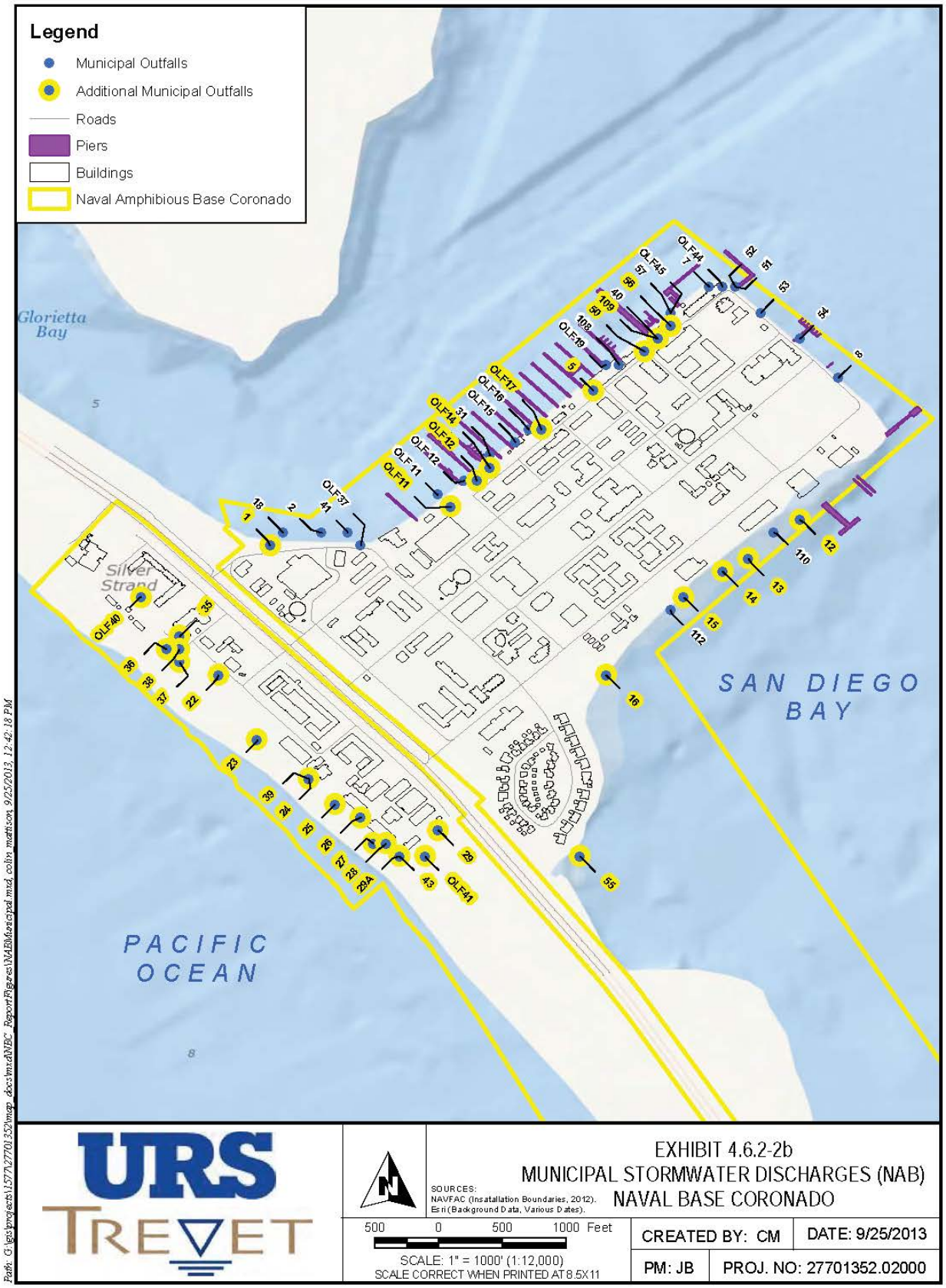


Figure B-15. NBC Small Military Base MS4 Discharge Locations at NOLF

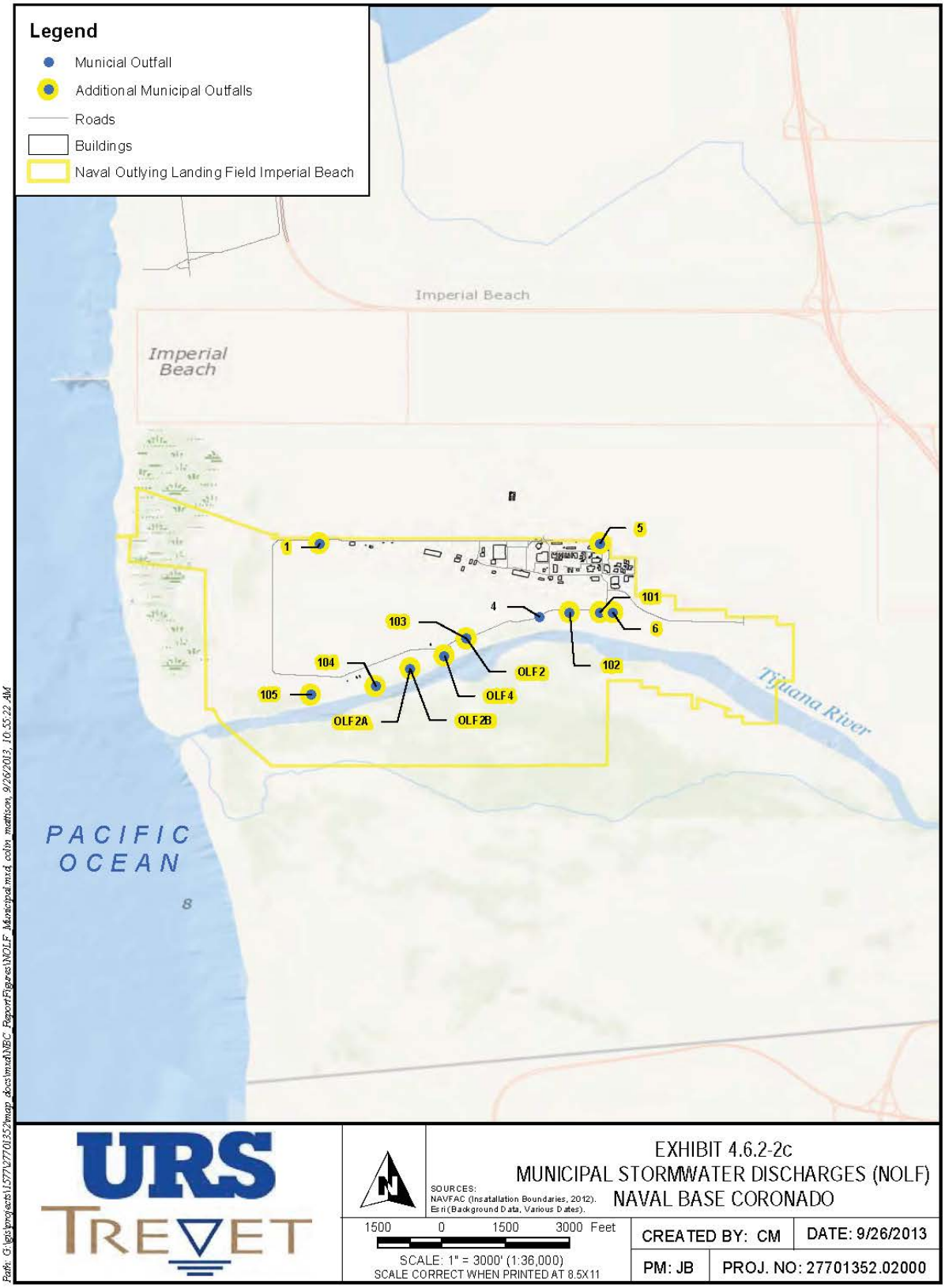
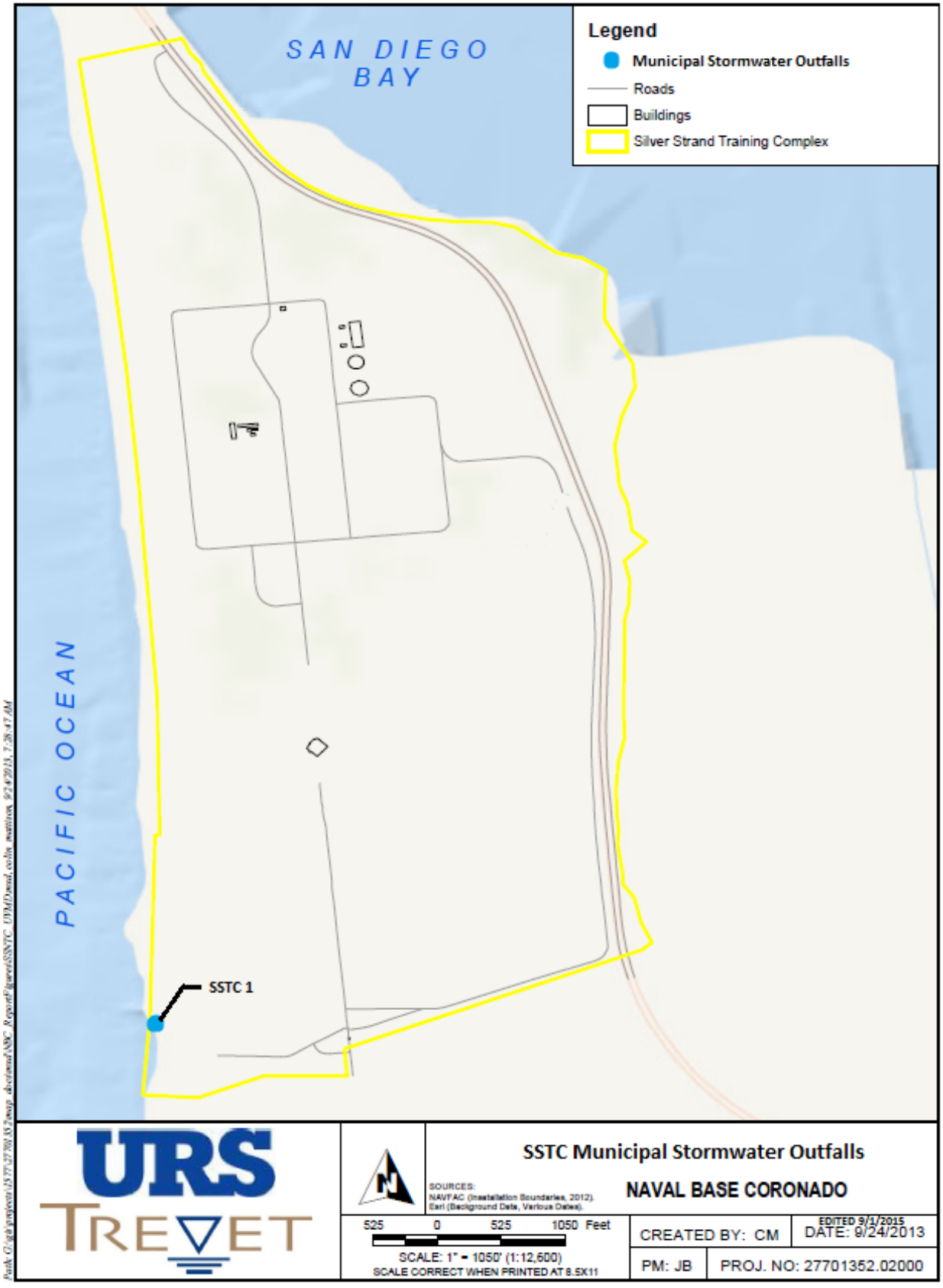


Figure B-16. NBC Small Military Base MS4 Discharge Locations at SSTC



ATTACHMENT C – FLOW SCHEMATIC

Figure C-1. Steam Condensate Discharges

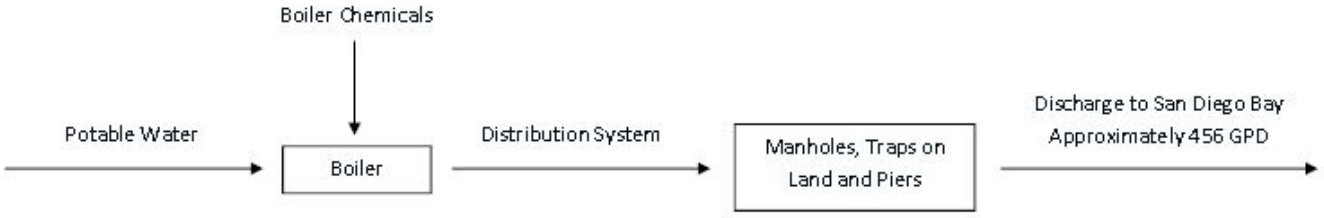


Figure C-2. Diesel Engine Cooling Water Discharges

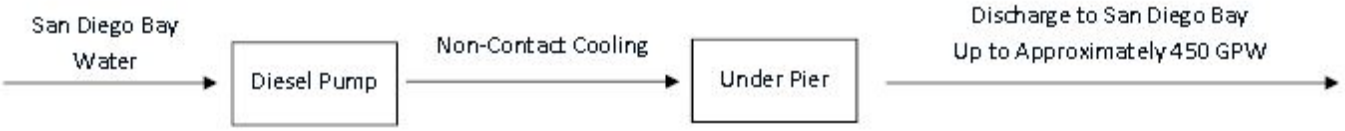


Figure C-3. Utility Vault and Manhole Dewatering Discharges

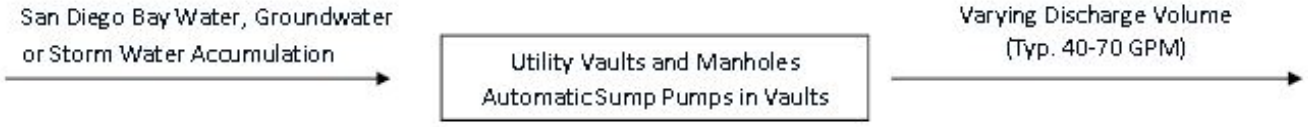
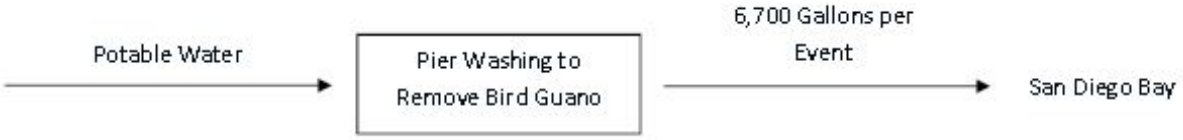


Figure C-4. Pier Washing Discharges



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR section 122.41(a).)

2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR section 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR section 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR section 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR section122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR section 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR section 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the San Diego Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR section 122.41(i); CWC, section 13383):

1. Enter upon the Discharger' s premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR section 122.41(i)(1));

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR section 122.41(i)(2));

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR section 122.41(i)(3)); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR section 122.41(i)(4).)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR section 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR section 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR section 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR section 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR section 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering

judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR section 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the San Diego Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR section 122.41(m)(4)(i)(C).)

4. The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR section 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR section 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR section 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR section 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR section 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR section 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR section 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 CFR section 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR section 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR section 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR section 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR section 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR section 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of this Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR section 122.41(l)(3); section 122.61.).)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR section 122.41(j)(1).)

B. Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR section 122.41(j)(4); section 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. Except for records of monitoring information required by this Order related to the Discharger' s sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board Executive Officer at any time. (40 CFR section 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR section 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR section 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR section 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR section 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR section 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR section 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 CFR section 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR section 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR section 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the San Diego Water Board, State Water Board, or USEPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the San Diego Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR section 122.41(h); Water. Code, section 13267.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the San Diego Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR section 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR section 122.22(a)(3).).

3. All reports required by this Order and other information requested by the San Diego Water Board, State Water Board, or USEPA shall be signed by a person described in

Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR section 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR section 122.22(b)(2)); and

c. The written authorization is submitted to the San Diego Water Board and State Water Board. (40 CFR section 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the San Diego Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR section 122.22 (c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR section 122.22(d).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR section 122.22(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR section 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the San Diego Water Board. (40 CFR section 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR section 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR section 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR section 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR section 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 CFR section 122.41(l)(6)(ii)(B).)

3. The San Diego Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR section 122.41(l)(6)(iii).)

F. Planned Changes

The Discharger shall give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR section 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR section 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR section 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application

process or not reported pursuant to an approved land application plan. (40 CFR section 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the San Diego Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR section 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR section 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the San Diego Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR section 122.41(l)(8).)

VI. STANDARD PROVISIONS – ENFORCEMENT

A. The San Diego Water Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, sections 13385, 13386, and 13387.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Non-Municipal Facilities

Existing manufacturing, commercial, mining, and silvicultural Dischargers shall notify the San Diego Water Board as soon as they know or have reason to believe (40 CFR section 122.42(a)):

1. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following "notification levels" (40 CFR section 122.42(a)(1)):

a. 100 micrograms per liter (µg/L) (40 CFR section 122.42(a)(1)(i));

b. 200 µg/L for acrolein and acrylonitrile; 500 µg/L for 2,4-dinitrophenol and 2-methyl-4,6-dinitrophenol; and 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(1)(ii));

c. Five (5) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(1)(iii)); or

d. The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(1)(iv).)

2. That any activity has occurred or will occur that would result in the discharge, on a non-routine or infrequent basis, of any toxic pollutant that is not limited in this Order, if that discharge will exceed the highest of the following “notification levels" (40 CFR section 122.42(a)(2)):

a. 500 micrograms per liter (µg/L) (40 CFR section 122.42(a)(2)(i));

b. 1 milligram per liter (mg/L) for antimony (40 CFR section 122.42(a)(2)(ii));

c. Ten (10) times the maximum concentration value reported for that pollutant in the Report of Waste Discharge (40 CFR section 122.42(a)(2)(iii)); or

d. The level established by the San Diego Water Board in accordance with section 122.44(f). (40 CFR section 122.42(a)(2)(iv).)

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and sections 122.41(h), (j)-(l), 122.44(i), and 122.48 of title 40 of the Code of Federal Regulations (40 CFR) require that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the San Diego Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. Pursuant to this authority this Monitoring and Reporting Program (MRP) establishes conditions for Naval Base Coronado (Discharger or NBC) to conduct routine or episodic self-monitoring of the discharges regulated under this Order at specified effluent, and receiving water monitoring locations. The MRP requires the Discharger to report the results to the San Diego Water Board with information necessary to evaluate discharge characteristics and compliance status.

The purpose of the MRP is to determine and ensure compliance with effluent limitations and other requirements established in this Order, assess treatment efficiency, characterize effluents, characterize wastewater flows, and characterize the receiving water and the effects of the discharge on the receiving water. The MRP also specifies requirements concerning the proper use, maintenance, and installation of monitoring equipment and methods, and the monitoring type intervals and frequency necessary to yield data that are representative of the activities and discharges regulated under this Order.

Each monitoring section contains an introductory paragraph summarizing why the monitoring is needed and the key management questions the monitoring is designed to answer. In developing the list of key management questions the San Diego Water Board considered four basic types of information for each question:

- Management Information Need – Why does the San Diego Water Board need to know the answer?
- Monitoring Criteria – What monitoring will be conducted for deriving an answer to the question?
- Expected Product – How should the answer be expressed and reported?
- Possible Management Actions – What actions will be potentially influenced by the answer?

The framework for this monitoring program has three components that comprise a range of spatial and temporal scales: 1. core monitoring, 2. regional monitoring, and 3. special studies.

1. Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.
2. Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. In the event that a regional monitoring effort takes place during the permit cycle in which the MRP does not specifically address regional monitoring, the San Diego Water Board may allow relief from aspects of core monitoring components in order to encourage participation pursuant to section VI of this MRP.
3. Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often they are used to help understand core or regional monitoring results, where a specific environmental process is not well understood, or to address unique issues of local importance.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitoring flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the San Diego Water Board.

B. Monitoring must be conducted according to United States Environmental Protection Agency (USEPA) test procedures approved at 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* as amended, unless other test procedures are specified in this Order and/or in this MRP. Alternative test procedures not specified in this Order are subject to San Diego Water Board and USEPA approval.

C. The monitoring reports, signed and certified as required by Attachment D, Standard Provisions V.B, of this Order, shall be submitted electronically using the State Water Board's California Integrated Water Quality System (CIWQS) Program website in accordance with section VIII.B.1 this MRP.

D. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring, instrumentation, copies of all reports required by this Order and this MRP, and records of all data used to complete the application for this Order. Records of monitoring information shall include information required under Attachment D, Standard Provisions, section IV. Records shall be maintained for a minimum of five years from the date of sample, measurement, report, or application. This period may be extended by request of the San Diego Water Board or by the USEPA at any time.

E. All analyses shall be performed in a laboratory certified to perform such analyses by the State Water Board's Division of Drinking (DDW) or by a laboratory approved by the San Diego Water Board. The laboratory must be accredited under the DDW Environmental Laboratory Accreditation Program (ELAP) to ensure the quality of analytical data used for regulatory purposes to meet the requirements of this Order. Additional information on ELAP can be accessed at http://www.waterboards.ca.gov/drinking_water/certlic/labs/index.shtml.

F. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

G. The Discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. When requested by USEPA or the San Diego Water Board, the Discharger will participate in the NPDES discharge monitoring report QA performance study. The Discharger should have a success rate equal to or greater than 80 percent.

H. Monitoring results shall be reported at intervals and in a manner specified in this Order or in this MRP.

I. This MRP may be modified by the San Diego Water Board as appropriate.

J. This Order may be modified by the San Diego Water Board or the USEPA to enable the Discharger to participate in comprehensive regional monitoring activities.

II. MONITORING LOCATIONS

A. Monitoring Station Locations

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
SC-001	SC-001	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 22” N; 117° 11’ 23” W
SC-002	SC-002	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 22” N; 117° 11’ 22” W
SC-003	SC-003	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 23” N; 117° 11’ 22” W
SC-004	SC-004	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 21” N; 117° 11’ 20” W
SC-005	SC-005	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 21” N; 117° 11’ 18” W
SC-006	SC-006	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 20” N; 117° 11’ 16” W
SC-007	SC-007	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 20” N; 117° 11’ 15” W
SC-008	SC-008	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 19” N; 117° 11’ 13” W
SC-009	SC-009	A location where a representative sample of the Steam Condensate can be obtained: 32° 42’ 29” N; 117° 11’ 23” W
SC-010	SC-010	A location where a representative sample of the Steam Condensate can be obtained: 32° 41’ 46” N; 117° 11’ 59” W
CW-001	CW-001	A location where a representative sample of Diesel Engine Cooling Water can be obtained: 32° 41’ 43” N; 117° 13’ 36” W
UV-001	UV-001	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32’ 42° 8” N; 117’ 10° 57” W
UV-002	UV-002	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42’ 17” N; 117° 11’ 11” W
UV-003	UV-003	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32’ 42° 20” N; 117’ 11° 27” W
UV-004	UV-004	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42’ 37” N; 117° 11’ 24” W
UV-005	UV-005	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42’ 36” N; 117° 11’ 22” W
UV-006	UV-006	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32’ 42° 45” N; 117, 11° 25” W
UV-007	UV-007	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42’ 42” N; 117° 12’ 12” W
UV-008	UV-008	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42’ 26” N; 117° 11’ 39” W
UV-009	UV-009	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42’ 15” N; 117° 11’ 57” W

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
UV-010	UV-010	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 42' 2" N; 117° 11' 25" W
UV-011	UV-011	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 40' 31" N; 117° 9' 38" W
UV-012	UV-012	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 40' 23" N; 117° 10' 1" W
UV-013	UV-013	A location where a representative sample of Utility Vault and Manhole Dewatering can be obtained: 32° 35' 57" N; 117° 7' 25" W
PW-001	PW-001	A location where a representative sample of Pier Washing Water can be obtained: 32º 41' 43" N; 117º 13' 36" W
--	Industrial Storm Water See Attachment M	The Discharger shall identify storm water monitoring locations at a point prior to or at the point of discharge for all "Industrial High Risk Areas" and "Industrial Low Risk Areas), as identified in Attachment M of this Order. The Discharger shall establish monitoring locations as described in section II.B of the MRP.
--	Municipal Storm Water See Attachment M	The Discharger shall identify storm water monitoring locations at a point prior to or at the point of discharge for Small Military Base MS4 Areas, as identified in Attachment M of this Order. The Discharger shall establish monitoring locations sufficient to meet the requirements described in section VII.B of the MRP. The number and location of monitoring locations shall be sufficient to characterize storm water runoff to the MS4 throughout the Facility.

B. Industrial Storm Water Monitoring Location Report

1. The Discharger shall prepare and submit, no later than May 1, 2016, an Industrial Storm Water Monitoring Location Plan to identify representative monitoring locations for industrial storm water discharges from Industrial High Risk Areas, and Industrial Low Risk Areas. The Plan shall contain the following information:

   a. The criteria and methods used to identify the representative monitoring locations.

   b. A map of monitoring locations for each Industrial High Risk Area and Industrial Low Risk Area storm water discharge point. Where a single drainage area, or similar drainage areas to the same receiving water, discharge to multiple discharge points, the Discharger may propose a single monitoring location for that drainage area (or similar drainage areas), provided the Discharger submits supporting rationale demonstrating that a single monitoring location is representative for that drainage area (or similar drainage areas) (i.e., similar industrial activities and best management practices (BMPs)).

   c. A tabulation of the proposed representative monitoring locations for industrial storm water discharges from Industrial High Risk Areas and Industrial Low Risk Areas. The tabulation shall include the discharge points, the representative monitoring locations for each discharge point, a brief description of the representative monitoring location (including the drainage area for storm water discharges only), and the latitude and longitude for each representative monitoring location.

2. In the Storm Water Annual Report for industrial storm water discharges, the Discharger shall submit a summary of any proposed changes to the representative monitoring locations, a rationale for each change in monitoring location, and a certification that all monitoring locations are representative of their respective discharge locations.

3. The Discharger shall implement the Industrial Storm Water Monitoring Location Report unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any conditions set by the San Diego Water Board including modification of proposed monitoring locations.

III. CORE MONITORING REQUIREMENTS

A. Influent Monitoring Requirements – Not Applicable

B. Steam Condensate Monitoring Locations SC-001 through SC-010

The Discharger shall monitor steam condensate discharges at a minimum of three representative monitoring locations from Monitoring Locations SC-001 through SC-010 as specified below to answer the following primary questions:

1. Does the effluent meet permit effluent limitations based on water quality standards for the receiving water?

2. What is the mass discharged annually of each constituent monitored?

3. Is the effluent concentration or mass changing over time?

The three representative monitoring locations shall be chosen at random and may be different each year depending upon which steam systems are active.

Table E-2. Effluent Monitoring for Steam Condensate

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPD	Grab or Estimate	Quarterly	Estimate
Oil and Grease	mg/L	Grab	Quarterly	[1]
Turbidity	NTU	Grab	Quarterly	[1]
Settleable Solids	ml/L	Grab	Quarterly	[1]
Chronic Toxicity	Pass/Fail	Grab	Annually	[1,2]
pH	standard units	Grab	Quarterly	[1]
Priority Pollutants				
Antimony, Total Recoverable	µg/L	Grab	Quarterly	[1]
Arsenic, Total Recoverable	µg/L	Grab	Quarterly	[1]
Copper, Total Recoverable	µg/L	Grab	Quarterly	[1]
Lead, Total Recoverable	µg/L	Grab	Quarterly	[1]
Nickel, Total Recoverable	µg/L	Grab	Quarterly	[1]
Selenium, Total Recoverable	µg/L	Grab	Quarterly	[1]
Zinc, Total Recoverable	µg/L	Grab	Quarterly	[1]
2,3,7,8-TCDD[3]	µg/L	Grab	Quarterly	[1]
TCDD Equivalents[4]	µg/L	Grab	Quarterly	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Quarterly	[1]
Aldrin	µg/L	Grab	Quarterly	[1]
4,4'-DDT	µg/L	Grab	Quarterly	[1]
4,4'-DDE	µg/L	Grab	Quarterly	[1]
4,4'-DDD	µg/L	Grab	Quarterly	[1]
Heptachlor	µg/L	Grab	Quarterly	[1]
Heptachlor Epoxide	µg/L	Grab	Quarterly	[1]
Remaining CTR Priority Pollutants	µg/L	Grab	Annual	[1]

[1] As specified in 40 CFR part 136.
[2] As described in section IV.B of this MRP.
[3] Applicable to discharges to San Diego Bay, SC-001 to SC-009 only.
[4] Applicable to discharges to the Pacific Ocean, SC-010 only.

C. Diesel Engine Cooling Water Location CW-001

The Discharger shall monitor diesel engine cooling water discharges at Monitoring Location CW-001 as specified below to answer the following primary questions:

1. Does the effluent meet permit effluent limitations based on water quality standards for the receiving water?

2. What is the mass discharged annually of each constituent monitored?

3. Is the effluent concentration or mass changing over time?

Table E-3. Effluent Monitoring for Diesel Engine Cooling Water

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPD	Grab or Estimate	Quarterly	Estimate
Oil and Grease	mg/L	Grab	Quarterly	[1]
Turbidity	NTU	Grab	Quarterly	[1]
pH	standard units	Grab	Quarterly	[1]
Temperature	^{0}F	Grab	Quarterly	[1]
Settleable Solids	ml/L	Grab	Quarterly	[1]
Chronic Toxicity	Pass/Fail	Grab	Annually	[1,2]
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	Quarterly	[1]
Chromium VI, Total Recoverable	µg/L	Grab	Quarterly	[1]
Copper, Total Recoverable	µg/L	Grab	Quarterly	[1]
Lead, Total Recoverable	µg/L	Grab	Quarterly	[1]
Nickel, Total Recoverable	µg/L	Grab	Quarterly	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Selenium, Total Recoverable	µg/L	Grab	Quarterly	[1]
Zinc, Total Recoverable	µg/L	Grab	Quarterly	[1]
4,4-DDT	µg/L	Grab	Quarterly	[1]
4,4-DDE	µg/L	Grab	Quarterly	[1]
4,4-DDD	µg/L	Grab	Quarterly	[1]
Remaining CTR Priority Pollutants	µg/L	Grab	Annually	[1]

[1] As specified in 40 CFR part 136.
[2] As described in section IV.B of this MRP.

D. Pier Washing Monitoring Location PW-001

The Discharger shall submit a log of pier washing wastewater discharges at Monitoring Locations PW-001 annually. The log shall include the date, location, duration, approximate discharge volume, water source, visual assessment of discharge and receiving water quality, and any other relevant comments. The log is designed to address the following primary questions:

1. How much pier washing occurs?

E. Utility Vault and Manhole Monitoring Locations UV-001 through UV-013

1. The Discharger shall monitor utility vault and manhole dewatering discharges at Monitoring Locations UV-001 through UV-013 at a minimum of three representative monitoring locations, including at least one electrical vault discharge and one manhole discharge as shown in Table E-4 below to address the following primary questions:

a. Does the effluent comply with Numeric Action Levels in Attachment H?

b. What is the mass discharged annually of each constituent monitored?

c. Is the effluent concentration or mass changing over time?

The electrical vault representative shall be chosen from Monitoring Location Nos. UV-001 through UV-013 and shall change each year. The manhole discharge and steam vault discharge monitoring location shall be chosen at random and may be different each year.

Table E-4. Effluent Monitoring Utility Vault and Manhole Dewatering for Discharges

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	GPD	Grab or Estimate	Annually	Estimate
Oil and Grease	mg/L	Grab	Annually	[3]
pH	standard units	Grab	Annually	[1]
Total Suspended Solids	mg/L	Grab	Annually	[1]
Total Petroleum Hydrocarbons—Gasoline Range Organics[2]	mg/L	Grab	Annually	[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Petroleum Hydrocarbons—Diesel Range Organics[3]	mg/L	Grab	Annually	[1]

[1] As specified in 40 CFR part 136.
[2] TPH Gasoline (TPH-g) – Report Benzene, Ethylbenzene, Toluene, and Xylene.
[3] TPH Diesel (TPH-d).

2. Annually in accordance with Table E-8, the Discharger shall submit a log of the utility vault and manhole dewatering discharges. For vaults with automatic sump pumps, the log shall include the total volume of each discharge point for each calendar quarter. For vaults or manholes that are dewatered manually, the log shall describe the estimated annual volume, flow rate, location of the discharge, date, and receiving water body. This Order does not require the Discharger to enter utility vaults if there is a human health/safety concern. If the Discharger cannot comply with these requirements due to human health/safety concerns, the Discharger shall submit a description of the circumstances for omitting required information. The log is designed to address the following primary questions:

a. How often does the discharge occur?

b. Is the discharge a major source of pollutants?

3. Annually in accordance with Table E-8, the Discharger shall submit an Annual Utility Vault Report containing, at a minimum, the following information:

a. An executive summary that includes a discussion of utility vault compliance and/or violation(s) of this Order including utility vault NAL exceedances.

b. The results of the annual Utility Vault Plan evaluation and any revisions to the Utility Vault Plan in accordance with section III.E.2 and 3 of Attachment H.

c. A summary of monitoring data generated with comparison to NALs.

d. A summary of relevant field observations.

e. A map showing the location of each monitored (i.e., annual sampling) discharge location.

IV. WHOLE EFFLUENT TOXICITY (WET) TESTING REQUIREMENTS

Whole effluent toxicity (WET) refers to the overall aggregate toxic effect of an effluent measured directly by an aquatic toxicity test(s). The control of WET is one approach this Order uses to control the discharge of toxic pollutants. WET tests evaluate the 1) aggregate toxic effects of all chemicals in the effluent including additive, synergistic, or antagonistic toxicity effects; 2) the toxicity effects of unmeasured chemicals in the effluent; and 3) variability in bioavailability of the chemicals in the effluent.

Monitoring to assess the overall toxicity of the effluent is required to answer the following questions:

(1) Does the effluent meet permit effluent limitations for toxicity based on water quality standards for the receiving water?

If not:

a. Are unmeasured pollutants causing risk to aquatic life?
b. Are pollutants in combination causing risk to aquatic life?

(2) Does the storm water runoff meet receiving water limitations for toxicity in the receiving water?

(3) Are conditions in receiving water getting better or worse with regard to toxicity?

(4) What is the relative storm water runoff contribution to the receiving water toxicity?

(5) What are the causes of the toxicity and the sources of the constituents responsible?

A. Acute Toxicity

1. Monitoring Frequency for Industrial High Risk Storm Water Discharges

The Discharger shall conduct acute toxicity monitoring at the frequencies specified in Table E-7 and section VII.A.4. of this MRP. For storm water sampling, sampling shall occur during storm events or if storm water is collected, prior to the release of storm water to the receiving water.

2. Marine and Estuarine Species and Test Methods

The Discharger shall conduct a species sensitivity screening for acute toxicity on a representative sample which shall include one vertebrate and one invertebrate during the first required monitoring period. The species sensitivity screening samples shall also be analyzed for the parameters required for the discharge. The test species that exhibits the highest percent effect at the instream waste concentration (IWC) during a species sensitivity screening (i.e. the most sensitive species) shall be utilized for routine monitoring during the permit cycle. Routine toxicity test design shall, at a minimum, include a single-concentration analysis of the IWC compared to a control.

The Discharger shall follow the methods for acute toxicity tests as established in 40 CFR section 136.3 using a single-concentration test design for routine monitoring, or a five-concentration test design for accelerated monitoring. The USEPA method manuals referenced therein include *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition* (EPA-821-R-02-012).

The total sample volume shall be determined by the specific toxicity test method used. Sufficient sample volume shall be collected to perform the required toxicity test. Sufficient sample volume shall also be collected during accelerated monitoring for subsequent TIE studies, if necessary, at each sampling event. All toxicity tests shall be conducted as soon as possible following sample collection. The 36-hour sample holding time for test initiation shall be targeted. However, no more than 72 hours shall elapse before the conclusion of sample collection and test initiation.

3. Compliance Determination

The acute toxicity Maximum Daily Effluent Limitation (MDEL) is exceeded and a violation will be flagged when a toxicity test during routine monitoring results in a “fail” in accordance with the Test of Significant Toxicity (TST) approach and the percent effect is greater than or equal to 40%.

The determination of "pass" or "fail" from a single effluent concentration acute toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

The Discharger shall report the results of a reasonable potential analysis (RPA), species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a "pass" or a "fail" at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC. The methodology for determining "pass", "fail" and "percent effect" is provided below.

Pass

An acute toxicity test result that rejects the null hypothesis (Ho) below is reported as "pass" in accordance with the TST approach:

Ho: Mean response (100 percent effluent) ≤ 0.80 × Control mean response

Fail

An acute toxicity test result that does not reject the null hypothesis (Ho) above is reported as "fail" in accordance with the TST approach.

Percent Effect

The percent effect at the IWC is calculated for each acute toxicity test result using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response - Mean IWC Response}}{\text{Mean Control Response}} * 100$$

4. Acute Toxicity MDEL Exceedance Follow-up Action

If an acute toxicity test result during routine monitoring exceeds the acute toxicity MDEL, the Discharger shall implement corrective action to abate the source of the toxicity within 24 hours from the time the Discharger becomes aware of an MDEL exceedance, if the source of toxicity is known (e.g. operational upset). The Discharger shall also conduct an additional acute toxicity test within the same calendar month that the exceedance occurred or, the next qualifying storm event after receiving results of an exceedance for storm water discharges.

5. Evaluation of Additional Toxicity Tests for Industrial Storm Water from High Risk Areas

If the additional test result for industrial storm water from high risk areas results in a "pass", the Discharger may return to routine monitoring for the following monitoring period. If the verification test results in a "fail" at a percent effect greater than or equal to 0.20, the Discharger shall implement an approved Toxicity Reduction Evaluation (TRE) Work Plan as set forth below in section IV.E of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point.

B. Chronic Toxicity

1. Monitoring Frequency for Chronic Toxicity

The Discharger shall conduct chronic toxicity monitoring at the frequencies specified in Table E-2 and E-3.

2. Marine and Estuarine Species and Test Methods

The Discharger shall conduct a species sensitivity screening for chronic toxicity on a representative sample which shall include one vertebrate, one invertebrate, and one aquatic plant during the first required monitoring period. The species sensitivity screening samples shall also be analyzed for the parameters required for the discharge. The test species that exhibits the highest percent effect at the IWC during a species sensitivity screening (i.e. the most sensitive species) shall be utilized for routine monitoring during the permit cycle. If the result of all three species is "Pass", then the species that exhibits the highest "Percent Effect" at the discharge IWC during species sensitivity screening shall be used for routine monitoring during the permit cycle. If only one species fails, then that species shall be used for routine monitoring during the permit cycle. If two or more species result in "Fail," then the species that exhibits the highest "Percent Effect" at the discharge IWC during the suite of species sensitivity screening shall be used for routine monitoring during the permit cycle.

The Discharger shall follow the methods for chronic toxicity tests as established in 40 CFR section 136.3. The USEPA method manuals referenced therein include *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition* (EPA-821-R-02-013), and *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition* (EPA-821-R-02-014). Additional methods for chronic toxicity monitoring are outlined in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition* (EPA-600-R-95-136).

For discharges to marine and estuarine waters, the Discharger shall conduct a static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth Test Method 1006.01); a static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth Test Method 1009.0); and a static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*, or the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0 or Embryo-Larval Development Test Method).

If laboratory-held cultures of the topsmelt, *Atherinops affinis*, are not available for testing, then the Discharger shall conduct a static renewal toxicity test with the inland silverside, *Menidia beryllina* (Larval Survival and Growth Test Method 1006.01), found in the third edition of *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA/821/R-02/014, 2002; Table IA, 40 CFR Part 136). Additional species may be used by the Discharger if approved by the San Diego Water Board.

The total sample volume shall be determined by the specific toxicity test method(s) used. Sufficient sample volume shall be collected to perform the required toxicity test. Sufficient sample volume shall also be collected during accelerated monitoring for subsequent TIE studies, if necessary, at each sampling event. All toxicity tests shall be conducted as soon as possible following sample collection. The 36-hour sample holding time for test initiation

shall be targeted. However, no more than 72 hours shall elapse before the conclusion of sample collection and test initiation.

3. Compliance Determination

The MDEL for chronic toxicity is exceeded and a violation will be flagged when a toxicity test during monitoring results in a "fail" in accordance with the TST approach and the percent effect relative to a control is greater than or equal to 50%.

The Median Monthly Effluent Limitation (MMEL) for chronic toxicity is exceeded and a violation will be flagged when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. 2 out of 3) is a "fail."

The determination of "Pass" or "Fail" from a chronic toxicity test at the IWC of 100 percent effluent shall be determined using the TST approach described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010).

The Discharger shall report the results of reasonable potential analyses, species sensitivity screenings, and routine toxicity tests to the San Diego Water Board as either a "pass" or a "fail" at the IWC, in accordance with the TST approach and provide the calculated percent effect at the IWC. The methodology for determining "pass", "fail" and "percent effect" is provided below.

Pass

A chronic toxicity test result that rejects the null hypothesis (Ho) below is reported as "pass" in accordance with the TST approach:

Ho: Mean response (100 percent effluent) ≤ 0.75 × Control mean response

Fail

A chronic toxicity test result that does not reject the null hypothesis (Ho) above is reported as "fail" in accordance with the TST approach.

Percent Effect

The percent effect at the IWC is calculated for each chronic toxicity test result using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response - Mean IWC Response}}{\text{Mean Control Response}} * 100$$

The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is: Mean discharge IWC response ≤0.75 × Mean control response. A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as

"Fail". The relative "Percent Effect" at the discharge IWC is defined and reported as: ((Mean control response - Mean discharge IWC response) ÷ Mean control response)) × 100. This is a t-test (formally Student's t-Test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (i.e., a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control (the test result is "Pass" or "Fail")). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

4. Chronic Toxicity MDEL Exceedance Follow-up Action

A chronic toxicity test result during routine monitoring indicating a "fail" with a percent effect at or above 50% is an exceedance of the chronic toxicity MDEL. The Discharger shall implement corrective action to abate the source of the toxicity within 24 hours from the time the Discharger becomes aware of an MDEL exceedance, if the source of toxicity is known (e.g. operational upset). The Discharger shall also conduct an additional toxicity test within the same calendar month that the exceedance occurred or, in the event laboratory monitoring results are not received during the same month when the sampling was performed, the next discharge event after receiving results of an exceedance.

5. Evaluation of Additional Toxicity Tests for Industrial Process Wastewater (Steam Condensate and Diesel Engine Cooling Water)

If the additional test result for industrial process wastewater results in a "pass", the Discharger may return to routine monitoring for the following monitoring period. If the verification test results in a "fail" at a percent effect greater than or equal to 25%, the Discharger shall implement an accelerated monitoring schedule for chronic toxicity as set forth below in section IV.D of this MRP.

6. Evaluation of Additional Toxicity Tests for High Risk Industrial Storm Water

The chronic toxicity test results shall be used in the Discharger's study on chronic toxicity described in section VI.C.2.a of this Order. If both the chronic toxicity test results at the end of pipe for high risk industrial storm water and the concurrent receiving water chronic toxicity test result in a "fail", the discharger shall conduct a TRE as required in section IV.E of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point.

C. Quality Assurance

1. Quality assurance measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified below.

   a. This discharge is subject to a determination of "pass" or "fail" from a toxicity test at the IWC (for statistical flowchart and procedures, see *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document*, Appendix A, Figure A-1).

   b. The IWC for applicable discharges is 100 percent effluent.

c. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the test methods manual, then the Discharger shall resample and retest within 14 days (or as soon as possible for storm water).

d. Effluent dilution water and control water should be prepared and used as specified in the test methods manual *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (EPA/821/R-02/012, 2002); or, for *Atherinops affinis*, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms* (EPA/600/R-95/136, 1995). If the dilution water is different from test organism culture water, then a second control using culture water shall also be used.

e. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).

f. All multi-concentration reference toxicant test results must be reviewed and reported according to USEPA guidance on the evaluation of concentration-response relationships found in Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR part 136) (EPA 821-B-00-004, 2000).

D. Accelerated Chronic Toxicity Testing Monitoring Schedule

The Discharger shall implement an accelerated chronic toxicity monitoring schedule, as required by section IV.B.5 of this MRP for industrial process wastewater discharges, consisting of four, five-concentration chronic toxicity tests, conducted at approximately two-week intervals, over an eight-week period. All toxicity tests conducted during an accelerated monitoring schedule shall, at a minimum, include the IWC and four additional concentrations. The additional effluent concentrations should provide useful information regarding the intensity and persistence of the toxic effect(s). If all of the additional tests result in a "pass" or "fail" with less than 25% percent effect, the Discharger may return to routine monitoring for the following monitoring period. If any one of the additional tests result in a "fail" and exhibit a percent effect equal to or greater than 25%, the Discharger shall implement an approved TRE Work Plan as set forth below in section IV.E of this MRP. The requirement for a TRE may be waived by the San Diego Water Board on a case-by-case basis if implementation of a previously approved TRE Work Plan is already underway for the sampled discharge point

E. Toxicity Reduction Evaluation (TRE)

1. TRE Work Plan Submittal. The Discharger shall prepare and submit a TRE Work Plan to the San Diego Water Board no later than 30 days from the time the Discharger becomes aware of the following:

a. A TRE work plan is required for an industrial process wastewater discharge which had a chronic toxicity test result during accelerated monitoring that resulted in a "fail" and exhibited a percent effect greater than or equal to 25%; or

b. A TRE work plan is required for a high risk industrial storm water discharge which had an additional acute toxicity test conducted following an MDEL exceedance that results in a "fail" and exhibits a percent effect greater than or equal to 20%; or

c. A TRE work plan is required for a high risk industrial storm water discharge which had a chronic toxicity test and a concurrent receiving water sample test both result in a "fail" and exhibit a percent effect greater than or equal to 25%.

2. TRE Work Plan. The TRE Work Plan shall be in conformance with the USEPA manual "*Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070, 1989)."* The TRE Work Plan shall also include the following information:

a. A description of the actions to be undertaken by the Discharger to investigate, identify, and correct the causes of toxicity;

b. If the MDEL noncompliance has not been corrected, the amount of time it is expected to continue;

c. A description of the steps taken or planned to reduce, eliminate and prevent recurrence of the MDEL noncompliance; and

d. A schedule for completion of all activities, the expected duration of the toxicity noncompliance, and submission of a final report.

3. TRE Work Plan Implementation. The Discharger shall implement the TRE Work Plan unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any additional conditions set by the San Diego Water Board.

4. TRE Progress Reports. The Discharger shall prepare and provide written semiannual progress reports which: (1) describe the actions that have been taken toward achieving compliance with the acute or chronic toxicity effluent limitation for the previous six months; (2) describe all activities including, data collection and other field activities which are scheduled for the next year and provide other information relating to the progress of work; (3) identify any modifications to the compliance plans that the Discharger proposed to the San Diego Water Board or that have been approved by San Diego Water Board during the previous six months; and (4) include information regarding all delays encountered or anticipated that may affect the future schedule for completion of the actions required to attain compliance with the MDEL, and a description of all efforts made to mitigate those delays or anticipated delays. These progress reports shall be submitted to the San Diego Water Board semiannually by February 1 and August 1 each year following the adoption of this Order in accordance with the reporting schedule in Table E-11. Submission of these progress reports shall continue until compliance with the MDEL is achieved.

5. Toxicity Identification Evaluation (TIE). Based upon the magnitude and persistence of the acute and chronic toxicity, the Discharger may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996). If a TIE is undertaken, the Discharger shall prepare and submit a work plan to the San Diego Water

Board containing the following elements and comply with any conditions set by the Board:

a. Criteria for initiating a TIE on a sample;

b. Roles and responsibilities of the team conducting the TIE;

c. Study design, sample treatments, and chemical analysis;

d. Data evaluation and communication;

e. Follow-up actions; and

f. A schedule for completion of all activities and submission of a final report.

F. Violations

An exceedance of the MDEL or MMEL during routine monitoring is a violation. Any exceedances occurring during a required accelerated monitoring period and, if appropriate, a TRE period shall not constitute additional violations provided that (1) the Discharger proceeds with the accelerated monitoring and TRE (if required) in a timely manner; and (2) the accelerated monitoring and TRE are completed within one year of the initial exceedance. The San Diego Water Board has the discretion to impose additional violations and initiate an enforcement action for toxicity tests that result in a "fail" after one year from the initial violation. Additionally, a discharger's failure to initiate an accelerated monitoring schedule or conduct a TRE, as required by this Order, will result in all exceedances being considered violations of the MDEL or MMEL and may result in the initiation of an enforcement action.

G. Reporting of Toxicity Monitoring Results

1. The Discharger shall submit:

a. A full laboratory report for all toxicity testing as an attachment to the monitoring report. The laboratory report shall contain the toxicity test results; the dates of sample collection and initiation of each toxicity test; and all results for effluent parameters monitored concurrently with the toxicity test(s). All toxicity test results (whether identified as valid or otherwise) conducted during the calendar month shall be reported.

b. The actual test endpoint responses for the control (i.e., the control mean) and the IWC (i.e., the IWC mean) for each toxicity test to facilitate the review of test results and determination of reasonable potential for toxicity by the permitting authority.

c. A summary of water quality measurements for each toxicity test (e.g. pH, dissolved oxygen, temperature, conductivity, hardness, salinity).

d. All results for effluent parameters monitored concurrently with the toxicity tests.

e. Statistical program (e.g. TST Calculator, CETIS, etc.) output results, including graphical plots for each toxicity test.

f. Any additional QA/QC documentation or any additional toxicity related information.

2. The Discharger shall notify the San Diego Water Board in writing within 14 days of receipt of any test result with an exceedance of the toxicity limit. This notification shall describe actions the Discharger has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

V. RECEIVING WATER AND SEDIMENT MONITORING REQUIREMENTS

The receiving water and sediment monitoring requirements set forth below are designed to measure the effects of the Facility discharges on San Diego Bay receiving waters. The overall receiving water monitoring program is intended to answer the following questions:

(1) Does the receiving water meet water quality standards listed in section V of this Order, Receiving Water Limitations?

(2) Are the receiving water conditions getting better or worse over time?

(3) Does the Facility cause or contribute to violations of the Receiving Water Limitations in section V of this Order?

At this time, receiving water and sediment monitoring in the vicinity of the Facility shall be conducted as specified below. This program is intended to document conditions of receiving waters and bay bottom sediments within the vicinity of the Facility discharges. Station location, sampling, sample preservation and analyses, when not specified, shall be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit proposals, including the supporting rationale, for reductions or other changes to these monitoring requirements that it considers to be appropriate to the San Diego Water Board for approval.

During monitoring events sample stations shall be located using a land-based microwave positioning system or a satellite positioning system such as Global Positioning System (GPS). If an alternate navigation system is proposed, its accuracy should be compared to that of microwave-based and satellite-based systems, and any compromises in accuracy shall be justified.

A. Monitoring Responsibility. Receiving water and sediment monitoring shall be performed individually by the Discharger to assess compliance with receiving water limits or through the Discharger's participation in a regional or water body monitoring coalition or both as determined by the San Diego Water Board.

B. Monitoring Coalition Reopener. To achieve maximum efficiency and economy of resources, the Discharger may establish or join a San Diego Bay water body monitoring coalition. If a San Diego Bay monitoring coalition is formed, revised monitoring requirements will be established to ensure that appropriate monitoring is conducted in a timely manner.

C. Water and Sediment Monitoring Plan. The Discharger shall prepare and submit a Water and Sediment Monitoring Plan to assess compliance with Receiving Water Limitations of this Order. The Water and Sediment Monitoring Plan shall be submitted within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan shall contain the following elements:

1. Quality Assurance Project Plan (QAPP). A QAPP describing the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols for the water and sediment monitoring.

2. **Sampling and Analysis Plan.** A Sampling and Analysis Plan based on methods or metrics described in 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants under the Clean Water Act* and the State Water Board's *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1 Sediment Quality* (Sediment Quality Plan). The Sampling and Analysis Plan shall include a list of chemical analytes for the water column and sediment as well as the monitoring frequency and sample station locations.

3. **Receiving Water Monitoring**

Pollutants and Frequency: The Sampling and Analysis Plan shall propose the pollutants to be monitored, and the frequency and timing for water column sampling to be performed in San Diego Bay. At a minimum, monitoring shall include the pollutants and frequency in Table E-5 below. The proposed sampling shall be based upon results on the fate and transport of pollutants from the conceptual model (see V.C.5 below).

Table E-5. Minimum Receiving Water Column Monitoring Requirements

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Priority Pollutants				
Arsenic, Total Recoverable	µg/L	Grab	Annually	[1]
Copper, Total Recoverable	µg/L	Grab	Annually	[1,2]
Lead, Total Recoverable	µg/L	Grab	Annually	[1]
Nickel, Total Recoverable	µg/L	Grab	Annually	[1]
Zinc, Total Recoverable	µg/L	Grab	Annually	[1]
Other Pollutants Identified by the Discharger	µg/L	Grab	Annually	[1]
Non-Conventional Pollutants				
Temperature	°F	Grab	Semiannually	[1]
Chronic Toxicity	Pass/Fail	Grab	Semiannually	[3]

[1] As specified in 40 CFR part 136.

[2] Effluent samples shall be analyzed for copper according to method 1638 or 1640. The commonly used methods 6010B (Inorganics by ICP-Atomic Emission Spectroscopy) and 200.7 (Trace Elements-ICP) have been found to give inaccurate copper readings in saline-matrix samples due to interference with the sodium-argon complex, which has a molecular weight similar to copper. Method 1638 (ICP/MS) or 1640 (On-Line Chelation) will eliminate the sodium-argon complex before the sample is tested for copper. No inaccurate readings for other metals in a saline-matrix sample is analyzed by methods 6010B or 200.7 are known.

[3] The Discharger shall monitor receiving water chronic toxicity twice per year concurrently with chronic toxicity monitoring at one location for end-of-pipe high risk industrial storm water discharge monitoring required in Table E-7 of this MRP during one storm event per semiannual period. The receiving water chronic toxicity sample shall be collected in the receiving water adjacent to the storm drain outfall sampled in Table E-7 during the storm event. The data for this chronic toxicity sampling shall be reported annually in the Annual Storm Water Report.

4. **Sediment Monitoring**

   a. **Frequency**. Sediment chemistry, toxicity and benthic community monitoring shall be done at least twice during the term of this Order. For stations that are consistently classified as unimpacted or likely unimpacted, the frequency may be reduced to once per permit cycle in the next permit.

   b. **Station Locations.** Triad station locations shall be identified after evaluating the items in section V.C.5 through V.C.9 below.

c. Sediment Chemistry, Toxicity, and Benthic Community Condition. Sediment chemistry, toxicity and benthic community monitoring shall be done in accordance with, at a minimum, the requirements set forth in the State Water Board's Sediment Quality Plan. The proposal must also include the following:

i. Sediment Chemistry. Bulk sediment chemical analysis shall include at a minimum the pollutants identified in Attachment A of the State Water Board's Sediment Quality Plan and listed in Attachment K of this Order.

ii. Sediment Toxicity. Short term survival tests and sublethal tests shall be performed as specified in section V.F of the State Board's Sediment Quality Plan. The results shall be recorded as "Percent of control response".

iii. Benthic Community - Subtidal Habitat The benthic community shall be evaluated using the line of evidence approach described in section V.G of the State Water Board's Sediment Quality Plan.

5. Conceptual Model. A Conceptual Model identifying the physical and chemical factors that control the fate and transport of pollutants and receptors that could be exposed to pollutants in the water and sediment shall be developed and included in the Water and Sediment Monitoring Plan. The Conceptual Model will serve as the basis for assessing the appropriateness of the Water and Sediment Monitoring Plan design. The Conceptual Model shall consider:

a. Points of discharge into the segment of the water body or region of interest;

b. Tidal flow and/or direction of predominant currents;

c. Historic or legacy conditions in the vicinity;

d. Nearby land and marine uses or actions;

e. Beneficial Uses;

f. Potential receptors of concern;

g. Change in grain size salinity water depth and organic matter; and

h. Other sources or discharges in the immediate vicinity.

6. Spatial Representation. The Water and Sediment Monitoring Plan shall be designed to ensure that the sample stations are spatially representative of the water and sediment within the water body segment or region of interest.

7. Existing Data and Information. The Water and Sediment Monitoring Plan design shall take into consideration existing data and information of appropriate quality including ongoing monitoring programs conducted by other entities.

8. Strata. Identification of appropriate strata shall consider characteristics of the water body including sediment transport, hydrodynamics, depth, salinity, land uses, inputs (both natural and anthropogenic) and other factors that could affect the physical, chemical, or biological condition of the sediment.

9. Index Period. All sediment stations shall be sampled between the months of June through September to correspond with the benthic community index period.

10. **Report Completion Schedule**. The Water and Sediment Monitoring Plan shall include a schedule for completion of all sample collection and analysis activities and submission of the Water Column Monitoring Report and the Sediment Monitoring Report described section V.E. of this MRP.

D. Water and Sediment Monitoring Plan Implementation. The Discharger or water body monitoring coalition shall implement the Water and Sediment Monitoring Plan in accordance with the schedule contained in the Water and Sediment Monitoring Plan unless otherwise directed in writing by the San Diego Water Board within 90 days of submission. At the latest, implementation of the receiving water monitoring shall begin within 24 months of the effective date of this Order. Before beginning sample collection activities, the Discharger or water body monitoring coalition shall comply with any conditions set by the San Diego Water Board with respect to sample collection methods such as providing split samples.

E. Water Column and Sediment Monitoring Reports. The Discharger or water body monitoring coalition shall submit a Sediment Monitoring Report twice during the term of the permit by February 1 of the year after the sampling occurs. The Water Column and Sediment Monitoring Report shall contain the following information:

1. **Monitoring Results**. The results of the monitoring in tabular and graphical form.
2. **Data Analysis, Interpretations, and Conclusions**. An analysis of the data to evaluate trends and interpretations and conclusions on the data.
3. **Sediment Aquatic Life Analysis.** The data, analyses, interpretation, and integration of the multiple lines of evidence (MLOE), and station assessment shall be performed using the MLOE approach as prescribed in the State Water Board Sediment Quality Plan. Compliance with receiving water limitations for sediment quality shall be determined for each station by integrating the sediment chemistry, toxicity, and benthic community lines of evidence to derive a benthic triad station assessment in accordance with the methodology in section V.I of the State Water Board Sediment Quality Plan.
4. **Receiving Water Limitation Determination.** A determination shall be made for each station of attainment of the applicable Receiving Water Limitations.
5. **Sample Location Map.** The locations, type, and number of samples shall be identified and shown on a site map(s).
6. **Laboratory Reports.** The reports from laboratories with the original analysis results including any QA/QC information.

VI. REGIONAL MONITORING REQUIREMENTS

Regional receiving water monitoring provides information about the sources, fates, and effects of anthropogenic contaminants in the receiving water necessary to make assessments over large areas. The large scale assessments provided by regional monitoring describe and evaluate cumulative effects of all anthropogenic inputs and enable better decision making regarding protection of beneficial uses of receiving waters. Regional monitoring data assists in the interpretation of core monitoring studies by providing a more accurate and complete characterization of reference conditions and natural variability. Regional monitoring also leads to methods standardization and improved quality control through intercalibration exercise. The coalitions implementing regional monitoring enable sharing of technical resources, trained personnel and associated costs. Focusing these resources on regional issues and developing a broader understanding of pollutants effects in receiving waters enables the development of more

rapid and effective response strategies. Based on all of these considerations the San Diego Water Board supports regional approaches to monitoring receiving waters.

The Discharger shall, as directed by the San Diego Water Board, participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved monitoring and assessment programs for receiving waters in the San Diego Region and discharges to those waters. These programs shall be developed and implemented so as to:

(1) Determine the status and trends of conditions in ocean waters in the San Diego Region with regard to beneficial uses, e.g.,

i. Are fish and shellfish safe to eat?

ii. Is water quality safe for swimming?

iii. Are ecosystems healthy?

(2) Identify the primary stressors causing or contributing to conditions of concern;

(3) Identify the major sources of the stressors causing or contributing to conditions of concern; and

(4) Evaluate the effectiveness (i.e., environmental outcomes) of actions taken to address such stressors and sources.

Development and implementation of new and improved monitoring and assessment programs for receiving waters will be guided by the following:

(1) San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of A Regional Monitoring Framework*;

(2) San Diego Water Board staff report entitled *A Framework for Monitoring and Assessment in the San Diego Region*; and

(3) Other guidance materials, as appropriate.

The San Diego Water Board may modify the receiving waters monitoring and reporting requirements, regional monitoring requirements, and/or special studies requirements of this Order as necessary for cause, including but not limited to a) revisions necessary to implement recommendations from Southern California Coastal Water Research Project (SCCWRP); b) revisions necessary to develop, refine, implement, and/or coordinate a regional monitoring program; and/or c) revisions necessary to develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*.

VII. OTHER MONITORING REQUIREMENTS

A. Storm Water Discharges from Industrial High Risk Areas, Industrial Low Risk Areas, and Industrial No Exposure Areas

1. Monitoring Questions. The industrial storm water monitoring program is designed to address the following primary questions:

a. Does the runoff comply with permit effluent limitations for toxicity thereby ensuring water quality standards are achieved in the receiving water?

b. Does the runoff comply with the Numeric Action Levels (NALs) in Attachment G?

c. Is the Storm Water Pollution Prevention Plan (SWPPP) being properly implemented?

d. Is the Facility achieving standards of Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT)?

2. Non-Storm Water Discharge Visual Observations and Assessment

a. Monthly, the Discharger shall visually assess each drainage area for the presence or indications of prior, current, or potential unauthorized non-storm water discharges and their sources.

b. The Discharger shall visually observe the Facility's authorized non-storm water discharges and their sources;

c. The monthly visual observations shall be conducted during daylight hours, on days without precipitation, and during scheduled facility operating hours[1].

d. Visual observations shall document the presence of or the indication of any non-storm water discharge, pollutant characteristics (floating and suspended material, oil and grease, discoloration, turbidity, odor, etc.), and source.

e. The Discharger shall maintain records of the personnel performing the visual observations, the dates and approximate time each drainage area and non-storm water discharge was observed, and the response taken to eliminate unauthorized non-storm water discharges and to reduce or prevent pollutants from contacting non-storm water discharges. The SWPPP shall be revised, as necessary, and implemented in accordance with Attachment G of this Order**.**

f. The Discharger shall provide an explanation in the Annual Report for uncompleted monthly visual observations.

3. Industrial Storm Water Discharge and Other Visual Observations

a. Sampling event visual observations shall be conducted at the same time sampling occurs at a discharge location. At each discharge location where a sample is obtained, the Discharger shall observe the discharge of storm water associated with industrial activity.

b. The Discharger shall ensure that visual observations of discharge(s) from contained storm water are conducted at the time of discharge. If the discharge is not likely to occur during scheduled Facility operating hours (based upon rainfall forecasts and containment freeboard), the visual observations of the contained storm water shall be conducted prior to the discharge. Visual observations shall confirm that the discharge is complying with the section III. Discharge Prohibitions of this Order.

c. If the Discharger is employing volume-based or flow-based treatment BMPs, any bypass that occurs while the visual observations and/or sampling of storm water discharges are conducted shall be sampled.

[1] *Scheduled facility operating hours* are the time periods when the facility is staffed to conduct any function related to industrial activity, but excluding time periods where only routine maintenance, emergency response, security, and/or janitorial services are performed.

d. The Discharger shall visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any observed pollutants.

e. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location. The Discharger shall provide an explanation in the Annual Report for uncompleted sampling event visual observations.

f. Dischargers shall maintain records of all visual observations. Records shall include the condition of the water, date, approximate time, locations observed, name of person(s) that conducted the observations, and any response actions and/or additional SWPPP revisions necessary in response to the visual observations.

g. The Discharger shall revise BMPs as necessary when the visual observations indicate pollutant sources have not been adequately addressed in the SWPPP.

4. Industrial Storm Water Sampling and Analysis

a. A Qualifying Storm Event (QSE) is a precipitation event that:

i. Produces a discharge for at least one drainage area; and

ii. Is preceded by 48 hours with no discharge from any drainage area.

b. The Discharger shall collect storm water samples from two QSEs during each semiannual period (i.e. January – June, July – December). Representative storm water discharge locations for “Industrial High Risk” and “Industrial Low Risk” areas, as designated under section IV.B.1 of this Order, shall be sampled as specified in Tables E-6 and E-7.

c. Sampling of stored or contained storm water shall occur at the time the stored or contained storm water is discharged. Samples shall be collected from two QSE during each semiannual period (i.e. January –June, July – December).

d. Samples shall be collected from each drainage location within four hours of the following:

i. The start of the discharge, or

ii. The start of facility operations if the QSE occurs within the previous 12 hour period (storms that begin the previous night) and representative discharge of the facility is determined to still be occurring. Sample collection is required during scheduled facility operating hours and when sampling conditions are safe.

e. Composite samples shall be flow-weighted storm water samples for the duration of the storm. If composite samples are collected, all parameters identified in Tables E-6 and E-7 with a sample type of grab or composite must be analyzed using composite samples.

f. In the event that the first QSE in a semi-annual period does not produce a discharge that can be sampled at one or more sampling locations, the Discharger shall record which sampling locations were observed that did not discharge, and collect samples from those

locations during the next QSE(s) that produces a discharge in that semi-annual period. If the Discharger fails to collect a sample at one or more sampling locations that did produce a discharge, the Discharger is required to fulfill the sampling requirement from an additional QSE that produces a discharge. For each discharge location, the maximum number of storm water samples required per reporting year is four.

g. Section IX.A.3 of the MRP of Order No. R9-2009-0081 is incorporated by reference as if set forth herein. The Discharger shall continue monitoring in accordance with section IX.A.3 of the MRP of Order No. R9-2009-0081 until June 30, 2016, with the annual report due September 1, 2016, as required by Table E-8 of this MRP.

h. Beginning July 1, 2016, the industrial storm water discharges shall be sampled and analyzed in accordance with Table E-6 and Table E-7 below.

Table E-6. Monitoring Requirements for Industrial Storm Water Discharges from "Industrial Low Risk" Areas

Parameter	Unit	Sample Type	Minimum Frequency[5]	Required Analytical Test Method
Discharge Volume	gallons	Estimate[1]	Two storms per semi-annual period	Estimate
Conventional Pollutants				
Oil and Grease	mg/L	Grab	Two storms per semi-annual period	[2]
pH	pH Units	Grab	Two storms per semi-annual period	[4]
Total Suspended Solids	mg/L	Grab	Two storms per semi-annual period	[2]
Priority Pollutants				
Copper, Total Recoverable[6]	mg/L	Grab or Composite	Two storms per semi-annual period	[2]
Zinc, Total Recoverable[6]	mg/L	Grab or Composite	Two storms per semi-annual period	[2]
Non-Conventional Pollutants				
Other Pollutants[3]	µg/L	Grab or Composite	Two storms per semi-annual period	[2]

[1] The volume of storm water discharge can be estimated by multiplying: amount of rainfall in feet × square feet of surface area × impervious factor. There are 7.5 gallons per cubic foot.

[2] As specified in 40 CFR section 136.3.

[3] Pollutants that are likely to be present in storm water discharges in significant quantities shall be sampled. The pollutants shall be selected based upon the pollutant source assessment required in section VII of the SWPPP requirements contained in Attachment G, visual observations, and inspection records. If these pollutants are not detected in significant quantities after two consecutive sampling events, the Discharger may eliminate the pollutant from future analysis until the pollutant is likely to be present again. The Discharger shall select appropriate analytical test methods that indicate the presence of pollutants in storm water discharges in significant quantities.

[4] Field test with pre- and post-calibrated portable instrument, or lab sample in accordance with 40 CFR part 136.

[5] Sampling shall occur during qualifying storm events each semiannual calendar period (January – June, July – December) prior to release to receiving water. If there are no qualifying storm events during the semiannual period, then sampling shall occur as soon as possible.

[6] After four consecutive sample events where parameters are not detected or below the Annual NAL values, analysis for those parameters may be discontinued at any affected outfall.

Table E-7. Monitoring Requirements for Storm Water Discharges from "Industrial High Risk" Areas.

Parameter	Unit	Sample Type	Minimum Frequency[7]	Required Analytical Test Method
Discharge Volume	gallons	Estimate[1]	Two storms per semiannual period.	Estimate
Conventional Pollutants				
Chemical Oxygen Demand	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Oil and Grease	mg/L	Grab	Two storms per semiannual period.	[2]
pH	pH Units	Grab	Two storms per semiannual period.	[5]
Total Suspended Solids	mg/L	Grab	Two storms per semiannual period.	[2]
Priority Pollutants				
Arsenic, Total Recoverable[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Cadmium, Total Recoverable[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Copper, Total Recoverable	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Mercury, Total Recoverable[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Nickel, Total Recoverable[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Selenium, Total Recoverable[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Silver, Total Recoverable[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Zinc, Total Recoverable	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Lead, Total Recoverable[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Non-Conventional Pollutants				
Aluminum, Total Recoverable[8]	µg/L	Grab or Composite	Two storms per semiannual period.	[2]
Iron, Total Recoverable[8]	µg/L	Grab or Composite	Two storms per semiannual period.	[2]
Magnesium, Total Recoverable[8]	µg/L	Grab or Composite	Two storms per semiannual period.	[2]
Nitrate+Nitrite Nitrogen[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Phosphorus, Total[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Ammonia[8]	mg/L	Grab or Composite	Two storms per semiannual period.	[2]
Acute Toxicity[3]	Pass or Fail	Grab or Composite	Two storms per semiannual period.	[3]

Parameter	Unit	Sample Type	Minimum Frequency[7]	Required Analytical Test Method
Chronic Toxicity[3,6]	Pass or Fail	Grab or Composite	Two storms per semiannual period.	[3]
Other Pollutants[4]	µg/L	Grab or Composite	Two storms per semiannual period.	[2]

[1] The volume of storm water discharge can be estimated by multiplying: amount of rainfall in feet × square feet of surface area × impervious factor. There are 7.5 gallons per cubic foot.

[2] As specified in 40 CFR section 136.3.

[3] The presence of acute or chronic toxicity in the storm water shall be determined as specified in section IV of this MRP.

[4] Pollutants that are likely to be present in storm water discharges in significant quantities shall be sampled. The pollutants shall be selected based upon the pollutant source assessment required in section VII of the SWPPP requirements contained in Attachment G, visual observations, and inspection records. If these pollutants are not detected in significant quantities after two consecutive sampling events, the Discharger may eliminate the pollutant from future analysis until the pollutant is likely to be present again. The Discharger shall select appropriate analytical test methods that indicate the presence of pollutants in storm water discharges in significant quantities.

[5] Field test with pre- and post-calibrated portable instrument, or lab sample in accordance with 40 CFR part 136.

[6] Chronic toxicity will be sampled at one representative high risk industrial storm water discharge location.

[7] Sampling shall occur during qualifying storm events, or if collected, prior to release to receiving water. If there are no qualifying storm events during the year, then sampling shall occur as soon as possible. If there are no qualifying storm events during the fifth year and conditions for administrative extension are met, then sampling shall occur as soon as possible.

[8] After four consecutive sample events where parameters are not detected or below the Annual NAL values, analysis for those parameters may be discontinued at any affected outfall.

g. Sampling Frequency Reduction Certification

1) The Discharger is eligible to reduce the number of QSEs sampled each reporting year in accordance with the following requirements:

a) Results from four (4) consecutive QSEs that were sampled (QSEs may be from different reporting years) did not exceed any NALs; and

b) The Discharger is in full compliance with the requirements of this Order and has updated, certified and submitted all documents, data, and reports required by this Order during the time period in which samples were collected.

2) The San Diego Water Board may notify a Discharger that it may not reduce the number of QSEs sampled each reporting year if the Discharger is subject to an enforcement action.

3) An eligible Discharger shall certify that it meets the conditions in section VII.A.4.g.1) of this MRP above.

4) Upon Sampling Frequency Reduction certification, the Discharger shall collect and analyze samples from one (1) QSE within the first half of each reporting year (July 1 to December 31), and one (1) QSE within the second half of each reporting year (January 1 to June 30). All other monitoring, sampling, and reporting requirements remain in effect.

5) A Discharger may reduce sampling per the Sampling Frequency Reduction certification unless notified by the San Diego Water Board that: (1) the Sampling

Frequency Reduction certification has been rejected or (2) additional supporting documentation must be submitted. In such instances, a Discharger is ineligible for the Sampling Frequency Reduction until the San Diego Water Board provides Sampling Frequency Reduction certification approval. Revised Sampling Frequency Reduction certifications shall be certified and submitted by the Discharger.

6) A Discharger loses its Sampling Frequency Reduction certification if an NAL exceedance occurs.

5. Visual Observation and Sample Collection Exceptions

The Discharger shall be prepared to collect samples and conduct visual observations at the beginning of the semi-annual period until the minimum requirements of this section are completed with the following exceptions:

a. The Discharger is not required to collect samples or conduct visual observations under the following conditions:

i. During dangerous weather conditions such as flooding and electrical storms; or
ii. Outside of scheduled Facility operating hours. The Discharger is not precluded from collecting samples or conducting visual observations outside of scheduled Facility operation hours.

b. If the Discharger does not collect the required samples or conduct the visual observations during a wet season due to these exceptions, then the Discharger shall include an explanation in the Annual Report why the sampling or visual observations were not conducted.

c. The Discharger shall ensure that all industrial storm water discharge sampling locations are representative of drainage areas associated with industrial activities, where practicable. The storm water discharge observed and collected from these sampling locations shall be representative of the storm water discharge generated in each drainage area. For sheet flow, the Discharger shall determine the appropriate sampling location(s) which represent industrial storm water discharges generated from the corresponding drainage area.

d. The Discharger shall identify practicable alternate sample collection locations representative of the Facility's storm water discharge if:

i. Specific drainage areas at the Facility are affected by storm water run-on from off-site areas or on-site non-industrial areas; or

ii. Specific sampling locations are difficult to sample such as submerged discharge outlets, dangerous discharge location accessibility.

B. Non-Industrial Storm Water Monitoring for Small Military Base Municipal Separate Storm Sewer System (MS4) Areas (Small Military Base MS4 Areas)

1. Monitoring Questions. The Small Military Base MS4 monitoring program shall be designed to address the following primary questions:

a. Is the Storm Water Management Plan (SWMP) being properly implemented?

b. Is the Facility achieving the standard of reducing pollutants in Small Military Base MS4 discharges to the Maximum Extent Practicable (MEP)?

2. Small Military Base MS4 Monitoring Plan. Within 24 months of the effective date of this Order, the Discharger shall prepare and submit to the San Diego Water Board a written plan for monitoring discharges and pollutants in non–industrial storm water discharges from Small Military Base MS4 Areas designed to answer the monitoring questions above. The monitoring plan shall include the following information:

a. A list of pollutants to be monitored in non-industrial storm water and non-storm water from Small Military Base MS4 areas.

b. Specific monitoring procedures for pollutants identified by the Discharger, with the goal of evaluating SWMP implementation throughout the Facility. Dry weather monitoring also has the goal of identifying and eliminating unauthorized non-storm water discharges.

c. A minimum subset of three representative monitoring locations for storm water and dry-weather discharges within the Small Military Base MS4 Areas of the Facility. These monitoring locations shall be sampled for pollutants identified by the Discharger.

d. A schedule for monitoring. Pollutant monitoring shall be performed a minimum of twice per year at the representative monitoring locations for storm water, and twice per year for dry-weather discharges, beginning 24 months after the effective date of this Order. Dry weather stations only need to be sampled if there is unauthorized non-storm water flowing at the time of sampling.

e. A program for at least quarterly visual observations to identify and correct unauthorized non-storm water discharges.

3. The Discharger shall implement the Small Military Base MS4 Monitoring Plan no later than 28 months after the effective date of this Order unless otherwise directed in writing by the San Diego Water Board. The Discharger shall comply with any conditions set by the San Diego Water Board including modification of proposed monitoring locations and constituents.

4. Monitoring results shall be submitted annually with the Storm Water Annual Report.

C. Storm Water Annual Report for Industrial High Risk Areas, Industrial Low Risk Areas, and Small Military Base MS4 Areas

The Discharger shall submit an Industrial Storm Water Annual Report by September 1 of each year to the San Diego Water Board. The report shall include the following:

1. Identification of any changes to “Industrial High Risk”, “Industrial Low Risk”, “Industrial No-Exposure”, and “Small Military Base MS4 Areas” at the Facility, as defined in section IV.B.1 of this Order;

2. A summary of visual observations and sampling and analysis results;

3. An evaluation of the visual observation and sampling and analysis results;

4. The Annual Comprehensive Site Compliance Evaluation Report as required by section IX of the SWPPP requirements contained in Attachment G;

5. Laboratory reports; and

6. A list of authorized and non-authorized non-storm water discharges.

D. Spill and Illicit Discharge Log (within all industrial storm water risk areas)

This requirement for a Spill and Illicit Discharge log is designed to answer the following primary monitoring questions:

1. Are there more frequent and/or bigger spills at this Facility than at other similar facilities?

2. Are spills and illicit discharges properly addressed and are measures being taken or planned to reduce, eliminate, and prevent recurrence of them in the future?

The Discharger shall log and report all spills of significant quantities to surface waters and all illicit discharges of any quantity within the Facility including spills and illicit discharges from vessels that are at the Facility for service. The spill / illicit discharge reports shall identify the following:

a. The time and date of the spill or illicit discharge;
b. The cause of the spill or illicit discharge;
c. The materials or wastes involved in the spill or illicit discharge;
d. The estimated volume of the spill or illicit discharges;
e. The specific location where the spill or illicit discharge originated including storm water risk level;
f. The fate of the spill or illicit discharge (e.g., San Diego Bay, etc.);
g. The physical extent or size of the area(s) affected by the spill;
h. Whether the spill or illicit discharge contained pollutants;
i. The public agencies notified;
j. The corrective actions taken or planned; and
k. The measures taken or planned to prevent or minimize future spills or illicit discharges.

The reports shall be submitted annually to the San Diego Water Board in accordance with Table E-8 of this MRP.

The Discharger shall include in its Annual Report a summary of the spills and illicit discharges that occurred in or on the Facility during the annual reporting period. The spill/illicit discharge summary report shall indicate the total number of spills and illicit discharges for the year, categorize the spills and illicit discharges, and provide the percentages of each type of spill or illicit discharge in a graphical representation. The summary report shall also indicate the efforts the Discharger used in during the annual reporting period to prevent or minimize spills.

VIII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. The Discharger shall report all instances of noncompliance not reported under Attachment D, sections V.E, V.G, and V.H, of this Order at the time monitoring reports are submitted.

3. The Discharger shall submit an annual report discussing the compliance record and corrective actions taken, or which may be taken, or which may be needed to bring the discharge into full compliance with the requirements of this Order in accordance with Table E-8.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. Any reports not in CIWQS shall be submitted electronically to the San Diego Water Board's e-mail at sandiego@waterboards.ca.gov or as otherwise directed by the San Diego Water Board.

2. The Discharger shall report in the SMR the results for all monitoring specified in this MRP. The Discharger shall submit quarterly, semiannual, and annual SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

3. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-8. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with quarterly SMR
Daily	Permit effective date	(Midnight through 11:59PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling	Submit with quarterly SMR
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	First day of calendar month through last day of calendar month	Submit with quarterly SMR

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	August 1 February 1
Annually	Permit effective date	July 1 through June 30	September 1
First Annual Storm Report	July 1, 2015 for Order R9-2009-0081 storm water sampling and the permit effective date for section VII.A.4.g of this MRP	July 1 through June 30	September 1, 2016
Annual Storm Water Report (section VII.C of this MRP)	July 1, 2016	July 1 through June 30	September 1

C. Reporting Protocols

1. The Discharger shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part 136.

2. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the Reporting Level (RL), but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

3. Compliance Determination. Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the RL.

4. Multiple Sample Data. When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

5. The Discharger shall submit SMRs in accordance with the following requirements:

a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

D. Discharge Monitoring Reports (DMRs)

1. The Discharger shall electronically submit DMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/ciwqs/index.html). The CIWQS website will provide additional information for DMR submittal in the event there will be a planned service interruption for electronic submittal.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D).

E. Other Reports

1. **Special Reports**. As specified in this Order, special reports or program components shall be submitted in accordance with the following reporting requirements. At minimum, the progress reports shall include a discussion of the status of final compliance, whether the Discharger is on schedule to meet the final compliance date, and the remaining tasks to meet the final compliance date.

Table E-9. Reporting Requirements for Special Provisions Progress Reports

Report Name	Section No.	Report Due Date
Industrial Storm Water Monitoring Location Report	MRP section II.B.1	April 1, 2016
Toxicity Reduction Evaluation (TRE) Work Plan	MRP section IV.E.1	Within 30 days of a requirement to complete a TRE Work Plan
Water and Sediment Monitoring Plan	MRP section V.C	Within 12 months of the effective date of this Order
Annual Storm Water Risk Level Designation Report	Order section IV.B.2	Annually by September 1st
Revised Storm Water Pollution Prevention Plan	Order section IV.E.2.c	Within 1 year of the effective date of this Order
Small Military Base Municipal Separate Storm Sewer System (MS4) – Storm Water Management Program (SWMP)	Order section IV.D.2	Within 18 months of the effective date of this Order
Small Military Base MS4 Storm Water Monitoring Plan	MRP section VII.B.2	Within 24 months of the effective date of this Order
Future Development of Chronic Toxicity Effluent Limitations for Industrial High Risk Storm Water Areas	Order section VI.C.2.a	At Discharger's discretion
Revised Utility Vault Plan	Order section VI.C.3.a	Within 1 year of the effective date of this Order
BMP Plan for Industrial Process Wastewater Discharges	Order section VI.C.3.b	Within 1 year of the effective date of this Order
Pollution Prevention Plan (PPP) Work Plan and Time Schedule	Order section VI.C.3.c	Within 90 days of the effective date of this Order
PPP	Order section VI.C.3.c	Within 9 months of the effective date of this Order

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

A. The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	9 000000495
Discharger	United States Department of the Navy
Name of Facility	Naval Base Coronado (NBC)
Facility Address	937 N. Harbor Drive
	San Diego, CA 92132-0058
	San Diego County
Facility Contact, Title and Phone	Mr. Jason Golumbfskie, Installation Environmental Program Director for NBC, (619) 545-3429
Authorized Person to Sign and Submit Reports	Mr. Jason Golumbfskie, Installation Environmental Program Director for NBC, (619) 545-3429
Mailing Address	Same as Facility Address
Billing Address	Same as Facility Address
Type of Facility	Naval Base
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Not Applicable
Reclamation Requirements	Not Applicable
Facility Permitted Flow	Not Applicable
Facility Design Flow	Not Applicable
Watershed	Pacific Ocean, San Diego Bay, Tijuana River Estuary (Hydrologic Areas 10.10 and 11.11), San Luis Rey River (Warner Hydrologic Subarea 3.31), Tijuana River (Canyon City Hydrologic Subarea 11.82), and Morena Reservoir (Hydrologic Area 11.50)
Receiving Water	Pacific Ocean, San Diego Bay, Tijuana River Estuary, tributary to San Luis Rey River, waters in the Canyon City Hydrologic Subarea 11.82, and Morena Reservoir
Receiving Water Type	Ocean, Enclosed Bay, Estuary, Inland Surface Water

B. The United States (U.S.) Department of the Navy (Navy or Discharger) is the owner and operator of Naval Base Coronado (Facility or NBC), a U.S. Naval Base. The Facility is comprised of eight installations which are described in section II and are hereinafter jointly referred to as the "Facility".

For the purposes of this Order, references to the "discharger" or "Discharger" in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

C. The Discharger was previously regulated by Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, National Pollutant Discharge Elimination System (NPDES) Permit No. CA0109185, for wastewater discharges from multiple discharge points within the Facility to the Pacific Ocean, San Diego Bay, and the Tijuana River Estuary, a Water of the U.S. The regulated discharges included wastewater from the following sources/activities:

- Boat rinsing discharges;
- Diesel engine cooling water;
- Discharges associated with the housing of marine mammals within pens;
- Pier boom cleaning;
- Steam condensate;
- Product water for the reverse osmosis water purification unit;
- Utility vault and manhole dewatering; and
- Industrial storm water.

During the term of Order No. R9-2009-0081, discharges associated with boat rinsing, marine mammals, pier boom cleaning, and the operation of the reverse osmosis water purification unit were eliminated by the Discharger.

Order No. R9-2009-0081 was adopted on June 10, 2009, and expired on June 10, 2014. Order No. R9-2009-0081 was modified by Order No. R9-2010-0057, adopted September 8, 2010. The terms and conditions of the 2009 and 2010 orders were automatically continued and remained in effect until a new Waste Discharge Requirements (WDRs) and NPDES permit was adopted pursuant to this Order.

D. The Discharger filed a report of waste discharge (ROWD) dated December 12, 2013. A formal request for additional information deemed to be lacking in the initial submission was sent on February 23, 2014. An updated ROWD was filed February 27, 2014. The application was deemed complete on March 5, 2014. A site visit was conducted on May 22, 2015 to observe operations and collect additional data to develop permit limitations and conditions.

II. FACILITY DESCRIPTION

A. Installations

The Discharger manages three naval bases in the San Diego area under the Commander, Navy Region Southwest (CNRSW) command structure. These three major naval bases are Naval Base Point Loma (NBPL); Naval Base San Diego (NBSD); and Naval Base Coronado (NBC). NBC consists of the following eight installations:

- Naval Air Station, North Island (NASNI)
- Naval Amphibious Base, Coronado (NAB)
- Naval Outlying Landing Field, Imperial Beach (NOLF)
- Silver Strand Training Complex (SSTC), formerly known as the Naval Radio Receiving Facility (NRRF)
- Naval Auxiliary Landing Field, San Clemente Island (NALF)

- Remote Training Site Warner Springs, (RTSWS) formerly known as Survival, Evasion, Resistance, and Escape (SERE) Training School
- Camp Michael Monsoor formerly known as La Posta Mountain Warfare Training Center (La Posta MWTC)
- Camp Morena

Of the eight installations aligned under the Facility, only NASNI, NAB, NOLF, SSTC, and NALF have discharges subject to NPDES permitting. NALF is located in the Los Angeles Regional Water Quality Control Board jurisdictional area and, therefore, is not regulated by this Order.

1. Naval Air Station, North Island (NASNI)

NASNI is located on the northern end of the Coronado Peninsula west of the city of San Diego's downtown district and adjacent to the city of Coronado. San Diego Bay borders NASNI on the north and east, and the Pacific Ocean borders it on the west. The base consists of 2,803 acres (2,397 on land and 406 acres in water). NASNI is located within the Coronado Hydrologic Area (910.10) in the Otay Hydrologic Unit (910.00).

The mission of NASNI is to arm, repair, provision, service, and support the U.S. Pacific Fleet and other operating forces. It is the only aviation industrial complex on the west coast and the only naval air station in California with an airfield having 24-hour support capabilities. The installation houses the California Least Tern Preserve and Nesting area. NASNI is also the only military installation in southern California capable of berthing and maintaining a Nimitz Class aircraft carrier. The Discharger's largest Naval Aviation Depot and the Defense Distribution Center are located at NASNI. It is distinguished as headquarters for several major military flag staffs, including Commander, U.S. Naval Air Forces (CNAF); Commander, Strike Force Training Pacific (CSFTP); Commander, Carrier Strike Group Seven (CCSG7); and Commander, Naval Air Force Reserve. NASNI provides aviation support shore facilities, three aircraft carrier piers, industrial maintenance support, aircraft maintenance, bachelor quarters and dining facilities, training facilities and the attendant support infrastructure of utilities, roads and grounds. The airport at NASNI has two runways. One runway is 7,500 feet long the other runway is 8,000 feet long. Approximately 70 percent of the total area is impervious to storm water infiltration.

The three piers at NASNI are used to berth aircraft carriers, support vessels, and barges. The aircraft carriers, support vessels, and barges receive various ship support services such as supplies and minor maintenance when berthed. Ship support services on the three piers include loading supplies and equipment onto the ships. Berth-side ship maintenance (that is, maintenance while the vessel is docked at the pier) may include abrasive blasting, hydro-blasting, metal grinding, painting, tank cleaning, removal of bilge and ballast water, removal of anti-fouling paint, sheet metal work, electrical work, mechanical repair, engine repair, hull repair, and sewage disposal. Berth-side ship repair activities are generally less complex than the ship repair activities conducted at commercial shipyards or at the Navy's graving dock or floating dry-dock (not located at NBC). Berth-side maintenance may be conducted by naval personnel (ships' force), civil service personnel, or civilian contractors.

Ship maintenance activities may also be conducted on the piers. Boats, ship sections, or parts can be placed on the piers or adjacent lands for repairs. The ship maintenance activities may be conducted by naval personnel (ships' force), civil service personnel, or by civilian contractors. The breadth of work performed by the civilian contractors is typically greater than the work performed by ships' force. Some complex ship repair work is

conducted inside various support buildings near the piers. Typically, civilian contractors will store materials and supplies on the piers while working aboard the ships.

NASNI has an Industrial Wastewater Treatment Plant (IWTP) which discharges treated industrial wastewater to the San Diego Metropolitan Sewage System (SDMSS). The wastewater is from metal plating facilities, etc. The IWTP is permitted by the city of San Diego to discharge to the SDMSS up to 3,097 gallons per day (GPD).

NASNI also has an Oil Recovery Plant (ORP) which discharges treated oily wastewater to the SDMSSS. The oily wastewater is from the ships, ballast and bilge water, and other facilities at NASNI. The ORP is permitted by the City of San Diego to discharge to the sanitary sewer up to 26,100 GPD. The IWTP and ORP are located on the same facility plot. The storm water at the IWTP and ORP facility is collected and diverted to the SDMSS.

Point source discharges subject to NPDES permitting from NASNI are listed in Table F-2 below and are classified as discharges associated with steam condensate, diesel engine cooling water, utility vault and manhole dewatering, pier washing, and storm water.

Table F-2. Discharges from the Main NASNI

Types of Discharge	Discharge Point Nos.
Steam Condensate	SC-001 through SC-010
Diesel Engine Cooling Water	CW-001
Utility Vault and Manhole Dewatering	UV-001 through UV-010
Pier Washing	PW-001
Municipal Storm Water	[1]
Industrial Storm Water	[1]

[1] Various locations as discussed in section II.B.1 of this Fact Sheet.

2. Naval Amphibious Base, Coronado (NAB)

NAB is located on a sand-spit strip known as the Silver Strand in the north-central section of the Coronado Peninsula, just west of the city of San Diego. NAB is within the city of Coronado. The Glorietta Bay area of San Diego Bay borders NAB on the north, San Diego Bay borders NAB on the east, and the Pacific Ocean borders it on the west. The base consists of 1,006 acres, including 257 beachfront acres leased from the State along the Pacific Ocean. NAB is located within the Coronado Hydrologic Area (910.10) in the Otay Hydrologic Unit (910.00).

NAB is a major shore command. The mission of NAB is to provide on-base facilities and services for the support of U.S. and allied forces engaged in amphibious, inshore, clandestine, unconventional and special warfare training operations. The primary land uses include the administrative areas, training beaches, California Least Tern Preserve, recreational marina, and housing. There are 21 piers at NAB. The piers are used to berth coastal patrol boats, MK-5 boats, Mike 8 boats, LCU boats, and ferry barges.

Point source discharges from NAB are classified as utility vault and manhole dewatering. These discharges are not sampled at NAB because they are substantially similar to utility vault and manhole dewatering discharges at NASNI, which are sampled. State Highway 75 separates NAB into two areas known as surfside (oceanside) and bayside. The bayside administrative area consists of over 170 buildings for housing, administration, operations, recreation, community support facilities, utilities, and maintenance facilities. The surfside administrative area houses the Naval Special Warfare Command. Approximately 60 percent of the total area is impervious to storm water infiltration.

Point source discharges from NAB are listed in Table F-3 and include discharges associated with utility vault and manhole dewatering, and storm water.

Table F-3. Discharges from NAB

Types of Discharge	Discharge Point Nos.
Utility Vault and Manhole Dewatering Water	UV-011 and UV-012
Municipal Storm Water	[1]
Industrial Storm Water	[1]

[1] Various locations as discussed in section II.B.1 of this Fact Sheet.

3. Silver Strand Training Complex (SSTC)

SSTC, formerly known as the Naval Radio Receiving Facility (NRRF), is a training facility for U.S. Special Operations Forces. SSTC occupies approximately 450 acres on the southern tip of the Silver Strand. The city of Imperial Beach adjoins the SSTC on the southern end, while Silver Strand State Beach is adjacent on the north. State Highway 75 parallels the eastern end of the SSTC. There are a few structures on the SSTC, and only one, a maintenance shop, is in use on a daily basis. The Wullenweber antenna at SSTC is not working. The installation is primarily used for Naval Special Warfare training. SSTC is located within the Coronado Hydrologic Area (910.10) in the Otay Hydrologic Unit (910.00).

One point source discharge, a utility vault and manhole dewatering discharge, originates from SSTC. Storm water discharges from SSTC are considered non-industrial. South and southwest of the installation is Camp Surf, a Young Men's Christian Association (YMCA) aquatic activities and education camp for youth on land leased from the Navy. Camp Surf has a wetland that fills with storm water runoff during the rainy season. A concrete-lined swale drains the wetland area of excess rainwater to the ocean. This swale also brings storm water runoff from an Imperial Beach residential area south of Camp Surf. Because the wetland area and swale are below sea level, a water-level-controlled pump house is activated to pump the storm water to an ocean outfall at approximately 20 gallons per minute. The storm water outfall (SSTC-01) is located on the beach adjacent to Camp Surf as shown on the map in Attachment B to this Order.

Point source discharges subject to NPDES permitting from SSTC are listed in Table F-4 below and are classified as discharges associated with utility vault and manhole dewatering.

Table F-4. Discharges from SSTC

Types of Discharge	Discharge Point Nos.
Utility Vault and Manhole Dewatering	UV-013
Municipal Storm Water	SSTC-01[1]

[1] Various locations as discussed in section II.B.1 of this Fact Sheet.

4. Naval Outlying Landing Field, Imperial Beach (NOLF)

NOLF is located 10 miles south of NASNI and 1.5 miles north of the U.S. - Mexican border, and is within the San Ysidro Hydrologic Subarea (911.11) of the Tijuana Valley Hydrologic Area (911.10) of the Tijuana Hydrologic Unit (911.00). NOLF contains approximately 1,295 acres in the Tijuana River Valley, south of the Silver Strand peninsula. Approximately 283 acres of NOLF is part of the Tijuana River National Estuarine Sanctuary Management Authority. This area and certain adjoining lands of the Tijuana River Valley have been designated a National Natural Landmark.

The mission of NOLF, as an extension of NASNI, is to provide a practice field for helicopter operations and miscellaneous personnel support facilities that serve the military population in the Imperial Beach area. Naval helicopters from NASNI conduct daily landing practice and lift-training operations at NOLF. Helicopters are not stationed at NOLF. Approximately 30 percent of the total area is impervious to storm water infiltration.

Point source discharges subject to NPDES permitting from NOLF are listed in Table F-5 below and include storm water.

Table F-5. Discharges from NOLF

Types of Discharge	Discharge Point Nos.
Municipal Storm Water	[1]

[1] Various locations as discussed in section II.B.1 of this Fact Sheet.

5. Naval Auxiliary Landing Field, San Clemente Island (NALF)

NALF is located within the Los Angeles Regional Water Quality Control Board jurisdictional area, and therefore not regulated under this Order.

6. Remote Training Site Warner Springs (RTSWS) formerly known as Survival, Evasion, Resistance, and Escape (SERE) Training School

The RTSWS is located in Cleveland National Forest in northern, inland San Diego County, near the community of Warner Springs. The school teaches military personnel the skills to survive and evade capture, or if captured, to resist interrogation and plan their escape. The RTSWS is a remote facility with no industrial storm water or point source discharges. The RTSWS is located within the Warner Hydrologic Subarea (903.31) of the Warner Valley Hydrologic Area (903.30) of the San Luis Rey Hydrologic Unit (903.00). Storm water discharges from the RTSWS are considered to be non-industrial Small Military Base MS4 discharges. There are no identified point source discharges at the RTSWS. An onsite wastewater treatment system / advanced treatment unit produces up to 10,000 gallons per day of secondary treated effluent which is discharged to a spray field under Order R9-2015-0012.

7. Camp Michael Monsoor formerly known as La Posta Mountain Warfare Training Center (MWTC)

The Camp Michael Monsoor is a Navy Special Warfare Command facility located on approximately 1,079 mountainous acres in eastern San Diego County. It is bordered by National Forest lands on the north, and Bureau of Land Management lands on the remaining three sides, with a small privately-held parcel to the southwest. The facility primarily supports training for SEAL teams and platoons, but is occasionally used by Explosive Ordnance Disposal Units, Marines, and the Army and California National Guard for training. Camp Michael Monsoor is a remote facility has only non-industrial Small Military Base MS4 storm water or point source discharges. Camp Michael Monsoor is located within the Canyon City Hydrologic Subarea (911.82) of the Campo Hydrologic Area (911.80) of the Tijuana Hydrologic Unit (911.00). Storm water discharges from Camp Michael Monsoor are considered to be non-industrial. There are no identified point source discharges at the Camp Michael Monsoor.

8. Camp Morena

Camp Morena is located on approximately 62 acres in mountainous eastern San Diego County approximately 55 miles east of the city of San Diego. It is bordered by National Forest lands on the north and east. The Morena Reservoir high water line is across Morena Stokes Valley Road from the camp and the North Shore Camp of the San Diego County Lake Morena Regional Park borders the camp on the southwest side. The facility primarily supports training for military and homeland security personnel. Camp Morena is a remote facility with no industrial storm water or point source discharges. Camp Morena is located within the Morena Hydrologic Area (911.50) of the Tijuana Hydrologic Unit (911.00). Storm water discharges from Camp Morena are considered to be non-industrial Small Military Base MS4 discharges. There are no identified point source discharges at Camp Morena.

B. Description of Wastewater Discharges

During the term of Order No. R9-2009-0081, as modified by Order No. R9-2010-0057, discharges to receiving waters have been eliminated for boat rinsing, pier boom cleaning, swimmer rinsing, marine mammal enclosure cleaning, and product water from the reverse osmosis water purification unit. Wastewater discharges at NBC consist of the following:

1. Storm Water Discharges

A total of approximately 191 storm water discharge points drain storm water runoff from the Facility. In the ROWD submitted in February 2014, the Discharger indicated that there were industrial runoff points from three of the installations at the Facility. Three installations at the Facility have municipal storm water discharges.

This Order establishes requirements for storm water discharges from industrial and non-industrial areas of the Facility (including Industrial High Risk Areas, Industrial Low Risk Areas, Industrial No Exposure Areas, and Small Military Base MS4 Areas).

a. Small Municipal Separate Storm Sewer System Areas (Small Military Base MS4s)

Section 402(p) of the Clean Water Act (CWA) establishes a framework for regulating storm water discharges under the NPDES Program. In 1990, the United States Environmental Protection Agency (USEPA) promulgated regulations for permitting storm water discharges from industrial sites and from municipal separate storm sewer systems (MS4s) serving a population of 100,000 people or more. These regulations, known as the Phase I regulations, require operators of medium and large MS4s to obtain storm water permits. On December 8, 1999, USEPA promulgated regulations, known as Phase II regulations, requiring permits for storm water discharges from Small MS4s.

As defined by 40 CFR section 122.26(b)(8), an MS4 is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) designed or used for collecting or conveying storm water; (ii) which is not a combined sewer; and (iii) which is not part of a publicly owned treatment works (POTW).

A Small MS4 is an MS4 that is not permitted under the municipal Phase I regulations, but is permitted under the municipal Phase II regulations. A Small MS4 is owned or operated by the U.S., a state, a city, a town, a borough, a county, a parish, a district, an association, or another public body having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes. Small MS4s include systems similar to separate

storm sewer systems in large municipalities, such as systems at military bases. In this Order, Small Military Base MS4 is the non-industrial part of a Small MS4.

Storm water runoff from non-industrial portions of the Facility such as administrative buildings, roads, parking lots, and other municipal type discharges, are subject to regulation under Phase II MS4 requirements.

Discharges through the MS4 of material other than storm water to Waters of the U.S. are effectively prohibited except as allowed under the provisions of section IV.F of this Order or as otherwise authorized by a separate NPDES permit. A list of authorized non-storm water discharges is provided in section IV.F of this Order and includes diverted stream flows, rising groundwater, uncontaminated groundwater, springs, drinking fountain water, emergency eye wash/shower water, condensate, and several other categories of discharge. These discharges are authorized under this Order unless the Discharger or the San Diego Water Board identifies the discharges as a significant source of pollutants to Waters of the U.S. or physically interconnected MS4. If the discharges meet the conditions in section IV.F, the Discharger must ensure that steps are taken to prevent or reduce the contact of non-storm water discharges with significant materials or equipment; and minimize, to the extent practicable, the flow or volume of non-storm water discharges. The Discharger is required to prepare a Storm Water Management Plan (SWMP) with Best Management Practices (BMPs) for Small Military Base MS4 discharges including authorized non-storm water.

This Order establishes requirements for Small Military Base MS4 storm water discharges from the Facility based on Phase II MS4 requirements, similar to those established in the State Water Resources Control Board (State Water Board) General NPDES Permit for the Discharge of Storm Water From Small Municipal Separate Storm Sewer Systems (WQ Order No. 2013-0001-DWQ), adopted on February 5, 2013.

b. Industrial Storm Water

This Order establishes requirements for the discharge of storm water runoff from "Industrial High Risk Areas," which are defined in section IV.B.1 of this Order as *"All areas where wastes or pollutants of significant quantities from ship construction, modification, repair, and maintenance activities (including abrasive blast grit material, primer, paint, paint chips, solvents, oils, fuels, sludges, detergents, cleansers, hazardous substance, toxic pollutants, non-conventional pollutants, materials of petroleum origin, or other substances of water quality significance) are subject to precipitation, run-on, and/or runoff."*

This Order also establishes requirements for storm water runoff from industrial areas not associated with ship construction, modification, repair, or maintenance activities, and are designated as "Industrial Low Risk Areas," and from "Industrial No Exposure Areas," where all industrial materials and activities are protected from contact with storm water.

Section IV.B.1. of this Order defines Industrial No Exposure Areas, Industrial Low Risk Areas, and Industrial High Risk Areas. Section IV.B.2 of this Order requires that the risk level of storm water discharges shall be categorized annually by the Discharger based on the activities conducted in the drainage area for each outfall.

Pollutants that may be present in the discharge include pollutants that the storm water is likely to contact, including, but not limited to sediment, solids, oil and grease, and metals.

2. Steam Condensate

NBC currently uses a pressurized steam system for both shore and afloat operations. Within NBC, only NASNI has an on-base steam system. During the generation and distribution of steam at NASNI, condensate is formed. This condensate is discharged both on land and to San Diego Bay and the Pacific Ocean.

Currently, steam is produced at NASNI by an on-site cogeneration plant that is operated by Applied Energy, a Navy contractor. During the production of steam, one or more of the following chemical additives are injected to the steam to assist in controlling the pH in the steam system: Trident 3506 (into boiler feed water), Trident 2301 (into boiler feed water), Trident 1003 (into boiler), and Trident 1103 (into boiler). It is important to control the pH and the goal is to maintain the pH between 8.5 and 9 to avoid the creation of acids in the steam distribution system. Specific chemicals that may be present in steam condensate as a result of additives, as presented in prior annual reports, include: cyclohexylamine (20%), diethylaminoethanol, diethylhydroxylamine, hydroquinone, and morpholine.

After leaving the plant, the steam enters the distribution system, which consists of high- and low-pressure steam lines; pressure reducing valve stations; and expansion joints. The steam is provided to buildings and surface ships. The steam system has traps in the steam lines designed to discharge steam condensate to ensure the steam supplied to users meets quality assurance specifications and is free of condensate. When water collects in the steam lines it is essential for the system to remove the water as soon as possible.

The only steam condensate discharge at NBC to San Diego Bay is from NASNI. There were 66 steam discharge points during the term of Order No. R9-2009-0081, but only 10 remain. Fifty-six discharges were eliminated during the current permit term as a result of removal, change of status, or discharge to permeable ground surface. At most locations, the system releases steam condensate from traps in a cloud of steam that has a temperature in excess of 100 degrees Celsius. A portion of this steam discharge evaporates prior to forming a condensate and discharging to the land or to San Diego Bay. The pier discharge points, in addition to releasing steam, drip small amounts of water to the bay between steam discharges. The estimated discharge rate for the steam lines is one ounce per minute. Based on two years of self-monitoring report (SMR) data for discharge points SC-001 through SC-008, the discharge volume has been modified from 750 GPD to approximately 456 GPD. Out of the ten steam condensate discharges still active on NASNI, nine discharge to the San Diego Bay, and one discharges to the golf course pond and then to the Pacific Ocean.

A map of the steam condensate discharge locations is shown in Attachment B (Figure B-3). A line drawing for the steam condensate discharge is shown in Attachment C (Figure C-1).

3. Diesel Engine Cooling Water Discharges

NASNI has historically used diesel engines to supply water to the fire suppression system (sprinklers). These diesel engines discharge non-contact engine cooling water. Order No. R9-2009-0081 regulated four diesel engine cooling water systems, Discharge Points CW-001 through CW-004. Only one diesel engine cooling water system remains on NBC and is located at Building 812 on NASNI (Discharge Point CW-001). Discharge Points CW-002 through CW-004 have been eliminated and are no longer regulated by this Order.

The diesel engine at Discharge Point CW-001 has been out of service for more than a year and is not expected to be in use for another year or more. Moreover, the Navy is currently

evaluating ways to eliminate the discharge from Building 812 in the future by directing the cooling water to the sanitary sewer or otherwise managing it to prevent a discharge. However, the Report of Waste Discharge includes information on the Diesel Engine Cooling Water discharge as it most recently occurred, in case it should continue.

When operational, the diesel engines must be tested regularly to ensure the operability of the fire sprinkler pump. During the pump tests, non-contact bay water will be used to cool the diesel engine that supplies water to the fire sprinkler pump. During an emergency, the pump will supply water to the fire sprinkler system in adjacent buildings. During non-emergency weekly tests, cooling water is discharged into the San Diego Bay. The fire sprinkler systems in adjacent buildings are not activated during these weekly tests.

If the pump becomes operational and the weekly pump tests are conducted, non-contact seawater will be pumped from San Diego Bay through a steel pipe that is approximately 48 feet long and 15 inches in diameter. The diesel engine will discharge non-contact cooling seawater through a 2- inch steel pipe that runs approximately 12 feet into a sump that channels into the San Diego Bay. The flow rate is expected to be 450 gallons per week (GPW). A pollution prevention plan has been developed and implemented to address potential chemical pollutants in the cooling water discharge of the diesel-engine-powered pump in Building 812.

A map of the diesel engine cooling discharge locations is shown in Attachment B (Figure B-4). A line drawing for the utility vault dewatering discharge is shown in Attachment C (Figure C-2).

4. Utility Vault and Manhole Dewatering

NBC has electrical and steam utility vaults and manholes that may discharge water to surface waters. The utility vaults and manholes are located at NASNI, NAB, and SSTC. Only NASNI has steam vaults. NAB and SSTC have only electrical switch or substation vaults. Utility companies or agencies, including NAVFAC SW, supply utility resources (excluding water), as necessary for day-to-day living and operations. This includes, but is not limited to, supplies of natural gas, electricity, and telephone service. Electrical and steam utilities are owned and maintained by NAVFAC SW. The utility vault discharges are short-term intermittent discharges of contained water from utility vaults and underground structures. Navy installations in San Diego require electrical power for both shore and afloat operations. The on-base electrical power is carried through an extensive underground conduit system. Electrical utility vaults and manholes contain high voltage electrical equipment, transformers, switchgear, and/or below ground cables.

The steam utility manholes can also accumulate steam condensate water. High-pressure steamlines are also located in underground conduit systems and are accessed through utility manholes. NAVFAC SW dewaters utility vaults and manholes as needed to protect equipment, or prior to performing repair, maintenance, or installation of equipment. Water collected in utility vaults or manholes is either automatically or manually pumped out for disposal. The volume of water pumped is dependent upon rainfall amounts and infiltration. The automatic sump pumps are used to dewater the utility electrical vaults and the water is discharged to landscaped areas, gutters, catch basins, or channels depending on the location of the vault. Only those vaults that use automatic pumping that discharge to receiving waters are subject to this permit. Vaults are not included in the permit where NBC staff or contractors deliver or direct water removed from the vaults to the sanitary sewer or a pervious area where it will not discharge to receiving waters.

There are a total of 13 utility vaults located across the NBC installations that could potentially have point source discharges. Of the 13 vaults, 10 electrical vaults are located at NASNI. These vaults can accumulate groundwater and storm water and are dewatered using automatic sump pumps. Depending on the volume, these discharges may reach a storm drain inlet that drains to San Diego Bay.

There are two electrical switch or substation vaults located at NAB. These vaults are located inside buildings and are away from the quay walls and piers. These vaults can also accumulate groundwater and storm water and are dewatered using automatic sump pumps. Depending on the volume, these discharges may reach a storm drain inlet that drains to San Diego Bay or the Pacific Ocean. All 13 vaults have meters on the pumps and most record little to no discharge. The Navy is currently evaluating the actual discharge potential at these locations.

There is one electrical switch or substation vault at SSTC. This substation is located inside a building and has an automated sump pump to dewater the vaults of groundwater seepage and storm water. The sump pump prevents the water from contacting the electrical equipment. The sump discharges to the ground surface around the building. Depending on the volume, these discharges may reach a storm drain that drains to the Pacific Ocean.

Vaults without sump pumps and manholes at NBC are manually dewatered when necessary, using a portable pump or pump truck. NAVFAC SW has implemented procedures to eliminate dewatering discharges to surface waters from vaults without sump pumps and manholes, which can be found in the recently updated Pollution Prevention Plan (PPP) for Utility Vault and Manhole Dewatering Discharges at NBSD/NBC/NBPL (August 2013). NAVFAC SW either pumps the water into an adjacent utility manhole or transfers the water to the sanitary sewer system. However, there could be rare emergency situations that would require dewatering vaults without sump pumps or manholes onto the ground surface.

Prior to the adoption of Order No. R9-2003-0008 for the Facility, discharges from utility vaults and manholes were regulated by the statewide *General Order for Discharges from Utility Vaults and Underground Structures to Surface Waters* (Order No. 96-12-DWQ, NPDES No. CAG990002). At the time of adoption of Order No. R9-2003-0008, the State Water Board was awaiting USEPA approval of the re-issued General Order (Order No. 2001-11-DWQ). In order to regulate all of the discharges at the Facility under one Order, the San Diego Water Board incorporated the pertinent specifications, limitations, and monitoring requirements of Order No. 2001-11-DWQ into Order No. R9-2003-0008. Order No. R9-2009-0081 incorporated the pertinent specifications, limitations, and monitoring requirements of Order No. 2006-0008-DWQ, *General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Utility Vaults and Underground Structures to Surface Waters.* It is the practice of the San Diego Water Board to incorporate the provisions of the most current applicable permit. This Order incorporates the pertinent requirements from the State Water Board's *General National Pollutant Discharge Elimination System (NPDES) Permit for Discharges from Utility Vaults and Underground Structures to Surface Waters* (Order No. 2014-0174-DWQ).

A map of the utility vault dewatering discharge locations is shown in Attachment B (Figures B-5 through B-7). A line drawing for the utility vault dewatering discharge is shown in Attachment C (Figure C-3).

5. Pier Washing Discharge

Bird feces are washed from the ammunition pier (Bravo Pier) at NASNI and discharged to San Diego Bay. No industrial activities are performed on the ammunition pier, only loading and unloading of ammunition and ordnance from ships. Bravo Pier is swept with a street sweeper prior to being washed. A pump located on the pier is used to supply potable water for washing. The pump is rated at 100 gpm, but the actual rate varies. Duration of pier washing varies from 45-90 minutes. The discharge volume is approximately 6,700 gallons for each washing event. Washing occurs 4 times per week during the seagull migration period and about 100 times per year depending on duration of the migration period which may start as early as late May and go through November. The wash water discharges to San Diego Bay from several drains located on the pier. Discharges from the Bravo Pier occur over the edge of the pier and through numerous rectangular drains located on the pier.

A map of the pier washing discharge locations is shown in Attachment B (Figure B-8). A line drawing for the pier washing discharge is shown in Attachment C (Figure C-4).

C. Discharge Points and Receiving Waters

1. The eight installations of the Facility are described in section II.A of this Fact Sheet and the four installations which are regulated by this Order are shown in Attachment B (Figure B-1).

Wastewater is discharged into the San Diego Bay, Pacific Ocean, Tijuana River Estuary, Morena Reservoir, tributaries to the San Luis Rey River, and waters in the Canyon City Hydrologic Area as summarized in Table F-6 below:

Table F-6. Discharge Locations

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Industrial Process Water Effluent Discharges				
SC-001	Steam Condensate	32° 42’ 22” N	117° 11’ 23.26	San Diego Bay
SC-002	Steam Condensate	32° 42’ 22” N	117° 11’ 22” W	San Diego Bay
SC-003	Steam Condensate	32°’ 42” 23” N	117° 11’ 22” W	San Diego Bay
SC-004	Steam Condensate	32° 42’ 21” N	117° 11’ 20” W	San Diego Bay
SC-005	Steam Condensate	32° 42’ 21” N	117° 11’ 18” W	San Diego Bay
SC-006	Steam Condensate	32° 42’ 20” N	117° 11’ 16” W	San Diego Bay
SC-007	Steam Condensate	32° 42’ 20” N	117° 11’ 15” W	San Diego Bay
SC-008	Steam Condensate	32° 42’ 19” N	117° 11’ 13” W	San Diego Bay
SC-009	Steam Condensate	32° 42’ 29” N	117° 11’ 23” W	San Diego Bay
SC-010	Steam Condensate	32° 41’ 46” N	117° 11’ 59” W	Pacific Ocean
CW-001	Diesel Engine Cooling Water	32° 41’ 43” N	117° 13’ 36” W	San Diego Bay
UV-001	Utility Vault and Manhole Dewatering	32’ 42° 8” N	117’ 10° 57” W	San Diego Bay
UV-002	Utility Vault and Manhole Dewatering	32° 42’ 17” N	117° 11’ 11” W	San Diego Bay
UV-003	Utility Vault and Manhole Dewatering	32’ 42° 20” N	117’ 11° 27” W	San Diego Bay

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
UV-004	Utility Vault and Manhole Dewatering	32° 42’ 37” N	117° 11’ 24” W	San Diego Bay
UV-005	Utility Vault and Manhole Dewatering	32° 42’ 36” N	117° 11’ 22” W	San Diego Bay
UV-006	Utility Vault and Manhole Dewatering	32’ 42° 45” N	117, 11° 25” W	San Diego Bay
UV-007	Utility Vault and Manhole Dewatering	32° 42’ 42” N	117° 12’ 12” W	San Diego Bay
UV-008	Utility Vault and Manhole Dewatering	32° 42’ 26” N	117° 11’ 39” W	San Diego Bay
UV-009	Utility Vault and Manhole Dewatering	32° 42’ 15” N	117° 11’ 57” W	San Diego Bay
UV-010	Utility Vault and Manhole Dewatering	32° 42’ 2” N	117° 11’ 25” W	San Diego Bay
UV-011	Utility Vault and Manhole Dewatering	32° 40’ 31” N	117° 9’ 38” W	San Diego Bay
UV-012	Utility Vault and Manhole Dewatering	32° 40’ 23” N	117° 10’ 1” W	San Diego Bay
UV-013	Utility Vault and Manhole Dewatering	32° 35’ 57” N	117° 7’ 25” W	San Diego Bay
PW-001	Pier Washing	32º 41’ 43” N	117º 13’ 36” W	San Diego Bay
Small Military Base Municipal Separate Storm Sewer System (MS4) Discharges				
See Attachment M of this order	Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean, San Diego Bay, Tijuana River Estuary, San Luis Rey River Watershed, Morena Reservoir, or Canyon City Hydrologic Area
Industrial No Exposure Area Storm Water Discharges				
See Attachment M of this order	Industrial No Exposure Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay
Industrial Low Risk Area Storm Water Discharges				
See Attachment M of this order	Industrial Low Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay

Discharge Point	Discharge Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
Industrial High Risk Area Storm Water Dischargers				
See Attachment M of this order	Industrial High Risk Area Storm Water (wet weather) and Non-Storm Water (dry weather)	See Attachment M of this order	See Attachment M of this order	Pacific Ocean or San Diego Bay

D. Summary of Previous Requirements and Self-Monitoring Report (SMR) Data

1. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 contained the following Discharge Prohibitions:

a. The dumping, deposition or discharge of the following wastes directly into Waters of the U.S., including but not limited to the Pacific Ocean and San Diego Bay, or adjacent to such waters in any manner which may permit its being transported into the waters is prohibited:

i. Paint chips;
ii. Blasting materials;
iii. Paint over spray;
iv. Paint spills;
v. Water contaminated with abrasive blast materials, paint, oils, fuels, lubricants, solvents, or petroleum;
vi. Hydro-blast water;
vii. Tank cleaning water such as to remove sludge and/or dirt;
viii. Clarified water from an oil and water separator, except for storm water discharges treated by an oil and water separator and having coverage under this Order;
ix. Steam cleaning water;
x. Pipe and tank hydrostatic test water, unless regulated by an NPDES permit;
xi. Saltbox water;
xii. Hydraulic oil leaks and spills;
xiii. Fuel leaks and spills;
xiv. Trash;
xv. Miscellaneous refuse and rubbish;
xvi. Fiberglass dust;
xvii. Swept materials;
xviii. Ship repair and maintenance activity debris;
xix. Demineralizer and reverse osmosis brine; and
xx. Oily bilge water.

b. Diesel engine cooling water discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.

c. Boat rinsing discharges having a maximum temperature greater than 20°F above the natural temperature of the receiving water are prohibited.

d. The Discharger shall comply with all requirements of the Basin Plan Waste Discharge Prohibitions.

e. Discharges of waste not specifically authorized by this Order or in a manner or location not specifically described in this Order are prohibited unless regulated by applicable WDRs.

f. Except as allowed in [the Storm Water Pollution Prevention Plan], non-storm water discharges that discharge either directly or indirectly to Waters of the United States (U.S.) are prohibited. Prohibited non-storm water discharges must be either eliminated or permitted by a separate NPDES permit.

g. Industrial storm water discharges and authorized or permitted non-storm water discharges shall not cause or threaten to cause pollution, contamination, or nuisance as defined in CWC section 13050.

h. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.

i. The discharge of the first ¼ inch (first flush) of storm water runoff from high risk areas is prohibited, except if the pollutants in the discharge are reduced to the extent and demonstrate through testing that the discharge achieves compliance with the [applicable acute toxicity effluent limitations]. The discharge of the remainder of the storm water must also achieve compliance with the toxicity limitation specified in this Order but only needs to be demonstrated twice per year, unless under accelerated testing.

j. The discharge of wastes that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) is prohibited

2. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 also established requirements for steam condensate, diesel engine cooling water, reverse osmosis product water, utility vault and manhole dewatering discharges, pier washing, pier boom cleaning, marine mammal enclosure cleaning, small boat rinsing, and miscellaneous discharges.

3. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 established acute toxicity effluent limitations for the discharge of industrial storm water.

4. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 established benchmark values for the discharge of storm water from any industrial activity for copper of 63.6 µg/L and zinc of 117 µg/L.

Table F-7. Storm Water Benchmark Exceedances

Reporting Period	No. of Outfall Discharge Events Exceeding Copper Benchmark	No. of Outfall Discharge Events Exceeding Zinc Benchmark
2011	55	83
2012	7	15
2013	11	82
2014	14	41

E. Compliance Summary

1. Review of the Facility's self-monitoring reports from June 2009 to March 2015 identified the following violations:

a. Industrial Storm Water Acute Toxicity effluent limitation in section IV.A.5 of Order No. R9-2009-0081 of Pass was reported as Fail 105 times from June 2009 to June 2014 which includes the 2013/2014 monitoring year. In the 2013/2014 monitoring year, 51 samples were tested for toxicity and 14 samples were reported as Fail. Using the effluent limitation in this Order, only one sample would be in violation.

b. The Discharger reported 23 discharges of unauthorized cooling water in violation of the prohibitions in section A of Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 from 9/10/2009 to 8/2/2011. This discharge was discontinued after August 2011.

2. The following effluent limitation violations were found in reviewing the Facility's self-monitoring reports from June 2009 to March 2015:

Table F-8. Effluent Limitation Violations

Discharge	Constituent	Number of Exceedances	Period	Effluent Limitation	Dates
Steam Condensate	Lead, Total Recoverable	3	Daily Maximum	15.5 µg/L	7/23/2012, 10/17/2013, & 8/4/2014
Steam Condensate	Lead, Total Recoverable	10	Monthly Average	6.3 µg/L	7/23/2012 to 3/3/2015
Steam Condensate	Copper, Total Recoverable	66	Daily Maximum	5.8 µg/L	6/2/2010 to 5/4/2014
Steam Condensate	Copper, Total Recoverable	116	Monthly Average	2.0 µg/L	6/10/2010 to 3/3/2015
Steam Condensate	Bis (2-Ethylhexyl) Phthalate	1	Daily Maximum	11.8 µg/L	12/22/2011
Steam Condensate	Bis (2-Ethylhexyl) Phthalate	4	Monthly Average	5.9 µg/L	12/22/2011 to 10/20/2014
Steam Condensate	pH	3	Instantaneous Maximum	9.0	9/10/2009 to 3/10/2010
Steam Condensate	pH	2	Instantaneous Minimum	7.0	10/20/2014
Diesel Engine Cooling Water	Turbidity	1	Monthly Average	75 NTU	12/9/2009
Diesel Engine Cooling Water	Zinc, Total Recoverable	1	Daily Maximum	150 µg/L	11/5/2009
Diesel Engine Cooling Water	Copper, Total Recoverable	6	Daily Maximum	97 µg/L	7/22/2009 to 12/9/2009

3. On 05/22/2015, the Facility was inspected by the San Diego Water Board to determine compliance with Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 and to verify the information contained in the ROWD. No violations were observed.

4. On 01/24/2013, the Facility was inspected by a USEPA contractor to determine compliance with Order No. R9-2009-0081 as modified by Order No. R9-2010-0057. No violations were observed.

F. Planned Changes

1. The steam cogeneration plant contract is due to expire in 2018, and NBC is currently pursuing efforts toward full decentralization of the system. The steam condensate discharges are expected to be eliminated following conversion to the new systems which will include return systems for steam condensate. While the overall category of steam condensate discharges will remain in this Order, multiple individual steam condensate discharges have been eliminated since the previous permit.

2. The diesel engine sprinkler station at Building 812 on NASNI has been out of service for more than a year and is not expected to be in use for another year or more. The Discharger plans to direct the cooling water to the sanitary sewer or otherwise manage it to prevent discharge.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section.

A. Legal Authorities

This Order is issued pursuant to CWA section 402 and implementing regulations adopted by the USEPA and chapter 5.5, division 7 of the California Water Code (Water Code or CWC; commencing with section 13370). This Order shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

B. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177.

C. State and Federal Regulations, Policies, and Plans

1. **Water Quality Control Plans.** The San Diego Water Board adopted a *Water Quality Control Plan for the San Diego Basin* (Basin Plan) on September 8, 1994 which was last amended on April 4, 2011. The Basin Plan was subsequently approved by the State Water Board on December 13, 1994. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Requirements of this Order implement the Basin Plan. Beneficial uses applicable to the San Diego Bay, Pacific Ocean, Tijuana River Estuary, Morena Reservoir, tributaries to the San Luis Rey River, and waters in the Canyon City Hydrologic Area are as follows:

Table F-9. Basin Plan Beneficial Uses.

Discharge Point	Receiving Water Name	Beneficial Use(s)
SC-001 through SC-009, CW-001, UV-001 through UV-013, PW-001, and storm water discharges as identified in Attachment M of this order.	San Diego Bay	Industrial service supply (IND); navigation (NAV); contact water recreation (REC1); non-contact water recreation (REC2); commercial and sport fishing (COMM); preservation of biological habitats of special significance (BIOL); estuarine habitat (EST); wildlife habitat (WILD); preservation of rare, threatened or endangered species (RARE); marine habitat (MAR); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPWN); and, shellfish harvesting (SHELL).
SC-010, and storm water discharges, as identified in Attachment M of this order.	Pacific Ocean	IND, REC1, REC2, NAV, COMM, aquaculture (AQUA), BIOL, WILD, RARE, MAR; MIGRA, SPWN, and SHELL.
Storm water discharges, as identified in Attachment M of this order.	Tijuana River Estuary	REC1, REC2, COMM, BIOL, EST, WILD, RARE, MAR, MIGR, SPWN, and SHELL.
Municipal storm water discharges from the Remote Training Site Warner Springs.	San Luis Rey River Watershed	Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), IND, Freshwater Replenishment (FRESH), Hydropower Generation (POW), REC1, REC2, Warm Freshwater Habitat (WARM), WILD
Municipal storm water discharges from Camp Morena	Morena Reservoir	MUN, AGR, IND, Industrial Process Supply (PROC), FRESH, REC1, REC2, WARM, Cold Freshwater Habitat (COLD), WILD, RARE
Municipal storm water discharges from Camp Michael Monsoor	Canyon City Hydrologic Area	REC1, REC2, WARM, WILD

2. **Thermal Plan**. The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. The Thermal Plan contains temperature objectives for surface waters.

   The Thermal Plan defines elevated temperature waste as "*liquid, solid, or gaseous material including thermal waste discharged at a temperature higher than the natural temperature of receiving water*." The Thermal Plan also defines a new discharge as "*any discharge (a) which is not presently taking place unless waste discharge requirements have been established and construction as defined in Paragraph 10 has commenced prior to adoption of this plan or (b) which is presently taking place and for which a material change is proposed but no construction as defined in Paragraph 10 has commenced prior to adoption of this plan."*

   Thermal objectives for new discharges to an enclosed bay are applicable for diesel engine cooling water. This objective is:

   Thermal waste discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.

   Requirements of this Order implement the Thermal Plan.

3. **California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, 2009, and 2012. The State Water Board adopted the latest amendment on October 16, 2012, and it became effective on August 19, 2013. The Ocean Plan is applicable, in its entirety, to point source discharges to the ocean. The Ocean Plan identifies beneficial uses of ocean Waters of the State to be protected as summarized below:

Table F-10. Ocean Plan Beneficial Uses

Discharge Point	Receiving Water	Beneficial Uses
SC-010, and storm water discharges, as identified in Attachment M of this Order.	Pacific Ocean	Industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish spawning and shellfish harvesting

In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program of implementation. Requirements of this Order implement the Ocean Plan.

4. **Sediment Quality Plan.** The State Water Board adopted the *Water Quality Control Plan for Enclosed Bays and Estuaries – Part 1, Sediment Quality* (Sediment Quality Plan) on September 16, 2008, and it became effective on August 25, 2009. This Sediment Quality Plan supersedes other narrative sediment quality objectives, and establishes new sediment quality objectives and related implementation provisions for specifically defined sediments in most bays and estuaries. Requirements of this Order implement the sediment quality objectives of this Sediment Quality Plan.

5. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** Federal water quality criteria were adopted by USEPA through the NTR in 40 CFR section 131.36 (promulgated on December 22, 1992, amended on May 4, 1995 and November 9, 1999). About forty criteria in the NTR applied to California waters. On May 18, 2000, USEPA published the CTR in the Federal Register (65 Fed. Register 31682-31719), adding 40 CFR section 131.38. The CTR established new priority pollutant criteria for California waters and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These regulations contain federal water quality criteria for priority pollutants.

6. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the San Diego Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.

7. **Antidegradation Policy.** Federal regulations at 40 CFR section 131.12 require that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68 16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The San Diego Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution No. 68-16.

8. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.

9. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of Waters of the State, including protecting rare, threatened, or endangered species. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

10. **Atomic Energy Act.** Pursuant to the *Atomic Energy Act*, the San Diego Water Board does not have jurisdictional authority to regulate the discharge of radioactive wastes from United States naval nuclear propulsion plants and their support facilities. The U.S. Department of the Navy and the Department of Energy have jurisdiction for discharges of radioactive material. The Navy has a monitoring program for the discharge of radioactive wastes from naval vessels. Consistent with the Atomic Energy Act, this Order does not regulate the discharge of radioactive wastes and does not include monitoring for radioactivity.

11. **Uniform National Discharge Standards (UNDS).** In 1996, Congress passed legislation amending CWA section 312 to provide the Department Of Defense and the USEPA authority to jointly establish UNDS for incidental discharges from vessels of the Armed Forces in state waters and the contiguous zone. This comprehensive, three-phase, regulatory program applies to vessels of the Armed Forces including, but not limited to, the Navy, Military Sealift Command, Marine Corps, Army, Air Force, and Coast Guard. UNDS is designed to enhance environmental protection of coastal waters by creating protective standards to reduce environmental impacts associated with vessel discharges, stimulate the development of improved pollution control devices, and advance the development of environmentally sound ships by the Armed Forces. The Phase I final rule and preamble language, including a summary of the Phase I process and findings (64 Fed. Reg. 25126; 40 CFR part 1700), was published in the Federal Register on May 10, 1999. Phase I of UNDS determines the types of vessel discharges that require control by a Marine Pollution Control Device (MPCD) and those that do not require control, based on consideration of the anticipated environmental effects of the discharge and other factors listed in the CWA. In Phase I, the USEPA and the Department Of Defense identified 25 discharges to be controlled by MPCDs. Phase II of UNDS development focuses on promulgating MPCD

performance standards for those vessel discharges identified during Phase I as requiring an MPCD. In this Phase, Department Of Defense and USEPA are establishing discharge performance standards for different classes, types, and sizes of vessels. These standards are specific to existing vessels as well as future (new design) vessels and will be promulgated in batches for efficiency purposes. A draft rule establishing MPCD for the first batch of 11 discharges was promulgated on February 3, 2014. Phase III of UNDS development will focus on establishing requirements for the design, construction, installation, and use of MPCDs. After completion of Phase III, states will be prohibited from regulating these UNDS discharges. In anticipation of the completion of UNDS, this Order does not regulate vessel discharges with applicable MPCDs (as BMPs) identified in the draft UNDS rule.

D. Impaired Water Bodies on CWA 303(d) List

Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On October 11, 2011 USEPA gave final approval to California's 2010 section 303(d) List of Water Quality Limited Segments (303(d) list). San Diego Bay, as a whole, is listed as impaired for polychlorinated biphenyls (PCBs). Additional portions of San Diego Bay are listed as impaired for additional parameters. San Diego Bay adjacent to the Facility is listed as impaired for copper. Table F-10 below lists the San Diego Bay impairments near the Facility.

Table F-11. 303(d) Impairments near the Facility

Water Body	Location	Constituent	Installation
San Diego Bay	Whole Bay	Polychlorinated biphenyls (PCBs)	All
San Diego Bay	Shoreline, Glorietta Bay	Copper	Adjacent to NAB
San Diego Bay	San Diego Bay Shoreline, G Street Pier	Total Coliform	Near NASNI and NAB[1]
San Diego Bay	San Diego Bay Shoreline, Vicinity of B St and Broadway Piers	Benthic Community Effects	Near NASNI and NAB[1]
San Diego Bay	San Diego Bay Shoreline, Vicinity of B St and Broadway Piers	Sediment Toxicity	Near NASNI and NAB[1]
San Diego Bay	San Diego Bay Shoreline, Vicinity of B St and Broadway Piers	Total Coliform	Near NASNI and NAB[1]
San Diego Bay	San Diego Bay Shoreline, Shelter Island Shoreline Park	Enterococcus, Fecal Coliform, and Total Coliform	Near NASNI and NAB[1]
San Diego Bay	San Diego Bay Shoreline, Tidelands Park	Enterococcus, Fecal Coliform, and Total Coliform	Near NASNI and NAB[1]
San Luis Rey River	East of Interstate 15	Total Nitrogen as N	Adjacent to RTSWS
San Luis Rey River	West of Interstate 15	Chloride, Enterococcus, Fecal Coliform, Phosphorus, Total Dissolved Solids, Total Nitrogen as N, and Toxicity	RTSWS is tributary
Pacific Ocean Shoreline	San Luis Rey River Mouth	Enterococcus and Total Coliform	RTSWS is tributary

Water Body	Location	Constituent	Installation
Morena Reservoir	Whole Reservoir	Ammonia as Nitrogen, Color, Manganese, Phosphorus, pH	Adjacent to Camp Morena
Tijuana River Estuary	1 Acre to 150 Acres	Eutrophic, Indicator Bacteria, Lead, Nickel, Dissolved Oxygen, Pesticides, Thallium, Trash, Turbidity	Adjacent to NOLF

[1] These impairments are not adjacent to the Facility but are near the Facility.

On February 10, 2010, the San Diego Water Board adopted Resolution No. R9-2010-0001, an Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate the Revised Total Maximum Daily Loads for Indicator Bacteria, Project I - Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek). This TMDL Basin Plan amendment was subsequently approved by the State Water Resources Control Board on December 14, 2010, the Office of Administrative Law (OAL) on April 4, 2011, and the United States Environmental Protection Agency (USEPA) on June 22, 2011. RTSWS is a Phase II MS4 discharger to a tributary to the San Luis Rey River. The TMDL establishes the following Waste Load Allocations (WLAs) and compliance schedule for Phase II MS4 dischargers. This Order establishes requirements to implement these WLAs in accordance with the TMDL.

Table F-12. WLAs for Phase II MS4s in the San Luis Rey HU

Watershed	Fecal Coliform WLA		Enterococcus WLA		Total Coliform WLA	
	Wet Weather Billion MPN/year	Dry Weather Billion MPN/Month	Wet Weather Billion MPN/year	Dry Weather Billion MPN/Month	Wet Weather Billion MPN/year	Dry Weather Billion MPN/Month
San Luis Rey HU (903.00)	914,026	1,058	1,300,235	185	14,373,954	5,289

Table F-13. Wet and Dry Weather Compliance Schedule and Reduction Milestones for Achieving Exceedance Frequency

Implementation Action	Responsible Party	Date
Submit annual progress reports or Update SWPPPs/SWMPS/LRPS in accordance with RB Accepted LRPs	Phase II Permittees	Upon Enrollment in Phase II MS4 Requirements
Meet Wet and Dry Weather Frequency Exceedance Milestones	All Phase I, Phase II MS4s, Caltrans	
50% Reductions[1] – Priority[2] 1		April 4, 2016
50% Reductions[1] – Priority[2] 2		April 4, 2017
50% Reductions[1] – Priority[2] 3		April 4, 2018
100% Reductions[1] – Priority[2] 1,2,3		April 2, 2021+

Notes:
[1] Wet: single sample maximum REC-1 WQOs Dry: 30-day geometric mean REC-1 WQOs. The percent reduction for each compliance year applies to the total number of samples taken that comply with Resolution No. R9-2010-0001. The maximum allowable percent exceedance frequency for the single sample maximum (wet weather days only) is 22% (Resolution No. R9-2010-0001, Finding 10). For dry weather days, there is no maximum allowable exceedance and it is set at 0%. The Compliance Year percent reductions are based on the total number of samples taken. For Example: If in Year 5 of the compliance schedule, 100 samples are taken, only 50% of those samples can exceed the single sample maximum for wet weather by 22% of the maximum allowable percent exceedance frequency for the single sample maximum. By Year 10+, no samples can exceed

the Exceedance Frequency. Baseline years for wet and dry days shall be as identified in Order No R9 2015-0001 Attachment E for the Bacteria I TMDL.
[2] Priorities are defined in Resolution No. R9-2010-0001, Attachment A, pg. 63-65.

E. Other Plans, Polices and Regulations

1. **Bays and Estuaries Policy.** The State Water Board adopted a Water Quality Control Policy for Enclosed Bays and Estuaries of California (Bays and Estuaries Policy) on May 16, 1974 (last amended in 1995). The Bays and Estuaries Policy establishes principles for management of water quality, quality requirements for waste discharges, discharge prohibitions, and general provisions to prevent water quality degradation and to protect the beneficial uses of waters of enclosed bays and estuaries. These principles, requirements, prohibitions and provisions have been incorporated into this Order.

   a. The Bays and Estuaries Policy contains the following principle for management of water quality in enclosed bays and estuaries, which includes San Diego Bay and the Tijuana River Estuary:

      i. The discharge of municipal wastewaters and industrial process waters (exclusive of cooling water discharges) to enclosed bays and estuaries shall be phased out at the earliest practicable date. Exceptions to this provision may be granted by the San Diego Water Board only when the San Diego Water Board finds that the wastewater in question would consistently be treated and discharged in such a manner that it would enhance the quality of receiving waters above that which would occur in the absence of the discharge. For the purpose of this policy, ballast waters and innocuous non-municipal wastewaters such as clear brines, washwater, and pool drains are not considered industrial process wastes, and may be allowed by the San Diego Water Board under discharge requirements that provide protection to the beneficial uses of the receiving water.

         The San Diego Water Board finds that the discharges of steam condensate, diesel engine cooling water, pier washing wastewater, other miscellaneous facility-related discharges identified in the Discharger's ROWD storm water, and utility vault dewatering wastewater discharged in compliance with the terms of this Order are innocuous non-municipal wastewaters and, as such, are not subject to the above prohibition.

      ii. The Bays and Estuaries Policy also prohibits the discharge or by-passing of untreated wastes. This Order prohibits the discharge and by-passing of untreated waste except for steam condensate, diesel engine cooling water, pier washing wastewater, other miscellaneous facility-related discharges identified in the Discharger's ROWD storm water, and utility vault dewatering wastewater.

   b. The following Principles for the Management of Water Quality in Enclosed Bays and Estuaries, as stated in the Bays and Estuaries Policy, apply to all of California's enclosed bays and estuaries including San Diego Bay and the Tijuana River Estuary:

      i. Persistent or cumulative toxic substances shall be removed from the waste to the maximum extent practicable through source control or adequate treatment prior to discharge.

ii. Bay or estuarine outfall and diffuser systems shall be designed to achieve the most rapid initial dilution practicable to minimize concentrations of substances not removed by source control or treatment.

iii. Wastes shall not be discharged into or adjacent to areas where the protection of beneficial uses requires spatial separation from waste fields.

iv. Waste discharges shall not cause a blockage of zones of passage required for the migration of anadromous fish.

v. Non-point sources of pollutants shall be controlled to the maximum practicable extent.

The San Diego Water Board has considered the Principles for the Management of Water Quality in Enclosed Bays in Estuaries, in adopting this Order. The terms and conditions of this Order are consistent with the Principles for the Management of Water Quality in Enclosed Bays and Estuaries.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the Waters of the U.S. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the CFR: 40 CFR section 122.44(a) requires that permits include applicable technology-based effluent limitations (TBELs) and standards; and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A.** Ship repair and maintenance activities may result in the discharge of pollutants and wastes to Waters of the U.S. Discharge Prohibition III.A prohibits the discharge of wastes associated with ship repair and maintenance activities. This prohibition is based on the requirements of the Enclosed Bays and Estuaries Policy. Water Code section 13260 requires filing an application and ROWD before a discharge can occur. Discharges not described in the application and ROWD, and subsequently in this Order, are prohibited.

2. **Discharge Prohibition III.B.** As discussed in section III.C.2 of this Fact Sheet, the discharges from diesel engine cooling water are considered a new discharge of thermal waste. The specific water quality objective for enclosed bays for new discharges contained in the Thermal Plan states that “thermal waste discharges having a maximum temperature greater than 4°F above the natural temperature of the receiving water are prohibited.” Discharge Prohibition III.B is based on the requirements of the Thermal Plan.

3. **Discharge Prohibitions III.C., III.D., III.E and III.F.** These prohibitions are based on the requirements of the Basin Plan.

4. **Discharge Prohibition III.G.** Waste discharges from ship repair and maintenance activities on ships, piers, and shoreside facilities can cause high concentrations of copper, zinc, other metals, and oil and grease in industrial storm water runoff. High concentrations of these

pollutants in the industrial storm water runoff can be toxic to aquatic organisms. Discharge Prohibition III.G is based on the toxicity requirements contained in the Basin Plan and prohibits the discharge of the first ¼ inch (first flush) of storm water runoff from High Risk areas unless the discharge can be demonstrated to meet the limits of this Order.

5. **Discharge Prohibition III.H.** This Prohibition is based on the requirements of the Bays and Estuaries Policy and is consistent with prohibitions established for similar facilities.

6. **Discharge Prohibition III.I.** This Order prohibits the discharge of hazardous substances equal to or in excess of reportable quantities listed in 40 CFR part 117 and/or 40 CFR part 302.

7. **Discharge Prohibition III.J.** This requirement prohibits the discharge of PCBs based on the 303(d) listing for these compounds for San Diego Bay.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at section 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards.

The CWA requires that TBELs be established based on several levels of controls:

a. Best practicable treatment control technology (BPT) represents the average of the best performance by plants within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.

b. Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.

c. Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including Biochemical Oxygen Demand 5-day @ 20 ºC (BOD), Total Suspended Solids (TSS), fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

d. New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA also requires USEPA to develop effluent limitations guidelines and standards (ELGs) representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of Best Professional Judgment (BPJ) to derive TBELs on a case-by-case basis where ELGs are not available for certain industrial categories and/or pollutants of concern. Where BPJ is used, the San Diego Water Board must consider specific factors outlined in 40 CFR section 125.3.

There are no applicable ELGs for the discharges in this Order. As such, the discharges authorized by this Order meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR section 125.3.

2. Applicable TBELs

a. **Steam Condensate and Diesel Engine Cooling Water.** The Ocean Plan is applicable in its entirety to point source discharges to the ocean. Steam condensate from Discharge Point No. SC-010 discharges to the Pacific Ocean. As such, effluent limitations based on Table 2 of the Ocean Plan for grease and oil, settleable solids, turbidity, and pH have been established in this Order for discharges of steam condensate to the Pacific Ocean at Discharge Point No. SC-010.

Although the Ocean Plan is not directly applicable to enclosed bays such as San Diego Bay, Order No. R9-2009-0081 determined that the salinity and beneficial uses of San Diego Bay are similar to those of ocean Waters of the State, and used the Ocean Plan as a reference for developing discharge specifications, receiving water prohibitions, and narrative limitations to supplement the provisions contained in the CTR, the SIP, and the Bays and Estuaries Policy. As such, Order No. R9-2009-0081 established effluent limitations for steam condensate at Discharge Points SC-001 through SC-66 and diesel engine cooling water discharges at Discharge Points CW-001 through CW-004 to the San Diego Bay, consistent with Table 2 of the Ocean Plan for grease and oil, settleable solids, turbidity, and pH. Steam condensate discharges except SC-001 through SC-010 and diesel engine cooling water discharges except CW-001 have been eliminated. Consistent with federal and state anti-backsliding requirements, effluent limitations for grease and oil, settleable solids, turbidity, and pH have been carried over for discharges of steam condensate and diesel engine cooling water to the San Diego Bay.

Table F-14. Applicable Numeric Effluent Limitations from the Ocean Plan

Parameter	Units	Effluent Limitations		
		Average Monthly	Weekly Average	Instantaneous Maximum
Oil and Grease	mg/L	25	40	75
Settleable Solids	ml/L	1.0	1.5	3.0
Turbidity	NTU	75	100	225
pH	standard units	--	--	[1]

[1] Within limits of 6.0 – 9.0 at all times

b. **Utility Vaults**. The State Water Board found in section V.B.1.b of the Fact Sheet to Order No. 2014-0174-DWQ that it is not feasible to establish numeric effluent limitations for pollutants in discharges from utility vaults and underground structures. Instead, the State Water Board included a provision in Order No. 2014-0174-DWQ requiring implementation of pollution prevention practices to control and abate the discharge of pollutants to surface waters, achieve compliance utilizing BAT and BCT requirements, and achieve compliance with applicable water quality standards. Federal Regulations at 40 CFR sections 122.44(k)(3) and (4) authorize the San Diego Water Board to require BMPs to control or abate the discharge of pollutants when numeric effluent limitations are infeasible and when the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA. Consistent with the requirements of the Order No. 2014-0174-DWQ and Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, this Order includes a provision requiring the Discharger to continue the implementation and maintenance of their BMPs and Pollution

Prevention Plan for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan) which includes BMPs to reduce the discharge of pollutants from utility vault and manhole dewatering. In addition, this Order establishes Numeric Action Levels (NALs) for utility vault discharges consistent with NALs in Order No. 2014-0174-DWQ.

c. **Pier Washing**. Due to the nature of activities associated with discharges from pier washing, it is impractical to collect and treat the associated wastewaters prior to discharge. Therefore, the San Diego Water Board finds that it is not feasible to establish numeric effluent limitations for pollutants in discharges from pier washing. In accordance with 40 CFR sections 122.44(k)(3) and (4), the San Diego Water Board finds that the implementation of BMPs in lieu of numeric effluent limitations are appropriate. This Order includes a provision requiring the implementation of BMPs to control and abate the discharge of pollutants from pier washing.

d. **Small Military Base MS4.** In accordance with 40 CFR section 122.44(k), the inclusion of BMPs in lieu of numeric effluent limitations is appropriate in storm water permits. The Discharger must implement BMPs that reduce pollutants in storm water runoff to the technology-based standard of Maximum Extent Practicable (MEP) to protect water quality. This Order requires the Discharger to develop and implement a SWMP that describes BMPs, measurable goals, and timetables for implementation in the six minimum control measures identified in 40 CFR section 122.34(b). This approach is consistent with the requirements of the current Naval Base San Diego Permit (Order No. R9-2013-0064) and Navy Base Point Loma Permit (Order No. R9-2014-0037) which include regulation of Phase II MS4 storm water discharges.

e. **Industrial Storm Water**. In accordance with 40 CFR section 122.44(k), Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 determined that the implementation of BMPs for the discharge of industrial storm water were appropriate. To carry out the purpose of the CWA, Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 required the Discharger to develop and implement a SWPPP, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances, and for the control of storm water discharges. The requirement to implement an appropriate SWPPP for areas associated with industrial activity is retained from Order No. R9-2009-0081 as modified by Order No. R9-2010-0057.

In addition to the retention of a SWPPP, this Order establishes NALs for storm water from Industrial High Risk Areas and Industrial Low Risk Areas in lieu of benchmarks.

The statewide Industrial Storm Water General Permit was adopted on April 1, 2014, by the State Water Board and became effective on July 1, 2015. This statewide Industrial Storm Water General Permit contains NALs based on benchmarks in USEPA's *Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP)* which became effective May 27, 2009. Consistent with the intent of the State Water Board, this Order establishes NALs with a tiered compliance strategy. The San Diego Water Board finds that the State Water Board's NALs serve as an appropriate set of technology-based, measureable criteria that demonstrate compliance with BAT/BCT.

f. **Non-storm water Discharges.** Non-storm water discharges as described in section IV.F of this Order include a wide variety of sources and may contribute significant pollutant loads to receiving waters. Measures to control spills, leakage, and dumping, and to prevent illicit connections must be addressed through structural as well as non-structural BMPs. The San Diego Water Board recognizes, however, that certain non-

storm water discharges may be necessary for general operation. Therefore, this Order authorizes such discharges provided they meet certain conditions that will minimize the discharge of pollutants to the receiving waters.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 CFR mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels with the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but no numeric criterion or objective for the pollutant has been established, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state' s narrative criterion, supplemented with other relevant information, as provided in 40 CFR section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

a. The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. The beneficial uses applicable to San Diego Bay, the Tijuana River Estuary, a tributary to the San Luis Rey River watershed, Morena Reservoir, and waters in the Canyon City Hydrologic Area contained in the Basin Plan are summarized in section III.C.1 of this Fact Sheet. The Basin Plan includes both narrative and numeric water quality objectives applicable to the receiving waters.

b. The CTR promulgated toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. Priority pollutant water quality criteria in the CTR are applicable to industrial process discharges to San Diego Bay. The CTR contains both saltwater and freshwater criteria. Because a distinct separation generally does not exist between freshwater and saltwater aquatic communities, the following apply: in accordance with 40 CFR section 131.38(c)(3), freshwater criteria apply to areas where salinities are at or below 1 part per thousand (ppt) 95 percent or more of the time. The San Diego Water Board has determined that because the discharges are to San Diego Bay, saltwater CTR criteria are applicable. The CTR criteria for saltwater aquatic life or human health for consumption of organisms, whichever is more stringent, are used to prescribe the effluent limitations in this Order to protect the beneficial uses of San Diego Bay, a water of the U.S. in the

vicinity of the discharges.

The SIP procedures for implementation of CTR and NTR criteria are not explicitly applicable to storm water discharges. However, the toxicity objectives contained in the Basin Plan and the Bays and Estuary Policy are applicable to the discharge of storm water from Facility to San Diego Bay, the Tijuana River Estuary, a tributary to the San Luis Rey River watershed, Morena Reservoir, and waters in the Canyon City Hydrologic Area. The applicable toxicity limitations are discussed in this section of the Fact Sheet.

The SIP procedures for implementation of CTR and NTR criteria are applicable to non-storm water discharges. The non-storm water discharges from the Facility to San Diego Bay include discharges associated with steam condensate, diesel engine cooling water, pier washing, and utility vault and manhole dewatering. A Reasonable Potential Analysis (RPA) was conducted for the non-storm water discharges to the San Diego Bay using all the available data. All data available for a type (e.g., steam condensate) was used to categorize the type of discharge and used for evaluating reasonable potential.

- Representative monitoring data for utility vault and manhole dewatering discharges was available from September 2009 through June 2015.
- Representative monitoring data for discharges of diesel generator cooling water was available from July 2009 through August 2011 when the discharge last occurred.
- Representative monitoring data for steam condensate was available from August 2009 through June 2015.
- Representative monitoring data for pier washing water was available from September 2009 through June 2015.
- Receiving water monitoring in the vicinity of the discharges was available from January 2011 through June 2015.

c. For all ocean Waters of the State, the Ocean Plan establishes the beneficial uses summarized in section III.C.3 of this Fact Sheet. The Ocean Plan also includes water quality objectives for the ocean receiving water for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. Table 1 of the Ocean Plan establishes numeric water quality objectives that are applicable to all discharges within the jurisdiction of the Ocean Plan.

The Ocean Plan procedures for implementation of Table 1 criteria are applicable to non-storm water discharges. The non-storm water discharges from the Facility to San Diego Bay include the discharge of steam condensate at Discharge Point No. SC-010. A RPA was conducted for the non-storm water discharges to the Pacific Ocean. All data available for steam condensate was used to categorize the discharge and used for evaluating reasonable potential.

- Representative monitoring data for steam condensate was available from August 2009 through June 2015.
- Receiving water monitoring in the vicinity of the discharges was available from January 2011 through June 2015.

Tables F-13 and F-14 summarizes the applicable water quality criteria/objectives for priority pollutants reported in detectable concentrations in the effluent. These criteria were used in conducting the RPAs for this Order.

Table F-15. Applicable CTR/NTR Water Quality Criteria with Detectable Concentrations

Constituent	Selected Criteria	CTR/NTR Water Quality Criteria					
		Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Antimony, Total Recoverable	4,300			--	--		4,300
Arsenic, Total Recoverable	36			69	36		--
Beryllium, Total Recoverable	No Criteria			--	--		--
Cadmium, Total Recoverable	9.36			42.25	9.36		--
Chromium (III), Total Recoverable	No Criteria			--	--		--
Chromium (VI), Total Recoverable	50			1,100	50		--
Copper, Total Recoverable	3.73			5.78	3.73		--
Cyanide, Total Recoverable	1			1	1		--
Lead, Total Recoverable	8.52			220.82	8.52		--
Mercury, Total Recoverable	0.051			--	--		0.051
Nickel, Total Recoverable	8.28			74.75	8.28	Not Applicable	4,600
Silver, Total Recoverable	2.24			2.24	--		--
Selenium, Total Recoverable	71			290	71		--
Thallium, Total Recoverable	6.3			--	--		6.3
Zinc, Total Recoverable	86			95.14	86		--
2,3,7,8-TCDD	$1.4x10^{-8}$			--	--		$1.4x10^{-8}$
Chlorodibromomethane	34			--	--		34
Methylene Chloride	1,600			--	--		1,600
4-Nitrophenol	14			--	--		14
Benzo(a)Anthracene	0.049			--	--		0.049
Benzo (a) Pyrene	0.049			--	--		0.049
Benzo (b) Fluoranthene	0.049			--	--		0.049
Bis (2-ethylhexyl) Phthalate	5.9			--	--		5.9
Butylbenzyl Phthalate	5,200			--	--		5,200
Chrysene	0.049			--	--		0.049
Diethyl Phthalate	120,000			--	--		120,000
Indeno(1,2,3-cd)Pyrene	0.049			--	--		0.049

Constituent	Selected Criteria	CTR/NTR Water Quality Criteria					
		Freshwater		Saltwater		Human Health for Consumption of:	
		Acute	Chronic	Acute	Chronic	Water & Organisms	Organisms Only
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Pyrene	11,000			--	--		11,000
Aldrin	0.00014			--	--		0.00014
alpha-BHC	0.0130			--	--		0.0130
beta-BHC	0.046			--	--		0.046
gamma-BHC	0.063			--	--		0.063
delta-BHC	No Criteria			--	--		No Criteria
Chlordane	0.00059			--	--		0.00059
4,4-DDT	0.00059			--	--		0.00059
4,4-DDE	0.00059			--	--		0.00059
4,4-DDD	0.00084			--	--		0.00084
Dieldrin	0.00014			--	--		0.00014
alpha-Endosulfan	0.0087			--	--		0.0087
beta-Endosulfan	0.0087			--	--		0.0087
Endosulfan Sulfate	240			--	--		240
Endrin	0.0023			--	--		0.0023
Endrin Aldehyde	0.81			--	--		0.81
Heptachlor	0.00021			--	--		0.00021
Heptachlor Epoxide	0.00011			--	--		0.00011

Table F-16. Applicable Ocean Plan Water Quality Objectives with Detectable Concentrations

Constituent	Selected Criteria	Water Quality Objectives (µg/L)			
		6-Month Median	30-day Average	Daily Maximum	Instantaneous Maximum
Antimony, Total Recoverable	1,200	--	1,200	--	--
Arsenic, Total Recoverable	8	8	--	32	80
Copper, Total Recoverable	3	3	--	12	30
Lead, Total Recoverable	2	2	--	8	20
Nickel, Total Recoverable	5	5	20	--	50
Zinc, Total Recoverable	20	20	--	80	200
TCDD Equivalents	$3.9x10^{-9}$	--	$3.9x10^{-9}$	--	--
Bis(2-Ethylhexyl)Phthalate	3.5	--	3.5	--	--

b. **Dilution Credits.** Section 1.4.2 of the SIP establishes procedures for granting mixing zones and the assimilative capacity of the receiving water. Before establishing a dilution credit for a discharge, it must first be determined if, and how much, receiving water is available to dilute the discharge.

In the absence of a dilution credit, the worst-case dilution is assumed to be zero to provide protection for the receiving water beneficial uses. The impact of assuming zero assimilative capacity within the receiving water is that discharge limitations are applied end-of-pipe with no allowance for dilution within the receiving water. This Order uses a dilution of zero.

3. Determining the Need for WQBELs

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an instream excursion above a narrative or numerical water quality standard.

The San Diego Water Board conducted the RPA for discharges to the San Diego Bay in accordance with section 1.3 of the SIP. The RPA for the discharge of steam condensate to the Pacific Ocean was conducted consistent with the requirements of Appendix VI of the Ocean Plan. A summary of the results for the parameters which demonstrated reasonable potential, for each applicable discharge, is provided in the tables below.

Table F-17. Summary of CTR/NTR RPA Results (Discharges to San Diego Bay)

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason[1,2]
Steam Condensate to San Diego Bay (SC-001 through SC-009)	Arsenic, Total Recoverable	2.9	99	36	B > C
	Copper, Total Recoverable	170	5.9	3.73	MEC > C
	Lead, Total Recoverable	15.6	2.45	8.5	MEC > C
	Nickel, Total Recoverable	2.2	23	8.3	B > C
	Selenium, Total Recoverable	0.35	330	71	B > C
	Zinc, Total Recoverable	1,100	27	86	MEC > C
	2,3,7,8-TCDD	0.00000114	<0.000000463	$1.4x10^{-8}$	MEC > C
	Bis(2-Ethylhexyl)Phthalate	16	1.2	5.9	MEC > C
	Aldrin	0.01	0.003	0.00014	MEC > C
	4,4'-DDT	0.009	0.02	0.00059	B > C
	4,4'-DDE	0.005	0.002	0.00059	B > C
	4,4'-DDD	0.004	0.002	0.00084	B > C
	Heptachlor	0.02	0.004	0.00021	MEC > C
	Heptachlor Epoxide	0.1	0.002	0.00011	MEC > C
Diesel Engine Cooling Water (CW-001)	Arsenic, Total Recoverable	84	63	36	MEC > C
	Chromium (VI), Total Recoverable	150	2.18	50	MEC > C
	Copper, Total Recoverable	280	9.75	3.73	MEC > C
	Lead, Total Recoverable	16	2.45	8.51	MEC > C
	Nickel, Total Recoverable	46	23	8.28	MEC > C
	Selenium, Total Recoverable	1.2	290	71.14	B > C, pollutant detected in effluent
	Zinc, Total Recoverable	380	<27	86	MEC > C
	4,4'-DDT	0.039	<0.002	0.00059	MEC > C
	4,4'-DDE (linked to DDT)	0.018	<0.0002	0.00059	MEC > C
	4,4'-DDD	0.021	<0.0007	0.00084	MEC > C

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason[1,2]
Utility Vault and Manhole Dewatering (UV-001 through UV-013)	Arsenic, Total Recoverable	47	99	36	B > C, pollutant detected in effluent
	Cadmium, Total Recoverable	9.89	<0.03	9.36	MEC > C
	Copper, Total Recoverable	910	5.9	3.73	MEC > C
	Lead, Total Recoverable	32	2.45	8.51	MEC > C
	Mercury, Total Recoverable	0.17	<0.03	0.051	MEC > C
	Nickel, Total Recoverable	35.3	23	8.28	MEC > C
	Selenium, Total Recoverable	31	330	71	B > C, pollutant detected in effluent
	Zinc, Total Recoverable	870	<27	86	MEC > C
	Benzo(a)Anthracene	2.7	0.02	0.049	MEC > C
	Benzo(a)Pyrene	0.11	<0.02	0.049	MEC > C
	Benzo(b)Fluoranthene	0.17	<0.03	0.049	MEC > C
	Bis(2-Ethylhexyl)Phthalate	240	1.2	5.9	MEC > C
	Chrysene	1.7	<0.02	0.049	MEC > C
	Indeno(1,2,3-cd)Pyrene	0.052	<0.06	0.049	MEC > C
	Aldrin	0.009	0.003	0.00014	MEC > C
	alpha-BHC	0.03	0.002	0.013	MEC > C
	beta-BHC	0.11	0.008	0.046	MEC > C
	Chlordane	0.009	<0.007	0.00059	MEC > C
	4,4'-DDT	0.3	0.02	0.00059	MEC>=C
	4,4'-DDE (linked to DDT)	0.009	0.002	0.00059	MEC>=C
	4,4'-DDD	0.19	0.002	0.00084	MEC>=C
	Dieldrin	0.01	0.002	0.00014	MEC > C
	alpha-Endosulfan	0.026	0.003	0.0087	MEC > C
	beta-Endosulfan	0.02	0.03	0.0087	MEC > C
	Endrin	0.05	0.003	0.0023	MEC > C
	Heptachlor	0.23	0.004	0.00021	MEC > C
	Heptachlor Epoxide	0.92	0.002	0.00011	MEC > C
	PCBs Sum	0.45	<3.43	0.00017	MEC > C
Pier Washing (PW-001)	Arsenic, Total Recoverable	21	99	36	B > C, pollutant detected in effluent
	Copper, Total Recoverable	55	5.9	3.7	MEC > C
	Lead, Total Recoverable	12	2.45	8.5	MEC > C
	Mercury, Total Recoverable	0.12	<0.03	0.051	MEC > C
	Nickel , Total Recoverable	8.4	23	8.3	MEC > C
	Selenium, Total Recoverable	3.3	330	71	B > C, pollutant detected in effluent
	Zinc, Total Recoverable	1,020	27	86	MEC > C
	Aldrin	0.04	0.003	0.00014	MEC > C
	alpha-BHC	0.1	0.002	0.013	MEC > C
	beta-BHC	0.3	0.008	0.046	MEC > C
	4,4'-DDT	0.02	0.02	0.00059	MEC > C
	4,4'-DDE (linked to DDT)	0.02	0.002	0.00059	MEC > C
	alpha-Endosulfan	0.026	0.003	0.0087	MEC > C
	beta-Endosulfan	0.03	0.03	0.0087	MEC > C

Discharge Location No.	Parameter	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Reason[1,2]
	Heptachlor	0.04	0.004	0.00021	MEC > C
	Heptachlor Epoxide	0.02	0.002	0.00011	MEC > C

[1] MEC = Maximum Effluent Concentration; B = Background Concentration; C = Criteria (Water Quality)
[2] Step 6 of section 1.3 of the SIP states that if B is greater than C and the pollutant is detected in the effluent, an effluent limitation is required and the analysis for the subject pollutant is complete.

Table F-18. Summary of Ocean Plan RPA Results (Discharges to the Pacific Ocean)

Discharge Location No.	Parameter	Number of Samples	Maximum Effluent Concentration (MEC) (µg/L)	Background (B) (µg/L)	Criteria (C) (µg/L)	Endpoint[1]
Steam Condensate to the Pacific Ocean (SC-010)	Antimony, Total Recoverable	6	1.5	0	1,200	3
	Arsenic, Total Recoverable	6	2.9	3	8	3
	Copper, Total Recoverable	146	170	2	3	1
	Lead, Total Recoverable	146	15.6	0	2	1
	Nickel, Total Recoverable	6	2.2	0	5	3
	Zinc, Total Recoverable	6	1,100	8	20	1
	TCDD Equivalents	160	0.0000139	0	3.9×10^{-9}	1
	Bis(2-Ethylhexyl)Phthalate	147	16	0	3.5	1

[1] Endpoint1 = Reasonable potential exists, limit required, establish monitoring.
Endpoint3 = The RPA is inconclusive. Monitoring has been established for these parameters.

4. WQBEL Calculations

a. **Utility Vaults.** As shown in Table F-15, the San Diego Water Board finds that discharges from utility vault and manhole dewatering have the reasonable potential to exceed water quality criteria for several priority pollutants. However, section V.B.2 of the Fact Sheet to Order No. 2014-0174-DWQ finds that the State Water Board believes that it is infeasible to establish numeric effluent limitations for utility vault and underground structure discharges due, in part to: discharges occurring intermittently and for short durations; dewatering of utility vaults and underground structures provide essential public services needs to be conducted promptly to facilitate restoration of those services; the uncertainty of the volume and characteristics of the discharge from a utility vault or an underground structure; and the general lack of data and information to characterize discharges from utility vaults. Consistent with Order No. 2014-0174-DWQ and Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, the San Diego Water Board is not establishing numeric effluent limitations for utility vaults and manholes in this Order. This Order includes a provision requiring the Discharger to continue the implementation and maintenance of their Utility Vault Plan which includes BMPs to reduce the discharge of pollutants from utility vault and manhole dewatering.

b. **Discharges associated with pier washing**. Based on BPJ, the San Diego Water Board finds that discharges associated with pier washing exhibit reasonable potential to

exceed water quality criteria for a number of priority pollutants. The minimal flow, duration, infrequent and disperse nature of this discharges precludes the implementation of practical treatment systems. Therefore, the San Diego Water Board finds that it is not feasible to establish numeric effluent limitations for pollutants in this discharge. In lieu of numeric effluent limitations, the San Diego Water Board finds that the implementation of BMPs is sufficient to adequately protect receiving waters. This Order includes a provision requiring the implementation of BMPs to control and abate the discharge of pollutants from pier washing.

c. **The Thermal Plan.** The Thermal Plan applies to steam condensate discharges and diesel engine cooling and was adopted by the State Water Board on May 18, 1972.

Steam condensate discharges are considered discharges of elevated temperature wastes and must comply with the following water quality objectives for enclosed bays and for coastal waters. The Discharger installed the steam condensate system prior to adoption of the Thermal Plan on May 18, 1972, so this steam condensate discharge is an existing discharge. A numeric effluent limitation is not provided for existing discharges. The following Thermal Plan water quality objectives have been applied as a narrative receiving water limitation. Due to the low discharge rate of steam condensate into the receiving water, the discharge is not expected to degrade beneficial uses due to elevated temperatures.

Thermal Plan water quality objective for existing discharges to enclosed bays:

> **"***Elevated temperature waste discharges shall comply with limitations necessary to assure protection of beneficial uses.*"

Thermal Plan water quality objective for existing discharges to coastal waters:

> "*Elevated temperature wastes shall comply with limitations necessary to assure protection of the beneficial uses and areas of special biological significance.*"

Diesel engine cooling water discharges are considered discharges of thermal waste. Because it commenced after the May 18, 1972, Thermal Plan adoption date, the discharge of diesel engine cooling water constitutes a new discharge of a thermal waste. The following Thermal Plan water quality objective for new thermal discharges to enclosed bays is implemented directly as a discharge prohibition:

> *"Thermal waste discharges having a maximum temperature greater than 4° F above the nature temperature of the receiving water are prohibited."*

d. **pH.** The WQBEL for pH for discharges to the San Diego Bay is based on the water quality objective contained in the Basin Plan, which states, "*In bays and estuaries the pH shall not be depressed below 7.0 nor raised above 9.0.*" This limitation has also been applied in this Order to discharges of steam condensate to the Pacific Ocean.

e. **SIP Effluent Limitation Calculations.** If a reasonable potential exists to exceed applicable water quality criteria or objectives, then a WQBEL must be established in accordance with one or more of the three procedures contained in section 1.4 of the SIP where numeric effluent limitations are feasible. These procedures include:

i. If applicable and available, use the WLA established as part of a TMDL.

ii. Use of a steady-state model to derive maximum daily effluent limitations (MDELs) and average monthly effluent limitations (AMELs).

iii. Where sufficient effluent and receiving water data exist, use of a dynamic model, which has been approved by the San Diego Water Board.

WQBELs are calculated following the procedures in section 1.4 of the SIP. Where an applicable primary MCL or secondary MCL is more stringent than a CTR/NTR parameter, the MCL has been used as the applicable human health criteria for CTR/NTR parameter.

WQBELs Calculation Example:

Using total recoverable copper for the discharge of steam condensate as an example, the following demonstrates how WQBELs were established for CTR/NTR parameters in this Order.

The process for developing these limitations and performance goals is consistent with section 1.4 of the SIP.

Calculation of aquatic life AMEL and MDEL:

Step 1: For each constituent requiring an effluent limitation, identify the applicable water quality criteria or objective. For each criterion, determine the effluent concentration allowance (ECA) using the following steady state equation:

ECA = C + D(C-B) when C>B, and

ECA = C when C≤B,

Where C = The priority pollutant criterion/objective, adjusted if necessary for hardness, pH, and translators. For discharges from the Facility, criteria for saltwater are independent of hardness and pH.

D = The dilution credit, and

B = The ambient background concentration.

As discussed above, this Order does not allow for dilution (D=0); therefore, for copper:

ECA_{acute} = 5.8 µg/L

$ECA_{chronic}$ = 3.7 µg/L

$ECA_{human\ health}$ = Not Applicable

Step 2: For each ECA based on aquatic life criterion/objective, determine the long-term average discharge condition (LTA) by multiplying the ECA by a factor (multiplier). The multiplier is a statistically based factor that adjusts the ECA to account for effluent variability. The value of the multiplier varies depending on the coefficient of variation (CV) of the data set and whether it is an acute or chronic criterion/objective. Table 1 of the SIP provides pre-calculated values for the multipliers based on the value of the CV. Equations to develop the multipliers in

place of using values in the tables are provided in section 1.4, Step 3 of the SIP and will not be repeated here.

$LTA = ECA \times Multiplier_{99}$

The CV for the data set must be determined before the multipliers can be selected and will vary depending on the number of samples and the standard deviation of a data set. If the data set is less than 10 samples, or at least 80% of the samples in the data set are reported as non-detect, the CV shall be set equal to 0.6. It the data set is greater than 10 samples, and at least 20 percent of the samples in the data set are reported as detected, the CV shall be equal to the standard deviation of the data set divided by the average of the data set.

For copper in steam condensate, over 10 samples were available and only 2 percent were non-detect. A CV of 2.08 was calculated by dividing the standard deviation by the mean of the data set. Thus, the CV shall be set equal to 2.08 for all CTR/NTR parameters.

For copper in steam condensate, the following data was used to develop the acute and chronic LTAs using equations provided in section 1.4, Step 3 of the SIP (Table 1 of the SIP also provides this data up to three decimals).

No. of Samples	CV	ECA Multiplier$_{acute}$	ECA Multiplier$_{chronic}$
147	1.81	0.13	0.22

$LTA_{acute} = 5.8\ \mu g/L \times 0.13 = 0.73\ \mu g/L$

$LTA_{chronic} = 3.7\ \mu g/L \times 0.22 = 0.81\ \mu g/L$

Step 3: Select the most limiting (lowest) of the LTA.

LTA = most limiting of LTA_{acute} or $LTA_{chronic}$

For copper, the most limiting LTA is LTA_{acute}

$LTA_{copper} = LTA_{acute} = 0.73\ \mu g/L$

Step 4: Calculate the WQBELs by multiplying the LTA by a factor (multiplier). WQBELs are expressed as AMEL and MDEL. The multiplier is a statistically based factor that adjusts the LTA for the averaging periods and exceedance frequencies of the criteria/objectives and the effluent limitations. The value of the multiplier varies depending on the probability basis, the CV of the data set, the number of samples (for AMEL) and whether it is a monthly or daily limit. Table 2 of the SIP provides pre-calculated values for the multipliers based on the value of the CV and the number of samples. Equations to develop the multipliers in place of using values in the tables are provided in section 1.4, Step 5 of the SIP and will not be repeated here.

$AMEL_{aquatic\ life} = LTA \times AMEL_{multiplier95}$

$MDEL_{aquatic\ life} = LTA \times MDEL_{multiplier99}$

AMEL multipliers are based on a 95th percentile occurrence probability, and the MDEL multipliers are based on the 99th percentile occurrence probability. If the number of samples is less than four (4), the default number of samples to be used is four (4).

For copper, the following data were used to develop the AMEL and MDEL for effluent limitations using equations provided in section 1.4, Step 5 of the SIP:

No. of Samples Per Month	CV	$Multiplier_{MDEL99}$	$Multiplier_{AMEL95}$
4	1.81	7.97	2.64

Copper

$AMEL_{aquatic\ life}$ = 0.73 µg/L x 2.64 = 1.92 µg/L

$MDEL_{aquatic\ life}$ = 0.73 µg/L x 7.97 = 5.78 µg/L

Step 5: For the ECA based on human health, set the AMEL equal to the $ECA_{human\ health.}$ For copper, there is no applicable human health criteria. Thus, heptachlor in steam condensate has been used as an example for calculating applicable human health effluent limitations below.

Heptachlor

$AMEL_{human\ health}$ = $ECA_{human\ health}$= 0.00021 µg/L

Step 6: Calculate the MDEL for human health by multiplying the AMEL by the ratio of $Multipler_{MDEL}$ to the $Multiplier_{AMEL}$. Table 2 of the SIP provides pre-calculated ratios to be used in this calculation based on the CV and the number of samples. Heptachlor has a CV of 0.6 because there are fewer than 10 samples.

$MDEL_{human\ health}$ = $AMEL_{human\ health}$ x ($Multiplier_{MDEL}$/ $Multiplier_{AMEL}$)

For the default CV of 0.6:

No. of Samples Per Month	CV	$Multiplier_{MDEL\ 99}$	$Multiplier_{AMEL\ 95}$	Ratio
4	0.6	3.1	1.6	2.0

For heptachlor:

$MDEL_{human\ health}$ = 0.00021 µg/L x 2.0 = 0.00042 µg/L

Step 7: Select the lower of the AMEL and MDEL based on aquatic life and human health as the WQBEL for the Order. In neither of the examples were both aquatic life and human health criteria applicable to both of the criteria, thus this step is not applicable for copper or heptachlor.

For discharges of steam condensate, the resulting effluent limitations are at least as stringent as those established in Order No. R9-2009-0081, with the exception of the MDEL for bis(2-ethylhexyl)phthalate. The MDEL of 13.7 µg/L would be less stringent than the MDEL of 11.8 µg/L established in the previous Order, thus the previous MDEL has been carried over consistent with state and federal anti-backsliding requirements.

For discharges of diesel engine cooling water, the resulting effluent limitations are at least as stringent as those established in Order No. R9-2009-0081, with some exceptions. The resulting AMEL for lead of 6.3 µg/L is less stringent than the AMEL

of 5.8 µg/L established in the previous Order, thus the previous AMEL has been carried over consistent with state and federal anti-backsliding requirements. Mercury did not demonstrate reasonable potential and the effluent limitation for mercury was removed consistent with state and federal anti-backsliding requirements.

A summary of the applicable CTR/NTR effluent limitations is provided below:

Table F-19. CTR-based Effluent Limitations

Parameters	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Steam Condensate				
Arsenic, Total Recoverable	µg/L	30	--	59
Copper, Total Recoverable	µg/L	1.9	--	5.8
Lead, Total Recoverable	µg/L	3.4	--	12
Nickel, Total Recoverable	µg/L	6.8	--	14
Selenium, Total Recoverable	µg/L	58	--	120
Zinc, Total Recoverable	µg/L	47	--	95
2,3,7,8-TCDD	µg/L	$1.4x10^{-8}$	--	$2.8x10^{-8}$
Bis(2-Ethylhexyl)Phthalate	µg/L	5.9	--	15 [1]
Aldrin	µg/L	0.00014	--	0.00028
4,4'-DDT	ug/L	0.00059	--	0.00118
4,4'-DDE	ug/L	0.00059	--	0.00118
4,4'-DDD	ug/L	0.00084	--	0.00169
Heptachlor	µg/L	0.00021	--	0.00042
Heptachlor Epoxide	µg/L	0.00011	--	0.00022
Diesel Engine Cooling Water				
Arsenic, Total Recoverable	µg/L	20	--	62
Chromium VI, Total Recoverable	µg/L	27	--	85
Copper, Total Recoverable	µg/L	2.0	--	5.8
Lead, Total Recoverable	µg/L	6.3 [2]	--	15
Nickel, Total Recoverable	µg/L	5.7	--	15
Selenium, Total Recoverable	µg/L	58	--	120
Zinc, Total Recoverable	µg/L	37	--	95
4,4-DDT	µg/L	0.00059	--	0.0017
4,4-DDE	µg/L	0.00059	--	0.0012
4,4-DDD	µg/L	0.00084	--	0.0017

[1] Current Order R9-2009-0081 has an effluent limitation of 12 µg/L for Bis(2-Ethylhexyl)Phthalate which is more stringent so this Order establishes an MDEL of 12 µg/L.

[2] Current Order R9-2009-0081 has an effluent limitation of 5.8 µg/L for lead which is more stringent so this Order establishes an MDEL of 5.8 µg/L.

f. **Ocean Plan Effluent Limitation Calculations.** If a reasonable potential exists to exceed applicable water quality objectives, then a WQBEL must be established consistent with the requirements of the Ocean Plan.

Effluent limitations for water quality objectives listed in Table 1 of the Ocean Plan, with the exception of acute toxicity and radioactivity, are determined through the use of the following equation:

Equation 1: Ce = Co + Dm (Co - Cs)

where:

Ce = the effluent concentration limit, µg/L.

Co = the concentration (water quality objective) to be met at the completion of initial* dilution, µg/L.

Cs = background seawater concentration, µg/L. Background seawater concentrations are specified in Table 3 of the Ocean Plan for arsenic (3 µg/L), copper (2 µg/L), mercury (0.0005 µg/L), silver (0.16 µg/L), and zinc (8 µg/L). For all other Table 1 parameters, Cs = 0 µg/L.

Dm = minimum probable initial dilution expressed as parts seawater per part wastewater. (There is no initial dilution for this discharge.)

Because there is no initial dilution for the discharge of steam condensate from Discharge Point No. SC-010, the effluent limitations will be equal to the objectives (i.e. Ce = Co).

In addition to concentration-based effluent limitations, section C.4.j of the Ocean Plan requires mass-based effluent limitations calculated based on the concentration-based effluent limitations and a maximum flow rate.

Mass Emission Rate (lb/day) = 8.34 x Q x C

where: Q and C are the flow rate in million gallons per day and the constituent concentration in mg/L, respectively. 8.34 is a conversion factor.

However, due to the type of discharge (steam condensate), and periodic and low flow, accurate flow measurement to evaluate compliance with a mass-based effluent limitation is not feasible. Further, due to the nature of the discharge, it is not possible for the effluent to be further diluted and large fluctuations in flow are not expected to occur. Consistent with the previous Order, this Order establishes concentration-based effluent limitations for discharges to the Pacific Ocean. Concentration-based effluent limitations are anticipated to be protective of water quality.

A summary of the applicable WQBELs for the Discharger are summarized below:

Table F-20. Summary Applicable WQBELs for Steam Condensate to the Pacific Ocean

Parameter	Units	Effluent Limitations			
		6-Month Median	30-Day Average	Maximum Daily	Instantaneous Maximum
Copper, Total Recoverable	µg/L	3	--	12[1]	30
Lead, Total Recoverable	µg/L	2	--	8	20
Zinc, Total Recoverable	µg/L	20	--	80	200
TCDD Equivalents	µg/L	--	$3.9x10^{-9}$	--	--
Bis(2-Ethylhexyl)Phthalate	µg/L	--	3.5	--	--

[1] Current Order R9-2009-0081 has an effluent limitation of 5.8 µg/L which is more stringent so this Order establishes an MDEL of 5.8 µg/L.

5. Whole Effluent Toxicity (WET)

a. Background and Rationale

The Basin Plan defines toxicity as the adverse response of organisms to chemicals or physical agents.

The Basin Plan establishes a narrative water quality objective for toxicity:

"All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life."

WET testing protects receiving waters from the aggregate toxic effect of a mixture of pollutants in the effluent. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a short or a longer period of time and may measure mortality, reproduction, and growth. A chemical at a low concentration could have chronic effects but no acute effects until the chemical was at a higher concentration.

Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 established acute toxicity effluent limitations for storm water discharges. The Discharger reported 105 failed acute toxicity tests from June 2009 to June 2014 which includes the 2013/2014 monitoring year, indicating the presence and reasonable potential for toxicity in the discharge of storm water from the Facility. Further, the presence of numerous priority pollutants present in the industrial wastewaters indicate reasonable potential for toxicity within those discharges as well.

In discussions with USEPA Region 9, USEPA has informed San Diego Water Board staff that the application of chronic toxicity monitoring and effluent limitations are more desirable than acute toxicity because chronic toxicity is more conservative and provides a better indicator of chronic effects to organisms in the receiving water, other than organism mortality. Chronic effects, such as detrimental physiological responses (affecting fertilization, growth, reproduction, etc.) may be present, even when acute effects such as the death of an organism are not apparent. The use of chronic toxicity allows for a more accurate determination of the narrative water quality objective, which specifies *"detrimental physiological responses"*. Many detrimental physiological responses are not addressed when the test is limited to simply percent survival.

Based on the USEPA Region 9 guidance, chronic toxicity monitoring and effluent limitations are established in this Order for the discharge of industrial process waters (steam condensate and diesel engine cooling water) at the Facility. Because chronic toxicity is considered to be a more conservative indicator of toxicity, and the monitoring of all industrial process wastewater sample locations for both acute and chronic toxicity would be costly and redundant, the monitoring requirements and effluent limitations for acute toxicity have been removed for industrial process water based on the application of the more conservative chronic toxicity requirements. If the Discharger complies with effluent limitations for chronic toxicity, they will achieve water quality greater than that necessary to achieve compliance with acute toxicity effluent limitations.

The State Water Board has not adopted a policy or plan for regulating toxicity in storm water discharges. NBC currently has acute toxicity effluent limitations for industrial storm water discharges which they have not been able to achieve. An acute toxicity effluent limitation from Order R9-2009-0081 as modified by Order No. R9-2010-0057 has been carried over to this Order for industrial storm water and incorporates USEPA's guidance on the Test of Significant Toxicity (TST) approach. This Order also allows the Navy to conduct a study on chronic toxicity in industrial storm water discharges to evaluate appropriate instream waste concentration (IWC) for discharges to San Diego Bay. Because there is no established policy and the potential effects on receiving waters from chronic toxicity in industrial storm water discharges are not well understood, this Order maintains the acute toxicity effluent limitation for Industrial High Risk Areas storm water discharges. The San Diego Water Board may choose to establish end-of-pipe chronic toxicity effluent limitations for Industrial High Risk Areas storm water discharges in the future. In developing such a limitation, an IWC of 100 percent will be assumed unless mixing zones or dilution credits are authorized by the San Diego Water Board.

Navy Acute Toxicity Effluent Limitation Challenge

During the previous renewal of the Discharger's NPDES permits for NBPL and NBC in 2002 and 2003, the Discharger challenged the acute toxicity limitation, asserting that the acute toxicity limitation is not based on scientific data, that it is overly stringent for protecting water quality, and that diversion of all storm water runoff to the sanitary sewer is the only effective BAT/BCT for meeting the effluent limitation. The Discharger's challenge to the acute toxicity effluent limitation is addressed below because this Order establishes acute toxicity effluent limitations for storm water and chronic toxicity effluent limitations for applicable industrial wastewaters.

The acute toxicity effluent limitation established in Order No. R9-2009-0081 was established to implement the Basin Plan water quality objective for toxicity in receiving waters. The effluent limitation was derived from, and is essentially the same as, the acute toxicity discharge standard contained in the Bays and Estuaries Policy.

The Discharger's NPDES permits contained provisions which allowed the Discharger to recommend, after conducting a required study, alternative scientifically valid survival rates for acute exposure to discharges of storm water from industrial areas at the Discharger's facilities. The Discharger conducted a study to develop a scientifically defensible, and appropriate, toxicity limitation for industrial storm water discharges from Naval facilities to San Diego Bay. The results of the study were summarized in a Final Report, *Storm Water Toxicity Evaluation Conducted at: Naval Station San Diego, Naval Submarine Base San Diego, Naval Amphibious Base Coronado, and Naval Air Station North Island*, dated May 2006.

The Discharger's final recommendations included in the report are summarized below:

- The use of appropriate USEPA WET test methods and data evaluation when declaring a test result as toxic.
- Acknowledge WET method variability and the minimum significant difference that laboratory testing can provide in declaring a toxic result.
- Consideration of realistic exposure conditions when using WET testing to infer toxicity in the receiving water.

In addition, the Discharger submitted comments regarding the current acute toxicity requirements. Comments of significant importance are summarized below:

- The Discharger requested that the existing storm water toxicity testing language be revised to require a statistical comparison of discharge toxicity results with control sample toxicity results using a student t-test, to determine whether a discharge is toxic or not.
- The Discharger requested that the existing storm water toxicity testing language be revised to require the use of percent minimum significant difference, using the 10th and 75th percentiles as lower and upper bounds, respectively, to account for inherent variability of toxicity testing procedures to determine whether a discharge is toxic or not.
- The Discharger requested that the existing storm water toxicity discharge specification language be revised according to two proposed alternatives that presumably consider realistic exposure conditions to infer toxicity in the receiving water.

San Diego Water Board staff stated in a memorandum to the Executive Officer dated August 22, 2006 that the Discharger's proposed toxicity alternatives should not be adopted in their entirety and, "*Toxicity in storm water discharges should not be ignored just because the causative agent is diluted in bay water. Testing times should not be shortened to ensure that the variability inherent to storm water discharges is not causing low level toxicity that may be missed in an acute test.*" However, Order R9-2009-0081 established acute toxicity effluent limitations basted on comparison of the discharge and a control using a statistical analysis.

Toxicity Rationale

The San Diego Water Board has considered the following information in developing toxicity monitoring and effluent limitations:

- The May 2006 storm water toxicity study performed by the Discharger;
- Comments received from the Discharger;
- Discussions with USEPA Region 9;
- USEPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document, An Additional Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data (*EPA 833-R-10-003*);*
- USEPA's June 2010 guidance document titled *National Pollutant Discharge Elimination System Test of Significant Toxicity Technical Document, An Additional Whole Effluent Toxicity Statistical Approach for Analyzing Acute and Chronic Data* (EPA 833-R-10-004);
- The narrative water quality for objective for toxicity contained in the Water Quality Control Plan for the San Diego Basin (Basin Plan); and
- An interpretation of applicable state and federal regulations.

The implementation of toxicity monitoring requirements and effluent limitations for discharges to San Diego Bay and Pacific Ocean are based on a new statistical approach

developed by USEPA that assesses the whole effluent toxicity measurement of wastewater effects on specific test organisms' ability to survive, grow, and reproduce called the TST. This new approach is a statistical method that uses hypothesis testing techniques based on research and peer-reviewed publications. The approach examines whether an effluent at the critical concentration and a control within a whole effluent toxicity test differ by an unacceptable amount (the amount that would have a measured detrimental effect on the ability of aquatic organisms to thrive and survive).

Organism response to the effluent and control are unlikely to be exactly the same, even if no toxicity is present. They might differ by such a small amount that even if statistically significant, it would be considered negligible biologically. A more useful approach could be to rephrase the null hypothesis, "Is the mean response in the effluent less than a defined biological amount?" The Food and Drug Administration has successfully used that approach for many years to evaluate drugs, as have many researchers in other biological fields. In that approach, the null hypothesis is stated as the organism response in the effluent is less than or equal to a fixed fraction (*b*) of the control response (e.g., 0.75 of the control mean response):

Null hypothesis: Treatment mean ≤ *b* * Control mean

To reject the null hypothesis above means the effluent is considered non-toxic. To accept the null hypothesis means the effluent is toxic.

Before the TST null hypothesis expression could be recommended by USEPA, certain Regulatory Management Decisions (RMDs) were needed, including what effect level in the effluent is considered unacceptably toxic and the desired frequency of declaring a truly negligible effect within a test non-toxic.

In the TST approach, the *b* value in the null hypothesis represents the threshold for unacceptable toxicity. For chronic toxicity, the USEPA made the RMD that the *b* value is set at 0.75, which means that a 25 percent effect (or more) at the IWC is considered evidence of unacceptable chronic toxicity. For acute toxicity, the *b* value is set at 0.80.

USEPA's RMDs for the TST method are intended to identify unacceptable toxicity most of the time when it occurs, while also minimizing the probability that the IWC is declared toxic when in fact it is truly acceptable. Additional RMDs by USEPA to achieve this objective were made regarding acceptable maximum false positive (β using a TST approach) and false negative rates (α using a TST approach).

In the TST approach, the RMDs are defined as follows:

1. Declare a sample toxic between 75 – 95 percent of the time ($0.05 \leq \alpha \leq 0.25$) when there is unacceptable toxicity.

2. Declare an effluent non-toxic no more than 5 percent of the time ($\beta \leq 0.05$) when the effluent effect at the critical effluent concentration is 10 percent.

USEPA used valid toxicity data from approximately 2,000 WET tests to develop and evaluate the TST approach. The TST approach was tested using nine different whole effluent toxicity test methods comprising twelve biological endpoints and representing most of the different types of whole effluent toxicity test designs in use. More than one

million computer simulations were used to select appropriate alpha error rates for each test method that also achieved USEPA's other RMDs for the TST approach.

Effluent limitations are established using the TST "pass" "fail" approach as well as a percent effect.

Chronic Pass: A test result that rejects the null hypothesis (Ho) below is reported as "Pass" in accordance with the TST approach:

Ho: Mean response (100 percent effluent) ≤ 0.75 × Control mean response

Chronic Fail: A test result that does not reject the null hypothesis (Ho) above is reported as "Fail" in accordance with the TST approach.

Percent Effect: The percent effect at the IWC is calculated for each test result using the following equation:

$$\% \text{ Effect at IWC} = \frac{\text{Mean Control Response - Mean IWC Response}}{\text{Mean Control Response}} * 100$$

A Maximum Daily Effluent Limitation (MDEL) and Median Monthly Effluent Limitation (MMEL) for chronic toxicity are established for applicable industrial process wastewaters (steam condensate and diesel engine cooling water). The MDEL is exceeded and a violation will be flagged when a toxicity test during routine monitoring results in a "fail" in accordance with the TST approach and the percent effect relative to a control is greater than or equal to 50%. The MMEL is exceeded when the median results of three independent toxicity tests, conducted within the same calendar month, and analyzed using the TST, (i.e. two out of three) is a "fail".

Acute Pass: An acute toxicity test result that rejects the null hypothesis (Ho) below is reported as "pass" in accordance with the TST approach:

Ho: Mean response (100 percent effluent) ≤ 0.80 × Control mean response

Acute Fail: An acute toxicity test result that does not reject the null hypothesis (Ho) above is reported as "fail" in accordance with the TST approach.

A MDEL for acute toxicity is established for Industrial High Risk Areas storm water discharges and is exceeded when a toxicity test during routine monitoring results in a "fail" in accordance with the TST approach and the percent effect relative to a control is greater than or equal to 40%.

In June 2010, USEPA published a guidance document titled, *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, June 2010), in which they recommend the following: "Permitting authorities should consider adding the TST approach to their implementation procedures for analyzing valid WET data for their current NPDES WET Program." The TST approach is another statistical option for analyzing valid WET test data. Use of the TST approach does not result in any changes to USEPA's WET test methods. USEPA's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014)*, recognizes that, "the statistical methods in this manual are not the only possible methods of statistical

analysis." The TST approach can be applied to acute (survival) and chronic (sublethal) endpoints and is appropriate to use for both freshwater and marine EPA WET test methods.

USEPA's WET testing program and acute and chronic WET methods rely on the measurement result for a specific test endpoint, not upon achievement of specified concentration-response patterns to determine toxicity. USEPA's WET methods do not require achievement of specified effluent or ambient concentration-response patterns prior to determining that toxicity is present. Nevertheless, USEPA's acute and chronic WET methods require that effluent and ambient concentration-response patterns generated for multi-concentration acute and chronic toxicity tests be reviewed—as a component of test review following statistical analysis—to ensure that the calculated measurement result for the toxicity test is interpreted appropriately (EPA-821-R-02-012, section 12.2.6.2; EPA-821-R-02-013, section 10.2.6.2.). In 2000, EPA provided guidance for such reviews to ensure that test endpoints for determining toxicity based on the statistical approaches utilized at the time the guidance was written (NOEC, LC50's, IC25s) were calculated appropriately (EPA 821-B-00-004).

Appropriate interpretation of the measurement result from USEPA's TST statistical approach (pass/fail) for effluent and receiving water samples is, by design, independent from the concentration-response patterns of the toxicity tests for those samples. Therefore, when using the TST statistical approach, application of EPA's 2000 guidance on effluent and receiving waters concentration-response patterns will not improve the appropriate interpretation of TST results as long as all Test Acceptability Criteria and other test review procedures—including those related to Quality Assurance for effluent and receiving water toxicity tests, reference toxicity tests, and control performance (mean, standard deviation, and coefficient of variation)—described by the WET test methods manual and TST guidance, are followed. The 2000 guidance may be used to identify reliable, anomalous, or inconclusive concentration-response patterns and associated statistical results to the extent that the guidance recommends review of test procedures and laboratory performance already recommended in the WET test methods manual. The guidance does not apply to single-concentration (IWC) and control statistical t-tests and does not apply to the statistical assumptions on which the TST is based. The Regional Water Board will not consider a concentration-response pattern as sufficient basis to determine that a TST t-test result for a toxicity test is anything other than valid, absent other evidence. In a toxicity laboratory, unexpected concentration-response patterns should not occur with any regular frequency and consistent reports of anomalous or inconclusive concentration-response patterns or test results that are not valid will require an investigation of laboratory practices.

Any Data Quality Objectives or Standard Operating Procedure used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent or receiving water toxicity test measurement results from the TST statistical approach which include a consideration of concentration-response patterns and/or Percent Minimum Significant Difference (PMSDs) must be submitted for review by the Regional Water Board, in consultation with USEPA and the State Water Board's Quality Assurance Officer and Environmental Laboratory Accreditation Program (40 CFR section 122.44(h)). As described in the bioassay laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Resources Control Board dated August 7, 2014, and from the USEPA dated December 24, 2013, the PMSD criteria only apply to compliance for NOEC and the sublethal endpoints of the NOEC, and are not used to interpret TST results.

A percent effect of 50% for chronic toxicity and 40% for acute toxicity has been incorporated into the MDEL. The decision to conduct a Toxicity Identification Evaluation (TIE) is based upon consideration of multiple factors such as the magnitude and persistence of toxicity. The magnitude of toxicity present in effluent is an important consideration because a moderate to high level of toxicity typically yield more successful results. Usually, TIEs can be successfully conducted on samples producing at least 50 percent effect (e.g., >50% mortality or reduction in reproduction), and this value is recommended for general use in selecting samples for TIEs. Effective TIEs can also be conducted with less toxic samples (e.g., >25% effect), but there is a greater chance of the TIE being inconclusive due to changes in toxicity with storage or variability in response (Norberg-King et al. 2005). A percent effect of 50% for chronic toxicity and 40% for acute toxicity has been incorporated into the MDEL based on recommendations from USEPA and to facilitate a successful TIE.

The IWC for these discharges are established at 100% effluent. Because the San Diego Water Board has no documentation to support a different IWC, the IWC is defined as 100 percent effluent (undiluted). This IWC is consistent with other San Diego Water Board's NPDES permitted discharges to San Diego Bay which do not allow dilution. This Order allows further study on the appropriate IWC for chronic toxicity observed in industrial storm water discharges to San Diego Bay.

The San Diego Water Board finds that the application of USEPA's TST method with the 50% effect for chronic toxicity and 40% effect for acute toxicity is scientifically defendable and appropriate for the determination of compliance with the Basin Plan's narrative objective for toxicity and an acceptable alternative to the Ocean Plan's toxicity objective for discharges to the Pacific Ocean. As such, toxicity monitoring requirements, analysis, and effluent limitations are established in this Order based on USEPA's TST method and a 50% effect for chronic toxicity and 40% effect for acute toxicity. Taken together, these refinements of using chronic toxicity instead of acute toxicity for industrial process wastewater and using the TST approach with the appropriate percent effect clarifies the requirements for toxicity analyses, provide the Discharger with the positive incentive to generate high quality data, and affords greater protection of aquatic life.

b. Acute Toxicity

Acute toxicity effluent limitations have been maintained for industrial high risk storm water discharges and have been updated to use the USEPA's TST method with a percent effect of 40%.

c. Chronic Toxicity

As previously discussed, chronic toxicity monitoring requirements and effluent limitations have been established for industrial process wastewater discharges demonstrated to have toxic pollutants in toxic concentrations, consistent with the State Water Board's draft Toxicity Policy and USEPA's TST approach.

This Order also requires the Discharger to implement BMPs to prevent or eliminate toxicity, investigate the causes of any toxicity, and identify and implement corrective actions to reduce or eliminate effluent toxicity.

D. Final Effluent Limitations

Industrial process wastewater discharges regulated under this order include pier washing, utility vault and manhole dewatering, pier boom cleaning, boat rinsing, steam condensate, and diesel engine cooling water.

1. BMP Regulated Industrial Process Wastewater. The discharge of pier washing wastewater at Discharge Point No. PW-001 and Utility Vault and Manhole Dewatering at Discharge Point No. UV-001 through UV-013 in Table 4 is regulated using a narrative effluent limitation BMP approach under section VI.C.3 of this Order. Pier boom cleaning and boat rinsing have no discharge to surface waters require BMPs under section VI.C.3 of this Order to prevent discharges.

Table F-21. Industrial Process Wastewaters Regulated with BMPs

Type of Discharge	Discharge Point Nos.
Pier Washing Wastewater	PW-001
Utility Vault and Manhole Dewatering	UV-001 through UV-013
Pier Boom Cleaning	No Discharge
Boat Rinsing	No Discharge

2. Steam Condensate Discharges. Effluent Limitations for Steam Condensate – Discharge Point Nos. SC-001 through SC-010

a. Applicable TBELs and WQBELs for pH have been applied in this Order. Both TBELs and WQBELs are applicable to discharges to San Diego Bay (6.0 – 9.0 standard units and 7.0 – 9.0 standard units, respectively). To ensure the protection of water quality, the more stringent lower and upper limitations for pH (7.0 to 9.0) have been applied as final effluent limitations for discharges to San Diego Bay in this Order. These limits have also been applied as final effluent limitations for discharges of steam condensate to the Ocean (SC-10) to maintain the pH limitations from the current permit.

b. Order No. R9-2009-0081 has a maximum daily effluent limitation of 11.8 µg/L for Bis(2-Ethylhexyl)Phthalate in steam condensate discharges to San Diego Bay which is more stringent than the 14 µg/L maximum daily effluent limitation calculated above. The more stringent effluent limitation rounded to two significant figures has been applied in this Order.

c. Order No. R9-2009-0081 established effluent limitations for steam condensate discharges to San Diego Bay. New limitations have been calculated for steam condensate discharges from Discharge Point SC-010 to the Pacific Ocean based on the Ocean Plan except the maximum daily effluent limitation for copper of 5.8 µg/L has been retained from the current permit because it is more stringent than the 12 µg/L calculated above.

d. The Discharger shall maintain compliance with the following effluent limitations in Tables F-20 and F-21 at Discharge Point Nos. SC-001 through SC-010 with compliance measured at Monitoring Locations SC-001 through SC-010 as described in the Monitoring and Reporting Program (MRP), Attachment E of this Order.

Table F-22. Effluent Limitations for Steam Condensate Discharges to San Diego Bay – Discharge Point Nos. SC-001 through SC-009

Parameter	Units	Effluent Limitations			
		Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	30	--	59	--
Copper, Total Recoverable	µg/L	1.9	--	5.8	--
Lead, Total Recoverable	µg/L	3.4	--	12	--
Nickel, Total Recoverable	µg/L	6.8	--	14	--
Selenium, Total Recoverable	µg/L	58	--	120	--
Zinc, Total Recoverable	µg/L	47	--	95	--
2,3,7,8-TCDD	µg/L	$1.4x10^{-8}$	--	$2.8x10^{-8}$	--
Bis(2-Ethylhexyl)Phthalate	µg/L	5.9	--	12	--
Aldrin	µg/L	0.00014	--	0.00028	--
4,4'-DDT	ug/L	0.00059	--	0.00118	--
4,4'-DDE	ug/L	0.00059	--	0.00118	--
4,4'-DDD	ug/L	0.00084	--	0.00169	--
Heptachlor	µg/L	0.00021	--	0.00042	--
Heptachlor Epoxide	µg/L	0.00011	--	0.00022	--
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	ml/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	standard units	--	--	[1]	[1]
Chronic Toxicity	Pass/Fail	[2]	--	[2]	--

[1] Within limits of 7.0 – 9.0 standard units at all times.
[2] As defined in section VII.J of the Order.

Table F-23. Effluent Limitations for Steam Condensate Discharges to the Pacific Ocean – Discharge Point No. SC-010

Parameter	Units	Effluent Limitations				
		6-Month Median	Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Copper, Total Recoverable	µg/L	3	--	--	5.8	30
Lead, Total Recoverable	µg/L	2	--	--	8	20
Zinc, Total Recoverable	µg/L	20	--	--	80	200
TCDD Equivalents	µg/L	--	$3.9x10^{-9}$	--	--	--
Bis(2-Ethylhexyl)Phthalate	µg/L	--	3.5	--	--	--
Oil and Grease	mg/L	--	25	40	--	75
Settleable Solids	ml/L	--	1.0	1.5	--	3.0
Turbidity	NTU	--	75	100	--	225
pH	standard units	--	--	--	[1]	[1]
Chronic Toxicity	Pass/Fail	--	[2]	--	[2]	--

[1] Within limits of 7.0 – 9.0 standard units at all times.
[2] As defined in section VII.J of the Order.

3. Diesel Engine Cooling Water Discharges. Final Effluent Limitations for Diesel Engine Cooling Water – Discharge Point No. CW-001

a. The Discharger shall maintain compliance with the following effluent limitations in Table F-22 at Discharge Point No. CW-001 with compliance measured at Monitoring Location CW-001 as described in the MRP, Attachment E of this Order.

Table F-24. Effluent Limitations for Diesel Engine Cooling Water

Parameter	Units	Effluent Limitations			
		Average Monthly	Weekly Average	Maximum Daily	Instantaneous Maximum
Arsenic, Total Recoverable	µg/L	20	--	62	--
Chromium VI, Total Recoverable	µg/L	27	--	85	--
Copper, Total Recoverable	µg/L	2.0	--	5.8	--
Lead, Total Recoverable	µg/L	5.8	--	15	--
Nickel, Total Recoverable	µg/L	5.7	--	15	--
Selenium, Total Recoverable	µg/L	58	--	120	--
Zinc, Total Recoverable	µg/L	37	--	95	--
4,4-DDT	µg/L	0.00059	--	0.0017	--
4,4-DDE	µg/L	0.00059	--	0.0012	--
4,4-DDD	µg/L	0.00084	--	0.0017	--
Oil and Grease	mg/L	25	40	--	75
Settleable Solids	ml/L	1.0	1.5	--	3.0
Turbidity	NTU	75	100	--	225
pH	standard units	--	--	[1]	[1]
Chronic Toxicity	Pass/Fail	[2]	--	[2]	--

[1] Within the limit of 7.0 – 9.0 standard units at all times.
[2] As defined in section VII.J of the Order.

b. Order No. R9-2009-0081 has an average monthly effluent limitation of 5.8 µg/L for lead in cooling water discharges to San Diego to San Diego Bay which is more stringent than the 6.3 µg/L effluent limitation calculated above. The more stringent effluent limitation has been applied in this Order.

4. The previous Order required the Discharger to develop and implement a SWPPP for storm water discharges throughout the Facility, as authorized by CWA section 304(e) and section 402(p). The requirements to update and implement a SWPPP are carried over from the previous Order.

5. Discharges of pollutants in storm water discharges, from areas designated under section IV.B.1 of this Order as Industrial High Risk Areas, to Waters of the U.S. from Discharge Points specified in Attachment M of this Order shall maintain compliance with the MDEL for acute toxicity. The MDEL is based on the outcome of the TST approach and the resulting percent effect at the IWC in accordance with Compliance Determination, section VII. of this Order.

E. Satisfaction of Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. All effluent limitations in this Order are at least as stringent as the effluent limitations in Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 and meet state and federal anti-backsliding requirements. Effluent limitations for reverse osmosis product water have been removed because the Discharger no longer discharges this category of effluent. Further, effluent limitations for previous discharge points not authorized by this Order for steam condensate and diesel engine cooling water have been removed and discharges from these locations are prohibited.

F. Satisfaction of Antidegradation Policy

WDRs for the Discharger must conform with federal and state antidegradation policies provided at 40 CFR section 131.12 and in State Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California*. The antidegradation policies require that beneficial uses and the water quality necessary to maintain those beneficial uses in the receiving waters of the discharge shall be maintained and protected, and, if existing water quality is better than the quality required to maintain beneficial uses, the existing water quality shall be maintained and protected unless allowing a lowering of water quality is necessary to accommodate important economic and social development or is consistent with maximum benefit to the people of California. When a significant lowering of water quality is allowed by the San Diego Water Board, an antidegradation analysis is required in accordance with the State Water Board's Administrative Procedures Update (July 2, 1990), *Antidegradation Policy Implementation for NPDES Permitting*.

The discharge of steam condensate at 66 discharge points to San Diego Bay was previously authorized in Order No. R9-2009-0081, however, some of these discharges were to the Pacific Ocean not San Diego Bay. This Order authorizes the discharge of steam condensate from Discharge Points SC-001 through SC-009 to San Diego Bay and Discharge Point SC-010 to the Pacific Ocean. Discharge Point SC-010 is in the same discharge location as Discharge Point SC-061 authorized in Order No. R9-2009-0081. The receiving water for SC-061 was mischaracterized in Order No. R9-2009-0081 as a discharge to San Diego Bay. Discharges from Discharge Point SC-010 (previously SC-061) are expected to be low volume and infrequent, and the Discharger has removed 62 discharge points for steam condensate, many of which are also anticipated to have been mischaracterized as discharges to San Diego Bay, and significantly reduced the total discharge flow. WQBELs have been established that are protective of water quality and are at least as stringent as in Order No. R9-2009-0081. The correction of this receiving water error is not anticipated to result in a lowering of water quality within the receiving water and is consistent with state and federal antidegradation requirements.

The limitations and requirements of this Order are more stringent than established in Order No. R9-2009-0081 as modified by Order No. R9-2010-0057. The permitted discharge is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

G. Stringency of Requirements for Individual Pollutants

This Order contains both TBELs and WQBELs for individual pollutants. The TBELs applied in the Order consist of restrictions on oil and grease, settleable solids, turbidity, and pH as specified in Table 2 of the Ocean Plan; a requirement to continue to implement a BMP and PPP for utility vault and manhole dewatering discharges; a requirement to develop and maintain a BMP Plan to prevent discharges from pier boom, fender, and mooring cleaning; and a requirement to continue to implement a SWPPP for toxic pollutants and hazardous substances in storm water runoff. These restrictions and requirements are discussed in section IV.B.2. of this Fact Sheet. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. These limitations are not more stringent than required by the CWA.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP. WQBELs were also derived from the Ocean Plan using scientific procedures established in the Ocean Plan. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30,2000, but not approved by USEPA before that date, are nonetheless *"applicable water quality standards for purposes* of *the CWA"* pursuant to section 131.21 (c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

H. Storm Water Risk Level Designations

This Order addresses storm water discharges from various locations throughout the Facility, with varying degrees of industrial activity and potential to impact water quality. As such, a tiered approach has been applied in this Order to control storm water discharges, including MS4 requirements, industrial storm water requirements, and effluent limitations. To apply the appropriate controls for storm water, the Discharger is required to identify all storm water outfalls located at the Facility, and designate the outfalls as Industrial High Risk Areas, Industrial Low Risk Areas, Industrial No Exposure Areas, or Small Military Base MS4 Areas.

Because operations at the Facility are subject to change, annual site surveys are necessary to account for any operational changes that may occur at the Facility to ensure that appropriate regulatory mechanisms are being applied. In addition, the Discharger shall conduct periodic inspections throughout the year to ensure that storm water risk level designations remain applicable.

I. Small Military Base MS4 Discharge Specification

The San Diego Water Board finds that Phase II MS4 requirements are applicable to storm water discharges from non-industrial portions of the Facility. As such, applicable requirements of the Phase II MS4 program, consistent with the requirements 40 CFR section 122.44(k) and the 6 minimum control measures identified in 40 CFR section 122.34(b) have been applied to ensure discharges of storm water from non-industrial areas meet the minimum requirement of MEP. Specific requirements have been established where necessary to increase the tracking and enforceability of the Discharger's SWMP. This approach is consistent with the requirements of

the current Naval Base San Diego Permit (Order No. R9-2013-0064) and Naval Base Point Loma Permit (R9-2014-0037) which include regulation of Phase II MS4 storm water discharges.

J. Industrial Storm Water Discharge Specifications

a. Pollutant Reduction to BAT/BCT. NPDES Permits for storm water discharges must meet all applicable provisions of sections 301 and 402 of the CWA. These provisions require control of pollutant discharges using best available technology economically achievable (BAT) and best conventional pollutant control technology (BCT) to prevent and reduce pollutants and any more stringent controls necessary to meet water quality standards.

b. Storm Water Pollution Prevention Plan (SWPPP) for Industrial Areas. Prior to the adoption of Order No. 2002-0002, the storm water discharges at the Facility were regulated by the State Water Board's *General Order for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities* (Order No. 97-03-DWQ, NPDES No. CAG000001). To carry out the purpose and intent of the CWA, Order No. 97-03-DWQ and subsequently Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 required the Discharger to develop and implement a SWPPP, as authorized by CWA section 304(e) and section 402(p), for toxic pollutants and hazardous substances, and for the control of storm water discharges. Consistent with Order No. 97-03-DWQ and Order No. R9-2009-0081 as modified by Order No. R9-2010-0057, this Order requires the Discharger to continue to implement and regularly update an adequate SWPPP as specified in Attachment G. The SWPPP requirement is explained in more detail in section IV.B.2 of this Fact Sheet and in Attachment G.

c. Numeric Action Levels (NALs). Consistent with the direction of the State Water Board, this Order establishes NALs based on USEPA's benchmarks with a tiered compliance strategy of establishing industrial storm water risk levels. This risk level strategy is explained in more detail in section IV.B. of this Order.

K. Non-Storm Water Discharge Specifications

Discharge specifications for the discharge of exempted non-storm water discharges as specified in section IV.F of this Order are based on the requirements of 40 CFR section 122.26(d). These discharge specifications exempt the discharge of certain wastes from prohibition that are not currently expected to be a significant source of pollutants to the receiving waters.

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

A. Surface Water

Receiving water limitations in this Order are derived from the water quality objectives for bays and estuaries established by the Basin Plan (1994), the Bays and Estuaries Policy (1974), the CTR (2000), the State Implementation Policy (2005), the Ocean Plan (2012) and the State Water Board's Sediment Quality Plan (2008). San Diego Bay is listed as impaired for copper, PCBs, sediment toxicity, and benthic community effects in the area near the Facility. This 303(d) impairment and elevated effluent concentrations for these parameters demonstrates that there is reasonable potential to cause or contribute to an exceedance of the sediment quality objectives which have been included as receiving water limitations.

VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 CFR requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the San Diego Water Board to require technical and monitoring reports. The Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Industrial Storm Water Monitoring Location Study and Annual Report

In order to determine compliance with effluent limitations, action levels, and evaluate the effectiveness of BMPs specified in the SWPPP, this order establishes monitoring requirements for industrial storm water. The San Diego Water Board recognizes that establishing monitoring requirements at all discharge locations would be redundant and an inefficient use of resources. Monitoring is only necessary at representative discharge locations for industrial storm water. This directive requires the discharger to identify representative monitoring locations for these discharges, and verify these monitoring locations annually. Monitoring includes visual as well as sample collection.

B. Core Monitoring Requirements

1. Influent Monitoring – Not Applicable

2. Industrial Wastewater Effluent Monitoring

Pursuant to the requirements of 40 CFR section 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of BMPs and pollution prevention plans, and to assess the impacts of the discharge on the receiving water. Effluent monitoring is necessary to address the following primary questions:

- Does the effluent meet permit effluent limitations based on water quality standards for the receiving water?
- What is the mass discharged annually of each constituent monitored?
- How much pier washing occurs?
- Is the discharge a major source of pollutants?

1. Steam Condensate (Monitoring Locations SC-001 through SC-010)

a. Quarterly effluent flow monitoring has been established to determine the volume of condensate being discharged from the Facility into the receiving waters.

b. Quarterly monitoring has been established to evaluate compliance with applicable WQBELs for pollutants that the discharge has reasonable potential to exceed or contribute to an exceedance of water quality.

c. Quarterly monitoring has been established for antimony, arsenic, and nickel which had inconclusive reasonable potential analysis.

d. Quarterly monitoring has been established to evaluate compliance with effluent limitations for oil and grease, turbidity, pH, and settleable solids.

e. Annual monitoring has been established to evaluate compliance with the WET limitation.

f. Monitoring the remaining priority pollutants has been established annually so that reasonable potential for all priority pollutants can be evaluated during the next permit renewal.

2. Diesel Engine Cooling Water (Monitoring Location CW-001)

a. Quarterly effluent flow monitoring has been established to determine the volume of condensate being discharged from the Facility into the receiving waters.

b. Quarterly monitoring has been established to evaluate compliance with applicable WQBELs for pollutants that the discharge has reasonable potential to exceed or contribute to an exceedance of water quality.

c. Quarterly monitoring has been established to evaluate compliance with effluent limitations for oil and grease, turbidity, pH, temperature, and settleable solids.

d. Annual monitoring has been established to evaluate compliance with the WET limitation.

e. Monitoring the remaining priority pollutants has been established annually so that reasonable potential for all priority pollutants can be evaluated during the next permit renewal.

3. Pier Washing Monitoring (Monitoring Location PW-001)

An annual log of pier washing activities has been established to track this discharge. Monitoring requirements have been reduced to just those necessary to evaluate compliance with applicable NPDES permit requirements and are BMP focused.

4. Utility Vaults and Manhole Dewatering Monitoring (Monitoring Locations UV-001 through UV-013)

a. Annual effluent flow monitoring has been established to determine the volume of effluent being discharged from the Facility into the San Diego Bay.

b. Annual effluent monitoring of total petroleum hydrocarbons-diesel range organics, total petroleum hydrocarbons- gasoline range organics, oil and grease, pH, and total suspended solids has been established to characterize the discharge of utility vault and manhole dewatering from the Facility into the San Diego Bay for these pollutants of concern for this category of effluent.

c. In order to evaluate BMP implementation and characterize utility vault activities, this Order requires the Discharger to submit a log of the utility vault and manhole dewatering discharges annually.

C. Whole Effluent Toxicity (WET) Testing Requirements

The WET testing is designed to address the following primary questions:

- Does the effluent meet permit effluent limitations for toxicity based on water quality standards for the receiving water?

  If not:

  - Are unmeasured pollutants causing risk to aquatic life?
  - Are pollutants in combination causing risk to aquatic life?
- Does the storm water runoff meet receiving water limitations for toxicity in the receiving water?
- Are conditions in receiving water getting better or worse with regard to toxicity?
- What is the relative storm water runoff contribution to the receiving water toxicity?
- What are the causes of the toxicity and the sources of the constituents responsible?

As discussed above in section IV.C.5 of this Fact Sheet, chronic and acute toxicity effluent limitations established in this Order are based on USEPA's TST and percent effect. Chronic toxicity effluent limitations have been established for industrial process water discharges established in Order No. R9-2009-0081 as modified by Order No. R9-2010-0057. Acute toxicity effluent limitations and monitoring are maintained for industrial storm water. Chronic toxicity monitoring is also required for industrial storm water.

Past sampling of storm water at the Facility shows the presence and reasonable potential for toxicity in the discharge of industrial storm water from the Facility (96 exceedances from December 7, 2009 through May 6, 2013). This Order requires the Discharger to conduct additional toxicity testing for exceedances of the toxicity effluent limitations. If the additional tests demonstrate toxicity, the Discharger is required to submit a Toxicity Reduction Evaluation (TRE) Workplan in accordance with USEPA guidance which shall include: further steps taken by the Discharger to investigate, identify, and correct the causes of toxicity; actions the Discharge will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions. This provision also includes requirements to initiate the TRE/Toxicity Identification Evaluation (TIE) process if the results of toxicity testing exceed the effluent limitation for toxicity.

D. Receiving Water Monitoring

Receiving water and sediment monitoring shall be designed and conducted to address the following primary questions:

(1) Does the receiving water meet water quality standards listed in section V of this Order, Receiving Water Limitations?

(2) Are the receiving water conditions getting better or worse over time?

(3) Does the Facility cause or contribute to violations of the Receiving Water Limitations in section V of this Order?

1. Water and Sediment Monitoring Plan

The Discharger is required to submit a Water and Sediment Monitoring Plan within 12 months of the effective date of this Order. The Water and Sediment Monitoring Plan has all the elements required by the State Water Board's Sediment Quality Plan, which became effective on August 25, 2009, to be implemented for both water and sediment for

consistency. A conceptual model, existing data, and ongoing monitoring must be considered in the development of the Water and Sediment Monitoring Plan.

2. Receiving Water Monitoring

a. Monitoring of the receiving water is necessary to determine if the discharges from the Facility are impacting the water quality objectives, applicable beneficial uses, and aquatic life.

b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.

c. Annual monitoring of arsenic, copper, lead, nickel, and zinc in the Pacific Ocean and the San Diego Bay has been established to determine compliance with receiving water limitations and to help determine reasonable potential, as specified in section 1.3 of the SIP, for future permitting efforts. These constituents are required based on the RPA for the steam condensate and diesel engine cooling water, storm water benchmark exceedances, and BPJ.

d. Semiannual temperature monitoring has been established in order to determine compliance with Prohibition III.B for the temperature effluent limitation for discharges of steam condensate.

e. Semiannual chronic toxicity monitoring has been added to assess the impacts of storm water discharges on the receiving water. The Discharger is required to monitor chronic toxicity twice per year concurrently with the end of pipe high risk industrial storm water discharge monitoring required in Table E-8 of this MRP. The receiving water chronic toxicity sample is to be collected in the receiving water adjacent to the storm drain outfall sampled in Table E-8 during the storm event. The results of the chronic toxicity testing in the receiving water shall be included in the Annual Storm Water Report.

f. Annual monitoring of other pollutants identified by the Discharger has been added for pollutants identified by the Discharger during routine monitoring of industrial process water or storm water.

3. Sediment Monitoring

a. This Order establishes monitoring and analysis requirements consistent with the State Water Board's Sediment Quality Plan.

b. Monitoring locations will be determined in the Water and Sediment Monitoring Plan.

c. Sediment chemistry, toxicity, and benthic community monitoring are required in accordance with, and at a minimum, the requirements under the State Water Board's Sediment Quality Plan.

4. Monitoring Coalitions

To achieve maximum efficiency and economy of resources, the San Diego Water Board encourages and may require San Diego Bay dischargers to establish or join a San Diego Bay water body monitoring coalition. Monitoring coalitions enable the sharing of technical resources, trained personnel, and associated costs and create an integrated water and sediment monitoring program within each water body. Focusing resources on water body issues and developing a broader understanding of pollutants effects in these water bodies

enables the development of more rapid and efficient response strategies and facilitates better management of water and sediment quality.

5. Water Column and Sediment Monitoring Report

The Discharger or water body monitoring coalition is required to submit a Water and Sediment Monitoring Report at least twice during a permit cycle in accordance with the schedule contained in the Water and Sediment Monitoring Plan unless otherwise directed in writing by the San Diego Water Board. Receiving water sampling will be done annually and sediment sampling will be done at least twice during the term of this Order, so two reports during a permit cycle will allow more samples to be collected and reported in one report.

E. Other Monitoring Requirements

1. The discharge of industrial contact storm water to the San Diego Bay or the Pacific Ocean may contain pollutants from the surrounding area which could contribute to the exceedance of the water quality criteria/objectives of the receiving waters. Industrial storm water monitoring requirements have been established to determine the effects of storm water discharges on the receiving water and monitor the effectiveness of the SWPPP to meet applicable NALs and receiving water limits. Order No. R9-2009-0081 as modified by Order No. R9-2010-0057 required monitoring of industrial storm water for oil and grease, total suspended solids (TSS), pH, copper, zinc, acute toxicity, electrical conductivity, settleable solids, total organic carbon, total petroleum hydrocarbons, and other pollutants identified by the Discharger as likely to be present, at two storms per year. The Discharger was also required to monitor for remaining priority pollutants for two storm events for the first and last year of the permit term.

Under this Order, industrial areas on NBC have been divided into three categories: Industrial No-Exposure, Industrial Low Risk, and Industrial High Risk. Each category has different monitoring requirements. Industrial storm water monitoring has been retained for copper, zinc, acute toxicity, oil and grease pH, TSS, and other parameters identified by the Discharger as likely to be present within storm water discharges from highly industrial areas. Additional monitoring has been established for metals (arsenic, cadmium, mercury, nickel, selenium, and silver) that are either bioaccumulative and a greater risk to the receiving water, or are often found in the discharge of storm water from highly industrial areas. Additionally, monitoring for nutrients has been added to evaluate potential eutrophication impacts on the receiving waters. There is limited information on pollutants in storm water from the Facility. Because of this limited information, the Discharger is required to monitor industrial high risk areas for all of the NAL pollutants in Table G-1 of Attachment G to this Order. Monitoring of these additional pollutants can be discontinued after four consecutive sample events where the parameter is not detected or is below the Annual NAL values in Table G-1 of Attachment G to this Order.

Industrial storm water monitoring frequency has been increased to two storms per semiannual period in conformance with the statewide Industrial Storm Water General Permit.

Chronic toxicity monitoring has been established in addition to acute toxicity for discharges from “Industrial High Risk Areas” to determine reasonable potential. The industrial storm water monitoring program is designed to address the following primary questions:

- Does the runoff meet permit effluent limitations for toxicity thereby ensuring water quality standards are achieved in the receiving water?
- Does the runoff meet the NALs?
- Is the SWPPP being properly implemented?
- Is the Facility achieving standards of BAT and BCT?

2. The Discharger is required to submit a sampling plan for Small Military Base MS4 storm water discharges within 24 months of the effective date of this Order. A minimum subset of three representative monitoring locations for storm water and dry-weather discharges within the Small Military Base MS4 Areas of the Facility. These monitoring locations shall be sampled for pollutants identified by the Discharger. Sampling and analysis is required twice per year for storm water and twice per year for dry-weather. The Small Military Base MS4 monitoring program shall be designed to address the following primary questions:

- Is the SWMP being properly implemented?
- Is the Facility achieving the standard of reducing pollutants in MS4 discharges to the MEP?

3. Monitoring requirements for spill and illicit discharges are in this Order to help determine the effectiveness of the BMP Plan and ensure that appropriate BMPs are properly implemented. This log is designed to answer the following primary monitoring questions:

- Are there more frequent and/or bigger spills at this Facility than at other similar facilities?
- Are spills and illicit discharges properly addressed and are measures being taken or planned to reduce, eliminate, and prevent them in the future?

VII. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR section 122.42.

Section 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all state-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in this Order. 40 CFR section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Monitoring and Reporting Program (MRP) Requirements

Language in this section requires the Discharger to properly implement and submit self-monitoring reports (SMRs) to the San Diego Water Board and Discharger Monitoring Reports (DMRs) for USEPA to the State Water Board. Telephone and fax numbers are also provided. The San Diego Water Board office may be relocated. Dischargers will be notified of new contact information.

C. Special Provisions

1. Reopener Provisions

This Order includes a list of circumstances when this Order may be reopened.

2. Special Studies and Additional Monitoring Requirements

Requirements for a TRE/TIE have been incorporated in the MRP. This section discusses a study on the future development of chronic toxicity effluent limitations for industrial high risk areas.

3. Best Management Practices and Pollution Prevention

a. Best Management Practices and Pollution Prevention Plan for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan). As discussed in sections IV.B.2.b and IV.C.4.a of this Fact Sheet, the San Diego Water Board finds that numerical effluent limitations are not feasible for discharges from utility vault and manhole dewatering discharges. Federal Regulations at 40 CFR sections 122.44(k)(3) and (4) authorize the San Diego Water Board to require BMPs to control or abate the discharge of pollutants when numeric effluent limitations are infeasible and when the practices are reasonably necessary to achieve effluent limitations and standards or to carry out the purposes and intent of the CWA.

The development of pollution prevention practices (PPP) provides the flexibility necessary to establish controls which can appropriately address the various utility vault and manhole dewatering discharges. The pollution prevention practices have two major objectives:

i. To identify situations which allow water to collect in the vault or underground structure and lead to a discharge; and

ii. To describe and ensure the implementation of practices that will reduce pollutants in the discharge from normal operations of utility companies.

Similar to BMPs, pollution prevention practices are designed to prevent or control the discharge of pollutants. They may include a schedule of activities, prohibition of practices, maintenance procedures, or other management practices. The Best Management Practices and Pollution Prevention Practices Plan for Utility and Manhole Dewatering Discharges (Utility Vault Plan) is a written document that describes the operator's activities to comply with the requirements of this Order. The Utility Vault Plan is intended to evaluate potential pollutant sources at the site and select and implement appropriate measures designed to prevent or control the discharge of pollutants. Order No. R9-2003-0008 incorporated the pertinent requirements of Order No. 2001-11-DWQ, including the requirement to develop and implement a Utility Vault Plan that included

BMPs to achieve BAT and BCT. According to the *Case Study for Utility Vault and Manhole Dewatering Discharges at Naval Base Point Loma, Naval Base San Diego, and Naval Base Coronado* submitted by the Discharger in May 2007, the Discharger has maintained and implemented the *Pollution Prevention Plan for Utility Vault Dewatering Discharges*, which describes the types of discharges, prohibited discharges, pollution prevention practices and BMPs, and monitoring and inspections of utility vault and manhole discharges. Additionally, the case study states that the Discharger has implemented procedures to eliminate manhole dewatering discharges to surface waters and either pumps the water into an adjacent utility manhole or transfers the water to the sanitary sewer system. However, the Discharger acknowledges the potential for rare emergency situations that would require dewatering of a utility vault or manhole onto the ground surface.

Order No. 2014-0174-DWQ, replacing Order No. 2001-011-DWQ, includes additional specifications for pollution prevention practices for Utility Vault and Manhole Dewatering Discharges for dischargers of utility and manhole dewatering discharges. This Order incorporates the additional specifications from Order No. 2014-0174-DWQ. The Discharger is required to maintain and implement their Utility Vault Plan in accordance with the requirements of Provision VI.C.3.a of this Order. For assistance in developing the Utility Vault Plan, the Discharger may refer to the *California Stormwater BMP Handbook – Industrial/Commercial (January 2003 Edition),* published by the California Stormwater Quality Association, which includes references the Discharger may find useful.

b. BMP Plan for Industrial Process Water Discharges. Due to the nature of activities associated with discharges of pier washing, collecting and treating the associated wastewaters prior to discharge is impractical. Therefore, the San Diego Water Board finds that establishing numeric effluent limitations for pollutants in the specified discharges is not feasible. In accordance with 40 CFR sections 122.44(k)(3) and (4), the San Diego Water Board finds that the implementation of BMPs in lieu of numeric effluent limitations are appropriate. This Order requires the Discharger to develop and implement a BMP Plan that includes, at a minimum, the requirements contained in Attachment I to prevent, or minimize the potential for, the release of pollutants to Waters of the State and Waters of the U.S.

c. CWC section 13263.3(d)(2) Pollution Prevention Plans. Section 13263.3 of the California Water Code states that pollution prevention should be the first step in the hierarchy for reducing pollution and managing wastes. Further, section 13263.3 (d)(1)(D) states that the San Diego Water Board may require a Discharger to complete and implement a pollution prevention plan the San Diego Water Board determines that pollution prevention is necessary to achieve a water quality objective. Based on storm water monitoring results discussed in section II.E.1 of this Fact Sheet, the Discharger has reasonable potential to exceed the water quality objectives for acute toxicity in industrial storm water. Based on storm water monitoring results discussed in section II.D.4 of this Fact Sheet, the Discharger has regularly exceed the benchmarks for copper and zinc in industrial storm water. Pollution prevention is necessary to achieve water quality objectives for these constituents. The Discharger shall develop and implement a Pollution Prevention Plan for acute toxicity, copper, and zinc in industrial storm water, which at a minimum, meets the requirements outlined in CWC section 13263.3(d)(2), for each applicable discharge.

The Pollution Prevention Plan shall, at a minimum, meet the requirements outlined in

CWC section 13263.3(d)(2) and in this Order, for each applicable discharge. The minimum requirements for the pollution prevention plans include the following:

i. An analysis of one or more of the pollutants, as directed by the State Water Board, San Diego Water Board, or a POTW, that the Facility discharges into Waters of the State or introduces into POTWs, a description of the sources of the pollutants, and a comprehensive review of the processes used by the discharger that result in the generation and discharge of the pollutants.

ii. An analysis of the potential for pollution prevention to reduce the generation of the pollutants, including the application of innovative and alternative technologies and any adverse environmental impacts resulting from the use of those methods.

iii. A detailed description of the tasks and time schedules required to investigate and implement various elements of pollution prevention techniques.

iv. A statement of the Discharger's pollution prevention goals and strategies, including priorities for short-term and long-term action.

v. A description of the Discharger's existing pollution prevention methods.

vi. A statement that the Discharger's existing and planned pollution prevention strategies do not constitute cross media pollution transfers unless clear environmental benefits of such an approach are identified to the satisfaction of the State Water Board, the San Diego Water Board, or the POTW, and information that supports that statement.

vii. Proof of compliance with the Hazardous Waste Source Reduction and Management Review Act of 1989 (Article 11.9 (commencing with section 25244.12) of Chapter 6.5 of Division 20 of the Health and Safety Code) if the Discharger is also subject to that act.

viii. An analysis, to the extent feasible, of the relative costs and benefits of the possible pollution prevention activities.

ix. A specification of, and rationale for, the technically feasible and economically practicable pollution prevention measures selected by the Discharger for implementation.

4. Flood and Runoff Protection Requirements

The construction, operation, and maintenance specifications have been retained from Order No. R9-2009-0081 as modified by Order No. R9-2010-0057.

5. Other Special Provisions – Not Applicable

VIII. PUBLIC PARTICIPATION

The San Diego Water Board has considered the issuance of WDRs to serve as an NPDES permit for the U.S. Department of the Navy, Naval Base Coronado. As a step in the WDR adoption process, the San Diego Water Board developed tentative WDRs and has encouraged public participation in the WDR adoption process.

A. Notification of Interested Parties

The San Diego Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided an opportunity to submit written comments and recommendations. Notification was provided through the following: Published in the San Diego Union-Tribune on September 11, 2015, posted on the San Diego Water Board website on September 11, 2015, and sent by e-mail on September 11, 2015.

The public had access to the agenda and any changes in dates and locations through the San Diego Water Board website at http://www.waterboards.ca.gov/rwqcb9/.

B. Written Comments

Interested persons were invited to submit written comments concerning these tentative WDRs. Comments were due either in person or by mail to the Executive Office at the San Diego Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the San Diego Water Board, written comments were due at the San Diego Water Board offices by 5:00 p.m. on October 12, 2015.

C. Public Hearing

The San Diego Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date:	**November 18, 2015**
Time:	**9:00 a.m.**
Location:	**California Regional Water Quality Control Board, San Diego Region** **Board Meeting Room** **2375 North Side Drive, Suite 100** **San Diego, CA 92108**

Interested persons were invited to attend. At the public hearing, the San Diego Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested in writing.

D. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the San Diego Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and CCR title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m. 30 days after the adoption date of this Order at the following address:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100

Copies of the law and regulations applicable to filing petitions may be found on the internet at: ·

http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

E. Information and Copying

The ROWD, other supporting documents, and comments received are on file and may be inspected at the San Diego Water Board address below at any time between 8:00 a.m. and 5:00 p.m., Monday through Friday. To request a file review please contact the San Diego Water Board receptionist at (619) 516-1990, or email rb9_records@waterboards.ca.gov, or fax (619) 516-1994 or mail requests to:

California Regional Water Quality Control Board
San Diego Region
Attention: File Review Request
2375 Northside Drive, Suite 100
San Diego, CA 92108

The office is closed on weekends and on all state holidays.

Before making a request to view public records in the San Diego Water Board office interested persons may wish to determine if the information is already available on the San Diego Water Board's website at http://www.waterboards.ca.gov/sandiego or the State Water Board's website at http://www.waterboards.ca.gov. New and updated information is constantly being added to these websites. For example the San Diego Water Board's website alphabetical index and the State Water Board's Website alphabetical index provide links to many volumes of key documents on the State and Regional Water Board's water quality programs.

The following is a partial list of the documents available:

- Board Meeting Agendas
- Board Meeting Minutes
- Adopted Orders
- Tentative Orders
- Basin Plan
- Ocean Plan

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding this Order should contact the San Diego Water Board, reference this facility, and provide a name, address, and phone number. If possible, email address is preferred.

G. Additional Information

Requests for additional information or questions regarding this Order should be directed to Kristin Schwall at (619) 521-3368 or kschwall@waterboards.ca.gov.

ATTACHMENT G – STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIREMENTS FOR INDUSTRIAL AREAS

I. IMPLEMENTATION SCHEDULE

The Discharger shall continue to implement the existing storm water pollution prevention plan (SWPPP) for all storm water outfalls from the Facility regulated by Order No. R9-2009-0081 until the Discharger has fully completed the implementation of the Storm Water Management Program Requirements specified in section IV.D.2 of the Order. Following full compliance with section IV.D.2 of the Order, the Discharger may phase out coverage of areas designated as "Small Military Base MS4 Area", as defined in section IV.B.1 of the Order, that are adequately addressed under the Storm Water Management Program (SWMP). All storm water outfalls from the Facility are subject to either the SWPPP or the SWMP.

The Discharger shall implement any necessary revisions to its SWPPP to comply with the requirements of this Order within 1 year of the effective date of this Order.

II. SWPPP OBJECTIVES

A. The Discharger's SWPPP shall be prepared and maintained to achieve the following objectives:

1. To reduce or prevent the discharge of pollutants from industrial activities to the technology-based standards of best available technology economically achievable (BAT) for toxic and non-conventional pollutants, and best conventional pollutant control technology (BCT) for conventional pollutants;

2. To achieve compliance with the Receiving Water Limitations in section V of this Order;

3. To identify and evaluate sources of pollutants associated with industrial activities that may affect the quality of the Facility's industrial storm water discharges and authorized non-storm water discharges;

4. To identify, describe, and implement site-specific Best Management Practices (BMPs) to reduce or prevent pollutants associated with industrial activities in storm water discharges and authorized non-storm water discharges;

5. To identify and implement timely revisions and/or updates to the SWPPP.

B. To achieve the SWPPP objectives, the Discharger shall prepare a written Facility-specific SWPPP in accordance with all applicable SWPPP requirements of this attachment. The SWPPP shall include all required maps, descriptions, schedules, checklists, and relevant copies or specific references to other documents that satisfy the requirements of this attachment. The typical development and implementation steps necessary to achieve the described objectives are summarized in Item A-2, located at the end of this attachment.

III. PLANNING AND ORGANIZATION

A. SWPPP Checklist

The SWPPP shall include a SWPPP Checklist (Example checklist is included as Item A-1 below) located at the end of this section. For each requirement listed, the Discharger shall identify the page number where the requirement is located in the SWPPP (or the title, page number, and location of any reference documents), the implementation date or last revision date, and any SWPPP requirements that may not be applicable to the Facility.

B. Pollution Prevention Team

1. The SWPPP shall identify specific individuals and their positions within the Facility organization as members of a storm water pollution prevention team responsible for developing the SWPPP, assisting the Facility manager in SWPPP implementation and revision, and conducting all monitoring program activities required in Attachment E of this Order.

2. The SWPPP shall clearly identify the responsibilities, duties, and activities of each team member.

3. The SWPPP shall identify, as appropriate, alternative individuals to perform the required SWPPP and monitoring program activities when team members are temporarily unavailable (due to vacation, illness, out of town meetings, etc.).

C. Review Other Requirements and Existing Facility Plans

1. The SWPPP shall be developed, implemented, and revised as necessary to be consistent with any applicable municipal, state, or federal requirement that pertains to the requirements of this Order.

2. The SWPPP may incorporate or reference the elements of the Discharger's existing plans, procedures, or regulatory compliance documents that contain storm water pollution control practices or otherwise relate to the requirements of this Order. For example, facilities subject to Federal Spill Prevention Control and Countermeasures' requirements should already have instituted a plan to control spills of certain hazardous materials, or facilities subject to regional air quality emission controls may already have evaluated industrial activities that emit dust or particulate pollutants.

IV. SITE MAP

The SWPPP shall include a site map. The site map shall be provided on an 8 ½ x 11 inch or larger sheet and include notes, legends, north arrow, and other data as appropriate to ensure that the site map is clear and understandable. If necessary, the Discharger may provide the required information on multiple site maps. The following information shall be included on the site map:

A. Boundaries and Drainage Areas. Outlines of the Facility boundary, storm water drainage areas within the Facility boundary, and portions of any drainage area impacted by discharges from surrounding areas. Include the flow direction of each drainage area; on-site surface water bodies; areas of soil erosion; and location(s) of near-by water bodies (such as rivers, lakes, wetlands, etc.) or municipal storm drain inlets that may receive the Facility's storm water

discharges and authorized non-storm water discharges.

B. Storm Water Collection and Conveyance System. The location of the storm water collection and conveyance system, associated points of discharge, and direction of flow. Include any structural control measures that affect storm water discharges, authorized non-storm water discharges, and run-on. Examples of structural control measures are catch basins, berms, detention ponds, secondary containment, oil/water separators, diversion barriers, etc.

C. Impervious Areas. The outline of all impervious areas of the Facility, including paved areas, buildings, covered storage areas, or other roofed structures.

D. Materials, Spills, and Leaks Locations. Locations where materials are directly exposed to precipitation and the locations where significant spills or leaks, identified in accordance with section VI.A.4 below, have occurred.

E. Areas of Industrial Activity. Identify all storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, dust or particulate generating areas, cleaning and reusing areas, and other areas of industrial activity which are potential pollutant sources.

F. Storm Water Risk Level Boundaries. Identify the boundaries of the Industrial High Risk areas, Industrial Low Risk areas, Industrial No-Exposure areas, and Small Military Base MS4 areas, as defined in section IV.B.1 of the Order.

V. LIST OF SIGNIFICANT MATERIALS

The SWPPP shall include a list of significant materials handled and stored at the site. For each material on the list, the locations where the material is stored, received, shipped, and handled, as well as the typical quantities and frequencies, shall be described. The materials list shall include raw materials, intermediate products, final or finished products, recycled materials, and waste or disposed materials.

VI. DESCRIPTION OF POTENTIAL POLLUTANT SOURCES

A. For each area identified in section IV.E of this Attachment, the SWPPP shall include a narrative description of the Facility's industrial activities, potential pollutant sources, and potential pollutants that could be exposed to storm water or authorized non-storm water discharges. At a minimum, the following industrial activities shall be described as applicable:

1. **Industrial Processes**. Describe each industrial process including the manufacturing, cleaning, maintenance, recycling, disposal, or other activities related to the process. Include the type, characteristics, and approximate quantity of significant materials used in or resulting from the process. Areas protected by containment structures and the corresponding containment capacity shall be identified and described.

2. **Material Handling and Storage Areas.** Describe each handling and storage area including the type, characteristics, and quantity of significant materials handled or stored, description of the shipping, receiving, and loading procedures, and the spill or leak prevention and response procedures. Areas protected by a containment structure and the corresponding

containment capacity shall be identified and described.

3. **Dust and Particulate Generating Activities.** Describe all industrial activities that generate dust or particulates that may be deposited within the Facility's boundaries. Include their discharge locations and the type, characteristics, and quality of dust and particulate pollutants that may be deposited within the Facility's boundaries. Identify the primary areas of the Facility where dust and particulate pollutants would settle.

4. **Significant Spills and Leaks.** Identify and describe materials that have spilled or leaked in significant quantities in storm water discharges or non-storm water discharges. Include toxic chemicals (listed in 40 CFR Part 302) that have been discharged to storm water as reported in USEPA Form R, and oil and hazardous substances in excess of reportable quantities (see 40 CFR Parts 110, 117, and 302).

   The description shall include the location, characteristics, and approximate quantity of the materials spilled or leaked, the cleanup or remedial actions that have occurred or are planned, the approximate remaining quantity of materials that may be exposed to storm water or non-storm water discharges; and the preventative measures taken to ensure spills or leaks of the material do no reoccur.

5. **Non-Storm Water Discharges.** The Discharger shall inspect the Facility to identify all non-storm water discharges, sources, and drainage areas. All drains (inlets and outlets) shall be evaluated to identify whether they connect to the storm drain system.

   All non-storm water discharges shall be described. The description shall include the source, quantity, frequency, and characteristics of the non-storm water discharges and associated drainage area and shall identify whether the discharge is an authorized or unauthorized non-storm water discharge in accordance with section IV.F of the Order. Examples of unauthorized non-storm water discharges include but are not limited to rinse and wash water (whether detergents are used or not), contact and non-contact cooling water, and boiler blow-down.

6. **Soil Erosion.** Describe the Facility locations where soil erosion may occur as a result of industrial activity, storm water discharges associated with industrial activity, or authorized non-storm water discharges.

VII. ASSESSMENT OF POTENTIAL POLLUTANT SOURCES

A. The SWPPP shall include a narrative assessment of all industrial activities and potential pollutant sources as described in accordance with section VI of this Attachment. To determine the likelihood that significant materials will be exposed to storm water or authorized non-storm water discharges, the assessment shall include consideration of the quantity, characteristics, and locations of each significant material handled, produced, stored, recycled, or disposed; the direct and indirect pathways that significant materials may be exposed to storm water or authorized non-storm water discharges; history of spills or leaks; non-storm water discharges; prior sampling; visual observation, and inspection records; discharges from adjoining areas; and the effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. At a minimum, the Discharger shall consider:

1. The quantity, physical characteristics (liquid, powder, solid, etc.), and locations of each significant material handled, produced, stored, recycled, or disposed.

2. The degree pollutants associated with those materials are exposed to and mobilized by contact with storm water.

3. The direct and indirect pathways that pollutants may be exposed to storm water or authorized non-storm water discharges. This shall include an assessment of past spills or leaks, non-storm water discharges, and discharges from adjoining areas.

4. Sampling, visual monitoring, and inspection records.

5. Effectiveness of existing BMPs to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

B. Based upon the assessment above, the SWPPP shall identify any areas of industrial activity and corresponding pollutant sources where significant materials are likely to be exposed to storm water or authorized non-storm water discharges and where additional BMPs are necessary to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

VIII. STORM WATER BEST MANAGEMENT PRACTICES

A. The SWPPP shall include a narrative description of BMPs implemented at the Facility. The BMPs, when developed and implemented, shall be effective in reducing or preventing pollutants in storm water discharges and authorized non-storm water discharges.

The BMPs narrative description shall include:

1. The type of pollutants the BMPs are designed to reduce or prevent.

2. The frequency, time(s) of day, or conditions when the BMPs are scheduled for implementation.

3. The locations within each area of industrial activity or pollutant source where the BMPs shall be implemented.

4. Identification of the person and/or position responsible for implementing the BMPs.

5. The procedures, including maintenance procedures, and/or instructions to implement the BMPs.

6. The equipment and tools necessary to implement the BMPs.

B. The Discharger shall consider non-structural BMPs for implementation at the Facility. Non-structural BMPs generally consist of processes, prohibitions, procedures, training, schedule of activities, etc., that prevent pollutants associated with industrial activity from contact with storm water discharges and authorized non-storm water discharges. Below is a list of non-structural BMPs that shall be considered:

1. Good Housekeeping. Good housekeeping generally consists of practical procedures to maintain a clean and orderly facility.

2. **Preventative Maintenance.** Preventative maintenance includes regular inspection and maintenance of storm water structural controls (i.e., catch basins, oil/water separators, etc.) as well as other facility equipment and systems.

3. **Spill Response.** This includes spill clean-up procedures and necessary clean-up equipment based upon the quantities and locations of significant materials that may spill or leak.

4. **Material Handling and Storage.** This includes all procedures to minimize the potential for spills and leaks and to minimize exposure to significant materials to storm water and authorized non-storm water discharges.

5. **Employee Training Program.** This includes the development of a program to train personnel responsible for implementing the various compliance activities of this Order including BMP implementation, inspections and evaluations, monitoring activities, and storm water compliance management. The training program shall include:

   a. A description of the training program and any training manuals or training materials.

   b. A discussion of the appropriate training frequency.

   c. A discussion of the appropriate personnel to receive training.

   d. A training schedule.

   e. Documentation of all completed training classes and the personnel who received training.

6. **Waste Handling/Recycling.** This includes the procedures or processes to handle, store, or dispose of waste or recyclable materials.

7. **Record Keeping and Internal Reporting.** This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations, etc., are developed, retained, and provided, as necessary to the appropriate Facility personnel.

8. **Erosion Control and Site Stabilization.** This includes a description of all sediment and erosion control activities. This may include the planting and maintenance of vegetation, diversion of run-on and runoff, placement of sandbags, silt screens, or other sediment control devices.

9. **Inspections.** Periodic visual inspections of the Facility are necessary to ensure that the SWPPP addresses any significant changes to the Facility's operations or BMP implementation procedures.

   a. A minimum of four quarterly visual inspections of all areas of industrial activity and associated potential pollutant sources shall be completed each reporting year. The annual comprehensive site compliance evaluation described in section IX of this Attachment may substitute for one of the quarterly inspections.

   b. Tracking and follow-up procedures shall be described to ensure appropriate corrective actions and/or SWPPP revisions are implemented.

c. A summary of the corrective actions and SWPPP revisions resulting from quarterly inspections shall be reported in the annual report.

d. Dischargers shall certify in the annual report that each quarterly visual inspection was completed.

e. All corrective actions and SWPPP revisions shall be implemented in accordance with sections XII.D and XII.E of this Attachment.

10. Quality Assurance. This includes the management procedures to ensure that the appropriate staff adequately implements all elements of the SWPPP and Monitoring Program.

C. Structural BMPs. Where non-structural BMPs identified in section VIII.B above are not effective, structural BMPs shall be considered. Structural BMPs typically consist of structural devices that reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges. Below is a list of structural BMPs that shall be considered:

1. Overhead Coverage. This includes structures that protect materials, chemicals, and pollutant sources from contact with storm water and authorized non-storm water discharges.

2. Retention Ponds. This includes basins, ponds, surface impoundments, bermed areas, etc., that do not allow storm water to discharge from the Facility.

3. Control Devices. This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.

4. Secondary Containment Structures. This includes containment structures around storage tanks and other areas that collect any leaks or spills.

5. Treatment. This includes inlet controls, infiltration devices, oil/water separators, detention ponds, vegetative swales, etc., which reduce the pollutants in storm water discharges and authorized non-storm water discharges.

D. The SWPPP shall include a summary identifying each area of industrial activity and associated pollutant sources, pollutants, and BMPs in a table similar to Item A-3 at the end of this Attachment.

IX. ANNUAL COMPREHENSIVE SITE COMPLIANCE EVALUATION

The Discharger shall conduct one comprehensive site compliance evaluation (evaluation) in each reporting period (July 1 – June 30). Evaluations shall be conducted no less than 8 months from each other. The SWPPP shall be revised, as appropriate, and the revisions implemented within 90 days of the evaluation. Evaluations shall include the following:

A. A review of all visual observation records, inspection records, and sampling and analysis results.

B. A visual inspection of all areas of industrial activity and associated potential pollutant sources for evidence of, or the potential for, pollutants entering the drainage system. A visual inspection of

equipment needed to implement the SWPPP.

C. A review and evaluation of all BMPs, both structural and non-structural, for each area of industrial activity and associated potential pollutant sources to determine whether the BMPs are properly designed, implemented, and effective in reducing and preventing pollutants in storm water discharges and authorized non-storm water discharges.

D. An evaluation report that includes:

1. Identification of personnel performing the evaluation,

2. Date(s) of the evaluation,

3. Summary and implementation dates of all significant corrective actions and SWPPP revisions for the reporting year

4. Schedule for implementing any incomplete corrective actions and SWPPP revisions,

5. Any incidents of non-compliance and the corrective actions taken, and

6. A certification that the Discharger has completed the quarterly inspections specified in section VIII.B.9, above and that the Discharger is complying with this Order.

7. The evaluation report shall be submitted as part of the annual report, retained for at least 5 years, and signed and certified in accordance with Standard Provision V.B of Attachment D of this Order.

X. NUMERIC ACTION LEVELS (NALS) AND NUMERIC EFFLUENT LIMITATIONS (NELS)

A. Numeric Action Levels (NALs) for all storm water discharges are appropriate numeric thresholds that allow a discharger to take corrective action when the Instantaneous Maximum or Annual Average NAL are exceeded. Exceedances of NAL values are not a violation of the Order. Dischargers that exceed one of the NAL values shall take the appropriate corrective action as set forth in section IV.E.3. of the Order.

NALs are specified as follows:

Table G-1. NALs for Storm Water

PARAMETER	TEST METHOD[1]	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
pH	Field test with calibrated portable instrument, or lab sample in accordance with 40 CFR § 136.	pH units	N/A	6.0-9.0
Suspended Solids (TSS), Total	SM2540-D	mg/L	100	400
Oil & Grease (TOG), Total	EPA 1664A	mg/L	15	25

PARAMETER	TEST METHOD[1]	REPORTING UNITS	ANNUAL NAL VALUE	INSTANTANEOUS MAXIMUM NAL
Zinc, Total (H)	EPA 200.8	mg/L	0.26 [2]	-
Copper, Total (H)	EPA 200.8	mg/L	0.0332 [2]	-
Cyanide, Total	SM 4500-CN C, D, or E	mg/L	0.022	-
Lead, Total (H)	EPA 200.8	mg/L	0.262 [2]	-
Chemical Oxygen Demand	SM 5220C	mg/L	120	-
Aluminum, Total (pH 6.5-9.0)	EPA 200.8	mg/L	0.75	-
Iron, Total	EPA200.8	mg/L	1.0	-
Nitrate + Nitrite Nitrogen	SM 4500-NO3- E	mg/L as N	0.68	-
Total Phosphorus	SM 4500-P B+E	mg/L as P	2.0	-
Ammonia	SM 4500-NH3 B+ C or E	mg/L	2.14	-
Magnesium, total	EPA 200.7	mg/L	0.064	-
Arsenic, Total (c)	EPA 200.8	mg/L	0.15	-
Cadmium, Total (H)	EPA 200.8	mg/L	0.0053 [2]	-
Nickel, Total (H)	EPA 200.8	mg/l	1.02 [2]	-
Mercury, Total	EPA 245.1	mg/L	0.0014	-
Selenium, Total	EPA 200.8	mg/L	0.005	-
Silver, Total (H)	EPA 200.8	mg/L	0.0183 [2]	-
Biochemical Oxygen Demand	SM 5210B	mg/L	30	-

SM – Standard Methods for the Examination of Water and Wastewater, 18th edition
EPA – EPA test methods

[1] Test methods with lower detection limits may be necessary when discharging to impaired water bodies. Alternate test methods may be approved by the San Diego Water Board.

[2] The NAL is based on the highest hardness because the water near the mouth of the creeks is very saline.

B. On January 1 of the reporting year following the submittal of the Level 2 ERA Action Plan, a Discharger with Level 2 status shall certify and submit a Level 2 ERA Technical Report that includes one or more of the following demonstrations:

1. Industrial Activity BMPs Demonstration. This shall include the following requirements as applicable:

a. A description of the industrial pollutant sources and corresponding industrial pollutants that are or may be related to the NAL exceedance(s);

b. An evaluation of all pollutant source(s) associated with industrial activity that are or may be related to the NAL exceedance(s);

c. Where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this

Order and are expected to eliminate future NAL exceedance(s), the Discharger shall provide a description and analysis of all implemented BMPs;.

d. In cases where all of the Discharger's implemented BMPs, including additional BMPs identified in the Level 2 ERA Action Plan, achieve compliance with the effluent limitations of this Order but are not expected to eliminate future NAL exceedance(s), the Discharger shall provide the following, in addition to a description and analysis of all implemented BMPs:

   i. An evaluation of any additional BMPs that would reduce or prevent NAL exceedances;

   ii. An estimated costs of the additional BMPs evaluated; and,

   iii. An analysis describing the basis for the selection of BMPs implemented in lieu of the additional BMPs evaluated but not implemented.

e. The description and analysis of BMPs required in section d.iii above shall specifically address the drainage areas where the NAL exceedance(s) responsible for the Discharger's Level 2 status occurred, although any additional Level 2 ERA Action Plan BMPs may be implemented for all drainage areas; and,

f. If an alternative design storm standard for treatment control BMPs in lieu of the design storm standard for treatment control BMPs in section IV.E.4 of the Order will achieve compliance with the effluent limitations of the Order, the Discharger shall provide an analysis describing the basis for the selection of the alternative design storm standard.

2. Non-Industrial Pollutant Source Demonstration. This shall include:

a. A statement that the Discharger has determined that the exceedance of the NAL is attributable solely to the presence of non-industrial pollutant sources. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance.) The sources shall be identified as either run-on from adjacent properties, aerial deposition from man-made sources, or as generated by on-site non-industrial sources;

b. A statement that the Discharger has identified and evaluated all potential pollutant sources that may have commingled with storm water associated with the Discharger's industrial activity and may be contributing to the NAL exceedance; and,

c. A description of any on-site industrial pollutant sources and corresponding industrial pollutants that are contributing to the NAL exceedance that are or may be discharged;

d. An assessment of the relative contributions of the pollutant from (1) storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition and (2) the storm water associated with the Discharger's industrial activity;

e. A summary of all existing BMPs for that parameter; and,

f. An evaluation of all on-site/off-site analytical monitoring data demonstrating that the NAL exceedances are caused by pollutants in storm water run-on to the facility from adjacent properties or non-industrial portions of the Discharger's property or from aerial deposition.

3. Natural Background Pollutant Source Demonstration. The Natural Background Pollutant Source Demonstration Technical Report shall at a minimum, include the following:

a. A statement that the Discharger has determined that the NAL exceedance of the NAL is attributable solely to the presence of the pollutant in the natural background that has not been disturbed by industrial activities. (The pollutant may also be present due to industrial activities, in which case the Discharger must demonstrate that the pollutant contribution from the industrial activities by itself does not result in an NAL exceedance);

b. A summary of all data previously collected by the Discharger, or other identified data collectors, that describes the levels of natural background pollutants in the storm water discharge;

c. A summary of any research and published literature that relates the pollutants evaluated at the facility as part of the Natural Background Demonstration;

d. A map showing the reference site location in relation to facility along with available land cover information;

e. Reference site and test site elevation;

f. Available geology and soil information for reference and test sites;

g. Photographs showing site vegetation;

h. Site reconnaissance survey data regarding presence of roads, outfalls, or other human-made structures; and

i. Records from relevant state or federal agencies indicating no known mining, forestry, or other human activities upstream of the proposed reference site.

XI. MONITORING REQUIREMENTS

Monitoring shall be conducted as specified in the MRP. The SWPPP shall include a description of the following items:

A. Visual observation locations, visual observation procedures, and visual observation follow-up and tracking procedures.

B. Sampling locations and sample collection procedures. This shall include procedures for sample collection, storage, preservation, and shipping to the testing lab to assure that consistent quality control and quality assurance is maintained.

C. Identification of the analytical methods and related method detection limits (if applicable) used to detect pollutants in storm water discharges, including a justification that the method detection limits are adequate.

XII. SWPPP GENERAL REQUIREMENTS

A. The SWPPP shall be retained at the Facility and made available upon request of a representative of the San Diego Water Board.

B. Upon notification by the San Diego Water Board or USEPA that the SWPPP does not meet one or more of the minimum requirements of this Attachment, the Discharger shall revise the SWPPP and implement additional BMPs that are effective in reducing and eliminating pollutants in storm water discharges and authorized non-storm water discharges. As requested, the Discharger shall provide an implementation schedule and/or completion certification to the San Diego Water Board or USEPA.

C. The SWPPP shall be revised, as appropriate, and implemented prior to changes in industrial activities, which;

1. May significantly increase the quantities of pollutants in storm water discharges; or

2. Cause a new area of industrial activity at the Facility to be exposed to storm water; or

3. Begin an industrial activity that would introduce a new pollutant source at the Facility.

D. The Discharger shall revise the SWPPP and implement the appropriate BMPs in a timely manner and in no case more than 90 days after a Discharger determines that the SWPPP is in violation of any Order requirement.

E. When any part of the SWPPP is infeasible to implement by the deadlines specified above due to proposed significant structural changes, the Discharger shall:

1. Submit a report to the San Diego Water Board that:

a. Identifies the portion of the SWPPP that is infeasible to implement by the deadline;

b. Provides justification for a time extension, and a schedule for completing and implementing that portion of the SWPPP; and

c. Describes the BMPs that will be implemented in the interim period to reduce or prevent pollutants in storm water discharges and authorized non-storm water discharges.

2. Comply with any request by the San Diego Water Board to modify the report required in Subsection VII.E.1 above, or provide certification that the SWPPP revisions have been implemented.

F. The SWPPP shall be provided, upon request, to the San Diego Water Board, USEPA, local agency, or Compliance Inspection Designees. The San Diego Water Board under section 308(b) of the Clean Water Act considers the SWPPP a report that shall be available to the public.

XIII. AUTHORIZED NON-STORM WATER DISCHARGES SPECIAL REQUIREMENTS

A. The SWPPP shall address authorized non-storm water discharges and incorporate the requirements of section IV.F of this Order.

ITEM A-1

STORM WATER POLLUTION PREVENTION PLAN
EXAMPLE CHECKLIST

Facility Name _____

WDID# _____

FACILITY CONTACT
Name _____
Title _____
Company _____
Street _____
Address
City, State _____
ZIP _____

CONSULTANT CONTACT
Name _____
Title _____
Company _____
Street _____
Address
City, State _____
ZIP _____

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
Signed Certification			
Pollution Prevention Team			
Existing Facility Plans			
Facility Site Map(s)			
Facility Boundaries			
Drainage areas			
Direction of flow			
On-site water bodies			
Areas of soil erosion			
Nearby water bodies			
Municipal storm drain inlets			
Points of discharges			
Structural control measures			
Impervious areas (paved areas, buildings, covered areas, roofed areas			
Location of directly exposed materials			
Location of significant spills and leaks			
Storage areas / Storage tanks			
Shipping and receiving areas			
Fueling areas			
Vehicle and equipment storage and maintenance			
Material handling / Material processing			
Waste treatment / Waste Disposal			
Dust generation / Particulate generation			
Cleaning areas / Rinsing areas			
Other areas of industrial activities			
For the NBC, High Risk area			
List of Significant Materials			

Storm Water Pollution Prevention Plan	Not Applicable	SWPPP Page # or Reference Location	Date Implemented or Last Revised
For each material listed:			
Storage location			
Receiving and shipping location			
Handling location			
Quantity			
Frequency			
Description of Potential Pollution Sources			
Industrial Processes			
Material handling and storage areas			
Dust and particulate generating activities			
Significant spills and leaks			
Non-storm water discharges			
Soil Erosion			
Assessment of Potential Pollutant Sources			
Areas likely to be sources of pollutants			
Pollutants likely to be present			
Storm Water Best Management Practices			
Non-Structural BMPs			
Good Housekeeping			
Preventative Maintenance			
Spill Response			
Material Handling and Storage			
Employee Training			
Waste Handling / Waste Recycling			
Recordkeeping and Internal Reporting			
Erosion Control and Site Stabilization			
Inspections			
Quality Assurance			
Structural BMPs			
Overhead Coverage			
Retention Ponds			
Control Devices			
Secondary Containment Structures			
Treatment			
Industrial Activity BMPs/Pollutant Summary			
Annual Comprehensive Site Compliance Evaluation			
Review of visual observations, inspections, and sampling analysis			
Visual inspection of potential pollution sources			
Review and evaluation of BMPs			
Evaluation Report			

ITEM A-2

FIVE PHASES FOR DEVELOPING AND IMPLEMENTING INDUSTRIAL STORM WATER POLLUTION PREVENTION PLANS

PLANNING AND ORGANIZATION

*****Form Pollution Prevention Team
*****Review other plans

ASSESSMENT PHASE

*****Develop a site map
*Identify potential pollutant sources
*Inventory of materials and chemicals
*****List significant spills and leaks
*****Identify non-storm water discharges
*****Assess pollutant risks

BEST MANAGEMENT PRACTICES IDENTIFICATION PHASE

*****Non-structural BMPs
*Structural BMPs
*Select activity and site-specific BMPs

IMPLEMENTATION PHASE

*****Train employees
*****Implement BMPs
*****Collect and review records

EVALUATION/MONITORING

*****Conduct annual site evaluation
*****Review monitoring information
*****Evaluate BMPs
*****Review and revise SWPPP

ITEM A-3
EXAMPLE
ASSESSMENT OF POTENTIAL POLLUTION SOURCES AND CORRESPONDING BEST MANAGEMENT PRACTICES SUMMARY

Area	Activity	Pollutant Source	Pollutant	Best Management Practices
Vehicle & Equipment Fueling	Fueling	Spills and leaks during delivery	fuel oil	- Use spill and overflow protection - Minimize run-on of storm water into the fueling area - Cover fueling area - Use dry cleanup methods rather than hosing down area - Implement proper spill prevention control program - Implement adequate preventative maintenance program to prevent tank and line leaks - Inspect fueling areas regularly to detect problems before they occur - Train employees on proper fueling, cleanup, and spill response techniques
		Spills caused by topping off fuel tanks	fuel oil	
		Hosing or washing down fuel area	fuel oil	
		Leaking storage tanks	fuel oil	
		Rainfall running off fuel area, and rainfall running onto and off fueling area	fuel oil	

ATTACHMENT H – BEST MANAGEMENT PRACTICES AND POLLUTION PREVENTION PLAN FOR UTILITY VAULT AND MANHOLE DEWATERING DISCHARGES (UTILITY VAULT PLAN)

I. IMPLEMENTATION

The Discharger shall develop and implement a Best Management Practices and Pollution Prevention Plan for Utility Vault and Manhole Dewatering Discharges (Utility Vault Plan) which achieves the objectives and the specific requirements listed below. The existing Utility Vault Plan shall continue to be implemented. The revised Utility Vault Plan shall be implemented as soon as possible but no later than 1 year from the effective date of this Order.

II. OBJECTIVE

Through implementation of the Utility Vault Plan, the Discharger shall prevent or minimize the generation and the potential for the release of pollutants from the Facility to the Waters of the United States through normal operations and ancillary activities. The Utility Vault Plan shall be designed to comply with BAT/BCT and to ensure compliance with water quality standards.

III. The Utility Vault Plan shall include, to the extent possible, at least the following items:

A. Utility Vault Plan Administration

1. **Pollution Prevention Team.** The Utility Vault Plan shall identify a specific individual or individuals as members of a Pollution Prevention Team that are responsible for developing the Utility Vault Plan and assisting in its implementation, maintenance, and revision. The Utility Vault Plan shall clearly identify the responsibilities of each team member. The activities and responsibilities of the team shall address all aspects of the Utility Vault Plan.

2. **Employee Training.** The Discharger shall implement a training program to ensure that all utility personnel that are responsible for implementing the Utility Vault Plan are trained in the proper execution of the procedures and BMPs identified in the Utility Vault Plan to minimize the potential for the release of pollutants in utility vault and underground structure discharges. The training shall address topics such as spill response, good housekeeping, pollution control procedures, and material management practices. In addition, staff who dewater utility vaults or underground structures shall be trained to use a dewatering checklist or dewatering procedures to facilitate evaluation of the quality of the water prior to a planned (non-emergency or non-automated critical) discharge from a utility vault or underground structure. The Utility Vault Plan shall identify who is responsible for the training and how often training will take place. Training shall be held at intervals frequent enough to assure adequate understanding of the Utility Vault Plan goals, objectives, and procedures.

B. Identification of Potential Pollutant Source

1. **Description of Potential Pollutant Sources.** The Utility Vault Plan shall provide a description of potential sources that may add pollutants to discharges. The Utility Vault Plan shall identify all activities and significant materials that may potentially be a source of pollutants. The Utility Vault Plan shall include a description of the types of utility materials handled at the site that potentially may be exposed to vault water either within the vault or underground structure or during discharge operations.

2. **Drainage Map.** Provide a map showing the essential features of the distribution system for the service area boundary and showing the corresponding surface waters to which water may be discharged.

3. **Pollution Assessment**

   a. Using the information identified in section III.B and procedures and pollution control measures developed in sections III.C and III.D below, analyze and discuss the pollution sources which have been identified to potentially cause or contribute to an exceedance of water quality objectives. The analysis shall identify potential sources of pollutants and, for each potential source, any corresponding pollutant or pollutant parameter (e.g., oil and grease) of concern. For each pollutant of concern, identify specific control measures which utility company personnel may use to control the discharge of the pollutant.

   b. If existing discharge data are available, use these data to identify sites or categories of sites which present an increased risk of discharging utility vault water with elevated pollutant levels. Identify potential sources of the elevated pollutant levels and identify specific control measures which will be used to control pollutant levels in the discharges at these sites.

C. Procedures for Discharges from Utility Vaults and Underground Structures

The Discharger shall develop and use a checklist or series of procedures to evaluate the quality of the water prior to a planned (nonemergency or non-automated critical) discharge from a utility vault or underground structure. These procedures shall be included in the Utility Vault Plan. The checklist or series of procedures are intended to allow the Discharger to make a preliminary determination of the quality of water to be disposed and indicate to the Discharger which pollution control measures should be used when discharging the water. The procedures shall include, at a minimum, visual inspection for evidence of, or the potential for, pollutants to be present in the discharge.

The Discharger's Utility Vault Plan shall also include the procedures that will be used for discharges that occur during emergency situations where it is recognized that utility vault or underground structure dewatering may need to occur as soon as possible to avoid endangerment to human health, public safety, or the environment or to reestablish essential public services. Further, the Utility Vault Plan shall address the procedures to be used for automated critical discharges. Automated critical discharges are necessary to protect equipment that is vulnerable to damage by water infiltration or seepage, to minimize outage delays and maintain reliability of essential public services, and for safety purposes. The Discharger shall describe the feasible procedures that may be implemented during emergency situations and for automated critical discharges to minimize the release of pollutants to the environment. The Discharger's staff responsible for dewatering utility vaults or underground structures shall use a checklist or procedures during dewatering activities to facilitate evaluation of the quality of the water prior to a planned (non-emergency or non-automated critical) discharge from a utility vault or underground structure.

D. Pollution Control Measures

The Discharger shall develop a description of BMPs appropriate for their site(s) and operations and implement such BMPs. The appropriateness and priorities of BMPs in a Utility Vault Plan must reflect identified potential sources of pollutants described in section III.B above. In addition, the Discharger should discuss the advantages and limitations of each BMP. If relevant,

include a flow diagram describing the conditions under which specific pollution control measures and/or BMPs will be deployed. The description of pollution control measures and/or BMPs shall address the following minimum components:

1. **Good Housekeeping.** The Discharger shall identify and discuss good housekeeping BMPs which can be adopted to prevent or control the discharge of pollutants. Examples of best practices that should be considered by The Discharger include, but are not limited to, the following:

   a. Maintain areas surrounding the utility vault and underground structure so that they are kept clean and orderly prior to dewatering activities so as to minimize the presence of pollutants in discharges.

   b. If applicable, store and contain liquid materials in such a manner that if the container is ruptured, the contents will not discharge, flow, or be washed into the storm drainage system, surface waters, or groundwater.

   c. Prior to dewatering a utility vault or underground structure, when feasible and safe, maintain the cleanliness and orderliness of all areas that may be impacted by the discharge including the discharge area (e.g., street, roadway, storm drain inlet) which should be clear of debris and sediment prior to discharging.

   d. Use an absorbent material (e.g., absorbent pads, rags) on the utility vault's or underground structure's water surface prior to dewatering and discharge when an oil sheen has been observed.

2. **Discharge Procedures.** The Utility Vault Plan shall include, at a minimum, provisions and procedures which will be implemented during the discharge from utility vaults and underground structures to minimize the introduction of pollutants and protect receiving water quality. For example, best practices that should be considered to control erosion and minimize the discharge of sediment include, but are not limited to, the following:

   a. When feasible and safe, sweep/clear the area surrounding the discharge point to prevent washing sediment and debris into storm drains.

   b. Use straw wattles to reduce erosion.

   c. Use a filter sock or bag to reduce oil and sediment discharge.

3. **Pollution Control and Waste Disposal Procedures**. Instances may arise where utility personnel determine that a utility vault or underground structure discharge may have a reasonable potential to cause or contribute to an exceedance of water quality objectives for the receiving water and that BMPs and procedures implemented in accordance with sections III.D.1. a and b above will be insufficient to adequately control pollutants in the discharge. In these instances, the Utility Vault Plan shall include provisions and procedures to be implemented to capture, treat, and/or dispose of the discharge in a manner that is protective of receiving water quality (e.g., hauling the utility vault or underground structure water to a wastewater treatment plant or a disposal site). Any potential discharge for which it is determined that the discharge from the utility vault or underground structure will cause or contribute to an exceedance in the receiving water of applicable water quality objectives is not authorized under this Order. The determination of the potential to cause water quality

impacts shall be based on field observations prior to dewatering as well as the results of the Identification of Potential Pollutant Source required in section III.B above.

E. Annual Plan Evaluation Requirements

The Discharger shall conduct an overall evaluation of the effectiveness of its Utility Vault Plan in controlling the discharge of pollutants during a discharge event and revise or replace the Utility Vault Plan as necessary to address procedures and BMPs found to not be effective in minimizing the discharge of pollutants.

1. Plan Evaluation Requirements

At least once per year, the Discharger shall conduct an evaluation of the effectiveness of their Utility Vault Plan in controlling the discharge of pollutants during a discharge event. At a minimum, the Utility Vault Plan evaluation shall include the following:

a. Evaluate the Utility Vault Plan measures to reduce pollutant loadings to determine whether they are adequate and properly implemented in accordance with the terms of this Order or whether additional control measures are needed. Ensure that utility source control measures, sediment and erosion control measures, and other structural BMPs identified in the Utility Vault Plan are operating correctly. Perform an evaluation of equipment needed to implement the Utility Vault Plan.

b. If the results of the monitoring at any of the representative sites required in the MRP (Attachment E) exceed of one or more of the Numeric Action Levels (NALs) listed in Table H-1 below, then a Discharger shall prepare a Discharge Characterization Study to evaluate the potential cause(s) of the NAL exceedance(s). At a minimum, this evaluation shall include an assessment of the potential source(s) of the pollutant and whether the procedures and BMPs contained in the Utility Vault Plan need to be revised to address the identified source(s) in future discharges. Additional NALs may be added in the future based on the results of the Discharge Characterization Study.

Table H-1. Numeric Action Levels for Utility Vault and Manhole Dewatering

Parameter	Numeric Action Levels		
	Unit	Minimum Daily	Maximum Daily
Oil and Grease	mg/L	---	25
pH	Standard Units	6.0	9.0
Total Petroleum Hydrocarbons-Diesel Range Organics	mg/L	---	2
Total Petroleum Hydrocarbons-Gasoline Range Organics	µg/L	---	5
Total Suspended Solids	mg/L	---	400

2. Plan Revisions

If Utility Vault Plan revisions are necessary based on the Utility Vault Plan evaluation required in section III.E.1 above, the Discharger shall develop a revised Plan with new or revised BMPs to prevent future exceedance(s) of NALs. The Discharger shall implement

such BMPs and document the progress of their implementation and effectiveness in the Annual Report to the Regional Water Board Executive Officer.

If it is determined that the cause(s) of an exceedance of an NAL were beyond the control of the Discharger and not a result of inadequate Utility Vault Plan implementation, procedures, or BMPs, then revisions to the Utility Vault Plan are not required. The Discharger shall provide as part of the Annual Report an explanation detailing when this situation occurs.

The Discharger shall amend the Utility Vault Plan whenever there is a change in construction, operation, or maintenance, when such amendment is necessary to ensure compliance with BAT/BCT and receiving water limitations. The Utility Vault Plan shall also be amended if it is in violation of any conditions of this Order or has not achieved the general objective of controlling pollutants in discharges to surface waters. The Discharger shall submit the amended the Utility Vault Plan to the San Diego Water Board.

3. Annual Plan Evaluation and Revision Reporting

a. The Discharger shall provide the results of the annual Utility Vault Plan evaluation and any revisions to the Utility Vault Plan as part of the Annual Report required in section VII.E. of the MRP (Attachment E).

b. The Discharger shall retain for five years records summarizing the scope of the annual Utility Vault Plan evaluation, personnel making the evaluation, the date(s) of the evaluation(s), significant observations relating to the implementation of the Utility Vault Plan, and actions taken to revise the Utility Vault Plan.

F. Other Special Provisions

1. The Dischargers shall dispose of solids removed from liquid wastes in accordance with applicable federal, state and local laws, regulations, and ordinances.

2. If the Discharger determines that its utility vault or underground structure is causing or contributing to vector problems, it shall coordinate with a vector control agency to address the vector problems.

ATTACHMENT I – BEST MANAGEMENT PRACTICES PLAN FOR APPLICABLE INDUSTRIAL WASTEWATERS

I. Implementation

The Discharger shall develop and implement a Best Management Practices (BMP) Plan which achieves the objectives and the specific requirements listed below for the activities of pier washing, pier boom cleaning, and boat rinsing activities. Existing BMP Plans for these activities shall continue to be implemented. The revised BMP Plan for these activities shall be implemented as soon as possible but no later than 1 year from the effective date of this Order.

II. Purpose

Through implementation of the BMP Plan, the Discharger shall prevent or minimize the generation and the potential for the release of pollutants from the Facility to the Waters of the United States (U.S.) through normal operations and ancillary activities. The BMP Plan shall address at a minimum pier washing, pier boom cleaning, and boat rinsing activities. Pier boom cleaning and boat rinsing discharges have been eliminated and BMPs are necessary to ensure that there is no discharge from these activities.

III. Objectives

The Discharger shall develop and amend the BMP Plan consistent with the following objectives for the control of pollutants:

A. The number and quantity of pollutants and the toxicity of effluent generated, discharged or potentially discharged at the Facility shall be minimized by the Discharger to the extent feasible by managing each waste stream in the most appropriate manner.

B. The Discharger shall ensure proper operation and maintenance of the Facility. Standard Operating Procedures (SOPs) may be included in the BMP Plan or referenced.

C. The Discharger shall evaluate each component or system for its waste minimization opportunities and its potential for causing a release of significant amounts of pollutants to Waters of the U.S. due to equipment failure, improper operation, and natural phenomena such as rain or snowfall, or other emergency situation. The evaluation shall include all normal operations and ancillary activities at a minimum related to pier washing and any other activities which have the potential to discharge pollutants. The Discharger shall have a plan to address any emergency situation which would result in a significant release of pollutants to Waters of the U.S. including those identified in this evaluation.

IV. Requirements

A. The BMP Plan shall be consistent with the objectives in section III above and the general guidance contained in the publication entitled *Guidance Manual for Developing Best Management Practices (BMPs)* (USEPA, 1993) or any subsequent revisions to the guidance document.

B. The BMP Plan shall 1) be documented in narrative form, 2) include any necessary plot plans, drawings or maps, and 3) be developed in accordance with good engineering practices.

C. The BMP Plan shall be organized and written with the following elements:

1. Purpose and objectives of the BMP Plan

2. Name and location of the activity with specific BMPs.

3. Specific management practices and standard operating procedures to achieve the above objectives, including, but not limited to, the following:

a. Modification of equipment, facilities, technology, processes, and procedures,

b. Reformulation or redesign of products,

c. Substitution of materials,

d. Improvement in management, inventory control, materials handling or general operational phases of the facility, and

e. Materials compatibility.

4. Good housekeeping.

5. Preventative maintenance.

6. Risk identification and assessment.

7. Reporting of BMP incidents and spills.

8. Inspections and records.

9. Employee training.

D. The BMP Plan shall establish specific BMPs to meet the objectives identified in section III of this Attachment, addressing each component or system capable of generating or causing a release of significant amounts of pollutants, and identifying specific preventative or remedial measures to be implemented.

E. The BMP Plan shall establish specific BMPs or other measures which ensure that the discharge of pollutants including, but not limited to, arsenic, copper, lead, nickel, selenium, zinc, aldrin, alpha-BHC, beta-BHC, 4,4'-DDE (linked to DDT), alpha-endosulfan, beta-endosulfan, heptachlor, and heptachlor epoxide from pier washing is reduced to levels that do not exceed water quality objectives. (RPA)

F. The BMP Plan shall include a statement this BMP Plan fulfills the requirements of this Order and shall be signed and certified in accordance with the signatory requirements of Standard Provision V.B. of Attachment D.

V. Documentation

The Discharger shall maintain a copy of the BMP Plan at the Facility and shall make it available to the San Diego Water Board upon request. All offices of the Discharger which are required to maintain a copy of the NPDES permit shall also maintain a copy of the BMP Plan.

VI. BMP Plan Modification

The Discharger shall amend the BMP Plan whenever there is a change in the facility or in the operation of the facility which materially increases the generation of pollutants or their release or potential release to the receiving waters. The Discharger shall also amend the BMP Plan, as appropriate, when operations covered by the BMP Plan change. Any such changes to the BMP Plan shall be consistent with the objectives and specific requirements listed above. All changes in the BMP Plan shall be reported to the San Diego Water Board in writing.

VII. Modification for Ineffectiveness

At any time, if the BMP Plan proves to be ineffective in achieving the general objective of preventing and minimizing the generation of pollutants and their release and potential release to the receiving waters and/or the specific requirements above, the Order and/or the BMP Plan shall be subject to modification to incorporate revised BMP requirements.

ATTACHMENT J – DISCHARGE PROHIBITIONS CONTAINED IN THE BASIN PLAN

I. Basin Plan Discharge Prohibitions

A. The discharge of waste to Waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.

B. The discharge of waste to land, except as authorized by WDRs of the terms described in Water Code section 13264 is prohibited.

C. The discharge of pollutants or dredged or fill material to Waters of the United States except as authorized by an NPDES permit or a dredged or fill material permit (subject to the exemption described in Water Code section 13376) is prohibited.

D. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this San Diego Water Board issues an NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State of California Department of Public Health and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.

E. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

F. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.

G. The dumping, deposition, or discharge of waste directly into Waters of the State, or adjacent to such waters in any manner which may permit it being transported into the waters, is prohibited unless authorized by the San Diego Water Board.

H. Any discharge to a storm water conveyance system that is not composed entirely of storm water is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR section 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR section 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to an NPDES permit and discharges resulting from fire fighting activities.] [section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

I. The unauthorized discharge of treated or untreated sewage to Waters of the State or to a storm water conveyance system is prohibited.

J. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in Water Code section 13264, is prohibited.

K. The discharge of radioactive wastes amenable to alternative methods of disposal into the Waters of the State is prohibited.

L. The discharge of any radiological, chemical, or biological warfare agent into Waters of the State is prohibited.

M. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.

N. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in Waters of the State or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

O. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.

P. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.

Q. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at MLLW is prohibited.

R. The discharge of treated sewage from vessels, which do not have a properly functioning USCG certified Type 1 or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at MLLW is prohibited.

ATTACHMENT K – SEDIMENT CHEMISTRY ANALYTES

All samples shall be tested for the analytes specified in Table K-1. If other toxic pollutants are believed to pose risk to benthic communities, aquatic-dependent wildlife, or human health, those toxic pollutants shall be identified and included by the Discharger. Analytes not on Attachment A of the State Water Board's Sediment Quality Plan cannot be used in the exposure assessment in section V of the State Water Board's Sediment Quality Plan; however the data can be used to conduct more effective stressor identification studies as described in section VII.F of the State Water Board's Sediment Quality Plan.

Table K-1 Sediment Chemistry Analytes.

Chemical Name	Chemical Group
Total Organic Carbon[1]	General
Percent Fines[1]	General
Cadmium[1]	Metal
Copper[1]	Metal
Lead[1]	Metal
Mercury[1]	Metal
Zinc[1]	Metal
Acenaphthene[1]	PAH
Anthracene[1]	PAH
Biphenyl[1]	PAH
Naphthalene[1]	PAH
2,6-dimethylnaphthalene[1]	PAH
Fluorene[1]	PAH
1-methylnaphthalene[1]	PAH
2-methylnaphthalene[1]	PAH
1-methylphenanthrene[1]	PAH
Phenanthrene[1]	PAH
Benzo(a)anthracene[1]	PAH
Benzo(a)pyrene[1]	PAH
Benzo(e)pyrene[1]	PAH
Chrysene[1]	PAH
Dibenz(a,h)anthracene[1]	PAH
Fluoranthene[1]	PAH
Perylene[1]	PAH
Pyrene[1]	PAH
Alpha Chlordane[1]	Pesticide
Gamma Chlordane[1]	Pesticide
Trans Nonachlor[1]	Pesticide
Dieldrin[1]	Pesticide
o,p'-DDE[1]	Pesticide
o,p'-DDD[1]	Pesticide
o,p'-DDT[1]	Pesticide
p,p'-DDD[1]	Pesticide
p,p'-DDE[1]	Pesticide
p,p'-DDT[1]	Pesticide
2,4'-Dichlorobiphenyl[1]	PCB 8 - congener
2,2',5-Trichlorobiphenyl[1]	PCB 18 - congener
2,4,4'-Trichlorobiphenyl[1]	PCB 28 - congener
2,2',3,5'-Tetrachlorobiphenyl[1]	PCB 44 - congener
2,2',5,5'-Tetrachlorobiphenyl[1]	PCB 52 - congener

Chemical Name	Chemical Group
2,2',3,3',4,4',5-Heptachlorobiphenyl[1]	PCB 170 - congener
2,2',3,4,4',5,5'-Heptachlorobiphenyl[1]	PCB 180 - congener
2,2',3,4',5,5',6-Heptachlorobiphenyl[1]	PCB 187 - congener
2,2',3,3',4,4',5,6-Octachlorobiphenyl[1]	PCB 195 - congener
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl[1]	PCB 206 - congener
Decachlorobiphenyl[1]	PCB 209 - congener
2,3',6-Trichlorobiphenyl	PCB 27 - congener
2,4,5-Trichlorobiphenyl	PCB 29 - congener
2,4',5-Trichlorobiphenyl	PCB 31 - congener
2,3',4'-Trichlorobiphenyl	PCB 33 - congener
2,2',4,5'-Tetrachlorobiphenyl	PCB 49 - congener
2,3,3',4'-Tetrachlorobiphenyl	PCB 56 - congener
2,3,4,4'-Tetrachlorobiphenyl	PCB 60 - congener
2,3,4',6-Tetrachlorobiphenyl	PCB 64 - congener
2,3',4',5-Tetrachlorobiphenyl	PCB 70 - congener
2,4,4',5-Tetrachlorobiphenyl	PCB 74 - congener
3,3',4,4'-Tetrachlorobiphenyl	PCB 77 - congener
2,2',3,4,5'-Pentachlorobiphenyl	PCB 87 - congener
2,2',3,5',6-Pentachlorobiphenyl	PCB 95 - congener
2,2',3,4',5'-Pentachlorobiphenyl	PCB 97 - congener
2,2',4,4',5-Pentachlorobiphenyl	PCB 99 - congener
2,3,3',4',6-Pentachlorobiphenyl	PCB 110 - congener
2,3,4,4',5-Pentachlorobiphenyl	PCB 114 - congener
3,3',4,4',5-Pentachlorobiphenyl	PCB 126 - congener
2,2',3,4,4',5-Hexachlorobiphenyl	PCB 137 - congener
2,2',3,4,5,5'-Hexachlorobiphenyl	PCB 141 - congener
2,2',3,4',5,5'-Hexachlorobiphenyl	PCB 146 - congener
2,2',3,4',5',6-Hexachlorobiphenyl	PCB 149 - congener
2,2',3,5,5',6-Hexachlorobiphenyl	PCB 151 - congener
2,3,3',4,4',5-Hexachlorobiphenyl	PCB 156 - congener
2,3,3',4,4',5'-Hexachlorobiphenyl	PCB 157 - congener
2,3,3',4,4',6-Hexachlorobiphenyl	PCB 158 - congener
3,3',4,4',5,5'-Hexachlorobiphenyl	PCB 169 - congener
2,2',3,3',4,5,6'-Heptachlorobiphenyl	PCB 174 - congener
2,2',3,3',4,5',6'-Heptachlorobiphenyl	PCB 177 - congener
2,2',3,4,4',5',6-Heptachlorobiphenyl	PCB 183 - congener
2,3,3',4,4',5,5'-Heptachlorobiphenyl	PCB 189 - congener
2,2',3,3',4,4',5,5'-Octachlorobiphenyl	PCB 194 - congener
2,2',3,3',4,5,5',6-Octachlorobiphenyl	PCB 198 - congener
2,2',3,3',4,5,5',6'-Octachlorobiphenyl	PCB 199 - congener

Chemical Name	Chemical Group
2,3',4,4'-Tetrachlorobiphenyl[1]	PCB 66 - congener
2,2',4,5,5'-Pentachlorobiphenyl[1]	PCB 101 - congener
2,3,3',4,4'-Pentachlorobiphenyl[1]	PCB 105 - congener
2,3',4,4',5-Pentachlorobiphenyl[1]	PCB 118 - congener
2,2',3,3',4,4'-Hexachlorobiphenyl[1]	PCB 128 - congener
2,2',3,4,4',5'-Hexachlorobiphenyl[1]	PCB 138 - congener
2,2',4,4',5,5'-Hexachlorobiphenyl[1]	PCB 153 - congener

Chemical Name	Chemical Group
2,2',3,3',4,5,6,6'-Octachlorobiphenyl	PCB 200 - congener
2,2',3,3',4,5',6,6'-Octachlorobiphenyl	PCB 201 - congener
2,2',3,4,4',5,5',6-Octachlorobiphenyl	PCB 203 - congener

[1] From Attachment A of the State Water Board's Sediment Quality Plan

ATTACHMENT L – ELEMENTS FOR SMALL MILITARY BASE MUNICIPAL SEPARATE STORM SEWER SYSTEM (MS4) – STORM WATER MANAGEMENT PROGRAM (SWMP)

I. SIX MINIMUM CONTROL MEASURES. The SWMP shall describe BMPs, and associated measurable goals, that fulfill the requirements of the following six Minimum Control Measures:

A. Public Education and Outreach on Storm Water Impacts. The SWMP shall contain a written plan to distribute educational materials to the target audiences identified below, or conduct equivalent outreach activities about the effects of storm water discharges on water bodies and the steps that the target audiences can take to reduce pollutants in storm water runoff

The SWMP shall contain a list of target audience groups consisting of civilian, contactor, retailers military personnel (including dependents) that are present on the Facility and may be conducting activities that could have potential adverse effect(s) to water quality.

B. Public Involvement/Participation Program. The SWMP shall contain a written Public Involvement/Participation Program to:

1. Regularly encourage public participation in the development and implementation of the SWMP*;*

2. Establish a platform for the public and target audiences to provide input into the development and implementation of the SWMP;

3. Solicit public reporting of suspected illicit discharges via telephone and writing; and

4. Implement procedures for the receipt and consideration of verbal or written public inquires, concerns, and information submitted by the public.

C. Illicit Discharge Detection and Elimination. The SWMP shall contain a written Illicit Discharge Detection and Elimination Program containing the following elements:

1. A written program to detect and eliminate illicit discharges (as defined at 40 CFR §122.26(b)(2)) into the storm water drainage systems;

2. A storm sewer system map, showing the location of all storm water drainage systems, outfalls and the names and locations of all Waters of the U.S. that receive discharges from those outfalls;

3. A prohibition against non-storm water discharges into the storm water drainage system except as allowed under Non-Storm Water Specifications IV.F of this Order;

4. A plan to detect and address non-storm water discharges, including illegal dumping, to the MS4 system that are not authorized by a separate NPDES permit;

5. A plan to inform the target audiences of the hazards that are generally associated with illegal discharges and improper disposal of waste; and

6. A plan to address the categories of non-storm water discharges or flows as specified in Non-Storm Water Specification IV.F of this Order (i.e., authorized non-storm water discharges) only where they are identified as significant contributors of pollutants to the storm water collection system.

D. Construction Site Storm Water Runoff Control. The SWMP shall contain a written *Construction Site Storm Water Runoff Control* program to reduce pollutants in any storm water runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more. The program must, at a minimum, include the development and implementation of:

1. Mechanisms to require erosion and sediment controls, as well as enforcement mechanisms, to ensure compliance;

2. Requirements for construction site operators to implement appropriate erosion and sediment control BMPs;

3. Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;

4. Procedures for site plan review which incorporate consideration of potential water quality impacts;

5. Procedures for receipt and consideration of information submitted by the public. The Discharger shall demonstrate acknowledgement and consideration of the information submitted, whether submitted verbally or in writing; and

6. Procedures for site inspection and enforcement of control measures.

7. Procedures for verifying that the site has existing coverage under California's statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities (hereinafter General Construction Permit).

E. Post-Construction Storm Water Management in New Development and Redevelopment. The SWMP shall contain a written Post-Construction Storm Water Management Program to:

1. Address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development, that discharge into the storm water drainage system by ensuring that controls are in place that would prevent or minimize water quality impacts, and that are designed to maintain pre-project runoff condition

2. Develop and implement water quality strategies, which include a combination of structural and/or non-structural BMPs appropriate for the Facility;

3. Develop or use a mechanism to address post-construction runoff from new development and redevelopment projects.

4. Ensure adequate long-term operation and maintenance of water quality BMPs.

5. Maintain and regularly update an inventory of BMPs installed pursuant to the SWMP. The inventory shall include, at a minimum:

a. Exact location of BMP(s);

b. Contact information for the individual or entity responsible for long term BMP operation and maintenance;

c. A description of the BMP and the year it was installed;

d. Maintenance required;

e. Actual inspection/maintenance activities that occurred during the reporting year; and

f. An assessment by the Discharger if proper operation and maintenance occurred during the year, and if not, what actions the Discharger has taken, or will take, to address the deficiencies.

F. Pollution Prevention/Good Housekeeping*.* The SWMP shall contain a written *Pollution Prevention/Good Housekeeping Program* that is sufficient to minimize pollutant runoff from on-site operations. The Discharger may incorporate by reference, other plans implemented at the Facility (i.e., SWPPP and BMP Plan) that address similar goals. The Discharger shall :

1. Develop *and* implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from Facility operations: and

2. Using training materials that are available from USEPA, the state, or other organizations, include target audience training to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet building maintenance, new construction and land disturbances, and storm water system maintenance.

II. MEASUREABLE GOALS. The SWMP must identify the measurable goals for each of the BMPs, including, as appropriate, the months and years for scheduled actions, including interim milestones and the frequency of the action.

III. SWMP ANNUAL REVIEW*.* The SWMP shall be reviewed annually and revised as necessary. A summary of each annual review, the identified inadequacies, and any planned efforts to address the identified inadequacies shall be maintained as an attachment to the SWMP for a minimum of 5 years.

ATTACHMENT M – STORM WATER RISK LEVEL DESIGNATION TABLES

Listing of NBC Municipal Storm Water Discharge Locations					
Discharge Point	**Navy ID Number**	**Latitude**	**Longitude**	**Outfall Risk Level**	**Receiving Water**
NBC-001	NASNI-50	32° 42’ 31” N	117° 13’ 11” W	Municipal	San Diego Bay
NBC-002	NASNI-CVN1	32° 42’ 52” N	117° 11’ 41” W	Municipal	San Diego Bay
NBC-003	NASNI-CVN2	32° 42’ 52” N	117° 11’ 37” W	Municipal	San Diego Bay
NBC-004	NASNI-CVN4	32° 42’ 51” N	117° 11’ 37” W	Municipal	San Diego Bay
NBC-005	NASNI-CVN12	32° 42’ 52” N	117° 11’ 43” W	Municipal	San Diego Bay
NBC-006	NASNI-CVN17-IN	32° 42’ 46” N	117° 11’ 25” W	Municipal	San Diego Bay
NBC-007	NASNI-CVN17-EF	32° 42’ 47” N	117° 11’ 25” W	Municipal	San Diego Bay
NBC-008	NASNI-CVN18-IN	32° 42’ 45” N	117° 11’ 23” W	Municipal	San Diego Bay
NBC-009	NASNI-CVN18-EF	32° 42’ 46” N	117° 11’ 23” W	Municipal	San Diego Bay
NBC-010	NASNI-CVN11	32° 42’ 25” N	117° 11’ 26” W	Municipal	San Diego Bay
NBC-011	NASNI-18	32° 42’ 53” N	117° 11’ 49” W	Municipal	San Diego Bay
NBC-012	NASNI-61	32° 42’ 53” N	117° 12’ 1” W	Municipal	San Diego Bay
NBC-013	NASNI-60	32° 42’ 53” N	117° 12’ 2” W	Municipal	San Diego Bay
NBC-014	NASNI-58	32° 42’ 53” N	117° 12’ 17” W	Municipal	San Diego Bay
NBC-015	NASNI-57	32° 42’ 49” N	117° 12’ 34” W	Municipal	San Diego Bay
NBC-016	NASNI-56	32° 42’ 48” N	117° 12’ 34” W	Municipal	San Diego Bay
NBC-017	NASNI-55	32° 42’ 45” N	117° 12’ 41” W	Municipal	San Diego Bay
NBC-018	NASNI-54	32° 42’ 43” N	117° 12’ 48” W	Municipal	San Diego Bay
NBC-019	NASNI-52	32° 42’ 41” N	117° 12’ 53” W	Municipal	San Diego Bay
NBC-020	NASNI-48	32° 42’ 5” N	117° 13’ 30” W	Municipal	San Diego Bay
NBC-021	NASNI-47	32° 41’ 44” N	117° 13’ 40” W	Municipal	San Diego Bay
NBC-022	NASNI-1	32° 41’ 38” N	117° 11’ 27” W	Municipal	Pacific Ocean
NBC-023	NASNI-2	32° 41’ 26” N	117° 11’ 31” W	Municipal	Pacific Ocean
NBC-024	NASNI-41	32° 41’ 23” N	117° 12’ 10” W	Municipal	Pacific Ocean
NBC-025	NASNI-42	32° 41’ 23” N	117° 12’ 16” W	Municipal	Pacific Ocean
NBC-026	NASNI-45	32° 41’ 28” N	117° 13’ 37” W	Municipal	San Diego Bay
NBC-027	NASNI-44	32° 41’ 26” N	117° 13’ 36” W	Municipal	San Diego Bay
NBC-028	NASNI-CVN10	32° 42’ 27” N	117° 11’ 25” W	Municipal	San Diego Bay
NBC-029	NASNI-19	32° 42’ 53” N	117° 11’ 46” W	Municipal	San Diego Bay
NBC-030	NASNI-13	32° 42’ 28” N	117° 13’ 10” W	Municipal	San Diego Bay
NBC-031	NASNI-40	32° 42’ 11” N	117° 10’ 51” W	Municipal	San Diego Bay
NBC-032	NASNI-CVN19	32° 42’ 46” N	117° 11’ 22” W	Municipal	San Diego Bay
NBC-033	NAB-2	32° 40’ 30” N	117° 09’ 58” W	Municipal	San Diego Bay
NBC-034	NAB-7	32° 40’ 49” N	117° 09’ 28” W	Municipal	San Diego Bay
NBC-035	NAB-8	32° 40’ 42” N	117° 9’ 18” W	Municipal	San Diego Bay
NBC-036	NAB-18	32° 40’ 30” N	117° 10’ 01” W	Municipal	San Diego Bay
NBC-037	NAB-31	32° 40’ 36” N	117° 09’ 45” W	Municipal	San Diego Bay
NBC-038	NAB-40	32° 40’ 45” N	117° 9’ 32” W	Municipal	San Diego Bay
NBC-039	NAB-41	32° 40’ 30” N	117° 09’ 56” W	Municipal	San Diego Bay
NBC-040	NAB-51	32° 40’ 49” N	117° 09’ 26” W	Municipal	San Diego Bay
NBC-041	NAB-52	32° 40’ 49” N	117° 09’ 26” W	Municipal	San Diego Bay
NBC-042	NAB-53	32° 40’ 47” N	117° 09’ 24” W	Municipal	San Diego Bay
NBC-043	NAB-54	32° 40’ 45” N	117° 09’ 21” W	Municipal	San Diego Bay

Listing of NBC Municipal Storm Water Discharge Locations					
Discharge Point	**Navy ID Number**	**Latitude**	**Longitude**	**Outfall Risk Level**	**Receiving Water**
NBC-044	NAB-57	32° 40’ 47” N	117° 09’ 31” W	Municipal	San Diego Bay
NBC-045	NAB-108	32° 40’ 43” N	117° 09’ 35” W	Municipal	San Diego Bay
NBC-046	NAB-110	32° 40’ 30” N	117° 9’ 23” W	Municipal	San Diego Bay
NBC-047	NAB-112	32° 40’ 24” N	117° 9’ 31” W	Municipal	San Diego Bay
NBC-048	NAB-OLF 11	32° 40’ 33” N	117° 09’ 49” W	Municipal	San Diego Bay
NBC-049	NAB-OLF 12	32° 40’ 34” N	117° 09’ 47” W	Municipal	San Diego Bay
NBC-050	NAB-OLF15	32° 40’ 37” W N	117° 09’ 43” W	Municipal	San Diego Bay
NBC-051	NAB-OLF16	32° 40’ 38” N	117° 09’ 42” W	Municipal	San Diego Bay
NBC-052	NAB-OLF19	32° 40’ 43” N	117° 09’ 36” W	Municipal	San Diego Bay
NBC-053	NAB-OLF37	32° 40’ 29” N	117° 09’ 55” W	Municipal	San Diego Bay
NBC-054	NAB-OLF44	32° 40’ 49” N	117° 09’ 27” W	Municipal	San Diego Bay
NBC-055	NAB-OLF45	32° 40’ 47” N	117° 09’ 31” W	Municipal	San Diego Bay
NBC-056	NAB-OLF12	32° 40’ 34” N	117° 9’ 47” W	Municipal	San Diego Bay
NBC-057	NAB-5	32° 40’ 42” N	117° 9’ 37” W	Municipal	San Diego Bay
NBC-058	NAB-13	32° 40’ 29” N	117° 9’ 26” W	Municipal	San Diego Bay
NBC-059	NAB-14	32° 40’ 27” N	117° 9’ 28” W	Municipal	San Diego Bay
NBC-060	NAB-50	32° 40’ 45” N	117° 9’ 33” W	Municipal	San Diego Bay
NBC-061	NAB-109	32° 40’ 46” N	117° 9’ 32” W	Municipal	San Diego Bay
NBC-062	NAB-56	32° 40’ 46” N	117° 9’ 32” W	Municipal	San Diego Bay
NBC-063	NAB-1	32° 40’ 30” N	117° 10’ 3” W	Municipal	San Diego Bay
NBC-064	NAB-29	32° 40’ 7” N	117° 9’ 50” W	Municipal	Pacific Ocean
NBC-065	NAB-43	32° 40’ 5” N	117° 9’ 52” W	Municipal	Pacific Ocean
NBC-066	NAB-27	32° 40’ 7” N	117° 9’ 54” W	Municipal	Pacific Ocean
NBC-067	NAB-28	32° 40’ 6” N	117° 9’ 53” W	Municipal	Pacific Ocean
NBC-068	NAB-26	32° 40’ 8” N	117° 9’ 55” W	Municipal	Pacific Ocean
NBC-069	NAB-39	32° 40’ 12” N	117° 9’ 59” W	Municipal	Pacific Ocean
NBC-070	NAB-24	32° 40’ 12” N	117° 9’ 60” W	Municipal	Pacific Ocean
NBC-071	NAB-23	32° 40’ 15” N	117° 10’ 3” W	Municipal	Pacific Ocean
NBC-072	NAB-35	32° 40’ 22” N	117° 10’ 10” W	Municipal	Pacific Ocean
NBC-073	NAB-37	32° 40’ 21” N	117° 10’ 10” W	Municipal	Pacific Ocean
NBC-074	NAB-38	32° 40’ 22” N	117° 10’ 9” W	Municipal	Pacific Ocean
NBC-075	NAB-36	32° 40’ 21” N	117° 10’ 10” W	Municipal	Pacific Ocean
NBC-076	NAB-55	32° 40’ 6” N	117° 9’ 39” W	Municipal	San Diego Bay
NBC-077	NAB-25	32° 40’ 9” N	117° 9’ 57” W	Municipal	Pacific Ocean
NBC-078	NAB-15	32° 40’ 25” N	117° 9’ 31” W	Municipal	San Diego Bay
NBC-079	NAB-OLF41	32° 40’ 5” N	117° 9’ 51” W	Municipal	Pacific Ocean
NBC-080	NAB-16	32° 40’ 20” N	117° 9’ 36” W	Municipal	San Diego Bay
NBC-081	NAB-OLF40	32° 40’ 25” N	117° 10’ 13” W	Municipal	Pacific Ocean
NBC-082	NAB-OLF14	32° 40’ 35” N	117° 9’ 45” W	Municipal	San Diego Bay
NBC-083	NAB-OLF17	32° 40’ 39” N	117° 9’ 41” W	Municipal	San Diego Bay
NBC-084	NAB-12	32° 40’ 32” N	117° 9’ 22” W	Municipal	San Diego Bay
NBC-085	NAB-22	32° 40’ 20” N	117° 10’ 7” W	Municipal	Pacific Ocean
NBC-086	NAB-OLF11	32° 40’ 33” N	117° 9’ 48” W	Municipal	San Diego Bay
NBC-087	NAB-29A	32° 40’ 6” N	117° 9’ 52” W	Municipal	Pacific Ocean
NBC-088	NOLF-4	32° 33’ 51” N	117° 06’ 21” W	Municipal	Tijuana Estuary

Listing of NBC Municipal Storm Water Discharge Locations					
Discharge Point	**Navy ID Number**	**Latitude**	**Longitude**	**Outfall Risk Level**	**Receiving Water**
NBC-089	NOLF-1	32° 34' 9" N	117° 7' 12" W	Municipal	Tijuana Estuary
NBC-090	NOLF-105	32° 33' 33" N	117° 7' 14" W	Municipal	Tijuana Estuary
NBC-091	NOLF-104	32° 33' 35" N	117° 6' 60" W	Municipal	Tijuana Estuary
NBC-092	NOLF-103	32° 33' 46" N	117° 6' 38" W	Municipal	Tijuana Estuary
NBC-093	NOLF-102	32° 33' 53" N	117° 6' 14" W	Municipal	Tijuana Estuary
NBC-094	NOLF-101	32° 33' 53" N	117° 6' 7" W	Municipal	Tijuana Estuary
NBC-095	NOLF-6	32° 33' 53" N	117° 6' 5" W	Municipal	Tijuana Estuary
NBC-096	NOLF-5	32° 34' 9" N	117° 6' 8" W	Municipal	Tijuana Estuary
NBC-097	NOLF-OLF2A	32° 33' 40" N	117° 6' 52" W	Municipal	Tijuana Estuary
NBC-098	NOLF-OLF2B	32° 33' 40" N	117° 6' 52" W	Municipal	Tijuana Estuary
NBC-099	NOLF-OLF2	32° 33' 46" N	117° 6' 39" W	Municipal	Tijuana Estuary
NBC-100	NOLF-OLF4	32° 33' 42" N	117° 6' 44" W	Municipal	Tijuana Estuary
SSTC-01	SSTC-01	32° 35' 15" N	117° 7' 57" W	Municipal	Pacific Ocean
Remote Training Site Warner Springs		No identified point source discharges.		Municipal	Tributary to San Luis Rey River
Camp Michael Monsoor		No identified point source discharges.		Municipal	Waters in the Canyon City HSA 11.82
Camp Morena		No identified point source discharges.		Municipal	Morena Reservoir

Listing of NBC Industrial Storm Water Discharge Locations					
Discharge Point	**Navy ID Number**	**Latitude**	**Longitude**	**Outfall Risk Level**	**Receiving Water**
NBC-101	NASNI-3	32° 41' 15" N	117° 11' 53" W	Industrial Low Risk	Pacific Ocean
NBC-102	NASNI-5	32° 41' 16" N	117° 12' 47" W	Industrial Low Risk	Pacific Ocean
NBC-103	NASNI-6	32° 41' 11" N	117° 13' 01" W	Industrial Low Risk	Pacific Ocean
NBC-104	NASNI-7	32° 41' 07" N	117° 13' 12" W	Industrial Low Risk	Pacific Ocean
NBC-105	NASNI-8	32° 41' 46" N	117° 13' 37" W	Industrial Low Risk	San Diego Bay
NBC-106	NASNI-9	32° 42' 09" N	117° 13' 27" W	Industrial Low Risk	San Diego Bay
NBC-107	NASNI-10	32° 42' 18" N	117° 13' 22" W	Industrial Low Risk	San Diego Bay
NBC-108	NASNI-11	32° 42' 24" N	117° 13' 16" W	Industrial Low Risk	San Diego Bay
NBC-109	NASNI-12	32° 42' 30" N	117° 13' 10" W	Industrial Low Risk	San Diego Bay
NBC-110	NASNI-14	32° 42' 46" N	117° 12' 38" W	Industrial Low Risk	San Diego Bay
NBC-111	NASNI-15	32° 42' 48" N	117° 12' 35" W	Industrial Low Risk	San Diego Bay
NBC-112	NASNI-16	32° 42' 50" N	117° 12' 25" W	Industrial Low Risk	San Diego Bay
NBC-113	NASNI-17	32° 42' 53" N	117° 12' 06" W	Industrial Low Risk	San Diego Bay
NBC-114	NASNI-21	32° 42' 38" N	117° 11' 20" W	Industrial High Risk	San Diego Bay
NBC-115	NASNI-22A	32° 42' 35" N	117° 11' 22" W	Industrial High Risk	San Diego Bay
NBC-116	NASNI-22B	32° 42' 35" N	117° 11' 21" W	Industrial High Risk	San Diego Bay
NBC-117	NASNI-23A	32° 42' 32" N	117° 11' 23" W	Industrial High Risk	San Diego Bay
NBC-118	NASNI-23B	32° 42' 34" N	117° 11' 26" W	Industrial Low Risk	San Diego Bay
NBC-119	NASNI-24	32° 42' 30" N	117° 11' 23" W	Industrial High Risk	San Diego Bay
NBC-120	NASNI-25	32° 42' 25" N	117° 11' 26" W	Industrial Low Risk	San Diego Bay
NBC-121	NASNI-26	32° 42' 24" N	117° 11' 26" W	Industrial High Risk	San Diego Bay
NBC-122	NASNI-27	32° 42' 23" N	117° 11' 25" W	Industrial High Risk	San Diego Bay
NBC-123	NASNI-28	32° 42' 23" N	117° 11' 24" W	Industrial High Risk	San Diego Bay

Listing of NBC Industrial Storm Water Discharge Locations					
Discharge Point	**Navy ID Number**	**Latitude**	**Longitude**	**Outfall Risk Level**	**Receiving Water**
NBC-124	NASNI-29	32° 42’ 22” N	117° 11’ 19” W	Industrial High Risk	San Diego Bay
NBC-125	NASNI-30	32° 42’ 21” N	117° 11’ 17” W	Industrial High Risk	San Diego Bay
NBC-126	NASNI-31	32° 42’ 21” N	117° 11’ 16” W	Industrial High Risk	San Diego Bay
NBC-127	NASNI-31A	32° 42’ 20” N	117° 11’ 15” W	Industrial High Risk	San Diego Bay
NBC-128	NASNI-32	32° 42’ 20” N	117° 11’ 14” W	Industrial High Risk	San Diego Bay
NBC-129	NASNI-33	32° 42’ 19” N	117° 11’ 11” W	Industrial High Risk	San Diego Bay
NBC-130	NASNI-34	32° 42’ 18” N	117° 11’ 07” W	Industrial High Risk	San Diego Bay
NBC-131	NASNI-35	32° 42’ 17” N	117° 11’ 04” W	Industrial High Risk	San Diego Bay
NBC-132	NASNI-36	32° 42’ 16” N	117° 11’ 00” W	Industrial High Risk	San Diego Bay
NBC-133	NASNI-37	32° 42’ 15” N	117° 10’ 57” W	Industrial High Risk	San Diego Bay
NBC-134	NASNI-38	32° 42’ 14” N	117° 10’ 54” W	Industrial High Risk	San Diego Bay
NBC-135	NASNI-39	32° 42’ 13” N	117° 10’ 52” W	Industrial High Risk	San Diego Bay
NBC-136	NASNI-43	32° 41’ 24” N	117° 12’ 24” W	Industrial Low Risk	Pacific Ocean
NBC-137	NASNI-46	32° 41’ 43” N	117° 13’ 37” W	Industrial Low Risk	San Diego Bay
NBC-138	NASNI-53	32° 42’ 41” N	117° 12’ 53” W	Industrial Low Risk	San Diego Bay
NBC-139	NASNI-59	32° 42’ 53” N	117° 12’ 10” W	Industrial Low Risk	San Diego Bay
NBC-140	NASNI-62	32° 42’ 53” N	117° 11’ 56” W	Industrial Low Risk	San Diego Bay
NBC-141	NASNI-CVN5	32° 42’ 49” N	117° 11’ 33” W	Industrial Low Risk	San Diego Bay
NBC-142	NASNI-CVN6	32° 42’ 49” N	117° 11’ 29” W	Industrial Low Risk	San Diego Bay
NBC-143	NASNI-CVN8	32° 42’ 41” N	117° 11’ 18” W	Industrial High Risk	San Diego Bay
NBC-144	NASNI-CVN9	32° 42’ 36” N	117° 11’ 20” W	Industrial High Risk	San Diego Bay
NBC-145	NASNI-CVN13A	32° 42’ 39” N	117° 11’ 19” W	Industrial High Risk	San Diego Bay
NBC-146	NASNI-CVN13B	32° 42’ 33” N	117° 11’ 22” W	Industrial High Risk	San Diego Bay
NBC-147	NASNI-CVN14	32° 42’ 40” N	117° 11’ 18” W	Industrial High Risk	San Diego Bay
NBC-148	NASNI-CVN15	32° 42’ 49” N	117° 11’ 29” W	Industrial High Risk	San Diego Bay
NBC-149	NASNI-CVN16	32° 42’ 48” N	117° 11’ 27” W	Industrial High Risk	San Diego Bay
NBC-150	NASNI-CVN17	32° 42’ 47” N	117° 11’ 25” W	Industrial High Risk	San Diego Bay
NBC-151	NASNI-CVN18	32° 42’ 46” N	117° 11’ 23” W	Industrial High Risk	San Diego Bay
NBC-152	NASNI-CVN20	32° 42’ 45” N	117° 11’ 22” W	Industrial High Risk	San Diego Bay
NBC-153	NASNI-CVN21	32° 42’ 43” N	117° 11’ 18” W	Industrial High Risk	San Diego Bay
NBC-154	NAB-3	32° 40’ 30” N	117° 09’ 54” W	Industrial Low Risk	San Diego Bay
NBC-155	NAB-4	32° 40’ 31” N	117° 09’ 52” W	Industrial Low Risk	San Diego Bay
NBC-156	NAB-6	32° 40’ 47” N	117° 09’ 31” W	Industrial High Risk	San Diego Bay
NBC-157	NAB-9	32° 40’ 33” N	117° 09’ 18” W	Industrial High Risk	San Diego Bay
NBC-158	NAB-10	32° 40’ 32” N	117° 09’ 19” W	Industrial High Risk	San Diego Bay
NBC-159	NAB-11	32° 40’ 32” N	117° 09’ 20” W	Industrial High Risk	San Diego Bay
NBC-160	NAB-17	32° 40’ 16” N	117° 09’ 37” W	Industrial Low Risk	San Diego Bay
NBC-161	NAB-30	32° 40’ 34” N	117° 09’ 47” W	Industrial Low Risk	San Diego Bay
NBC-162	NAB-32	32° 40’ 36” N	117° 9’ 43” W	Industrial Low Risk	San Diego Bay
NBC-163	NAB-33	32° 40’ 40” N	117° 09’ 39” W	Industrial High Risk	San Diego Bay
NBC-164	NAB-34	32° 40’ 41” N	117° 09’ 38” W	Industrial High Risk	San Diego Bay
NBC-165	NAB-111	32° 40’ 36” N	117° 9’ 14” W	Industrial High Risk	San Diego Bay
NBC-166	NAB-OLF4	32° 40’ 32” N	117° 9’ 52” W	Industrial Low Risk	San Diego Bay
NBC-167	NAB-OLF9	32° 40’ 31” N	117° 09’ 18” W	Industrial Low Risk	San Diego Bay
NBC-168	NAB-OLF10	32° 40’ 37” N	117° 9’ 14” W	Industrial High Risk	San Diego Bay
NBC-169	NAB-OLF13	32° 40’ 35” N	117° 09’ 46” W	Industrial Low Risk	San Diego Bay
NBC-170	NAB-OLF18	32° 40’ 39” N	117° 09’ 40” W	Industrial High Risk	San Diego Bay

Listing of NBC Industrial Storm Water Discharge Locations					
Discharge Point	**Navy ID Number**	**Latitude**	**Longitude**	**Outfall Risk Level**	**Receiving Water**
NBC-171	NAB-OLF20	32° 40’ 44” N	117° 09’ 35” W	Industrial Low Risk	San Diego Bay
NBC-172	NAB-OLF21	32° 40’ 37” N	117° 09’ 51” W	Industrial Low Risk	San Diego Bay
NBC-173	NAB-OLF22	32° 40’ 38” N	117° 09’ 50” W	Industrial Low Risk	San Diego Bay
NBC-174	NAB-OLF23	32° 40’ 38” N	117° 09’ 48” W	Industrial Low Risk	San Diego Bay
NBC-175	NAB-OLF24	32° 40’ 39” N	117° 09’ 47” W	Industrial Low Risk	San Diego Bay
NBC-176	NAB-OLF25	32° 40’ 39” N	117° 09’ 46” W	Industrial Low Risk	San Diego Bay
NBC-177	NAB-OLF26	32° 40’ 40” N	117° 09’ 45” W	Industrial Low Risk	San Diego Bay
NBC-178	NAB-OLF27	32° 40’ 41” N	117° 09’ 45” W	Industrial Low Risk	San Diego Bay
NBC-179	NAB-OLF28	32° 40’ 42” N	117° 09’ 44” W	Industrial Low Risk	San Diego Bay
NBC-180	NAB-OLF29	32° 40’ 42” N	117° 09’ 43” W	Industrial Low Risk	San Diego Bay
NBC-181	NAB-OLF30	32° 40’ 43” N	117° 09’ 42” W	Industrial Low Risk	San Diego Bay
NBC-182	NAB-OLF31	32° 40’ 44” N	117° 09’ 41” W	Industrial Low Risk	San Diego Bay
NBC-183	NAB-OLF33	32° 40’ 45” N	117° 09’ 40” W	Industrial Low Risk	San Diego Bay
NBC-184	NAB-OLF34	32° 40’ 45” N	117° 09’ 39” W	Industrial Low Risk	San Diego Bay
NBC-185	NAB-OLF35	32° 40’ 46” N	117° 09’ 38” W	Industrial Low Risk	San Diego Bay
NBC-186	NAB-OLF36	32° 40’ 44” N	117° 09’ 34” W	Industrial Low Risk	San Diego Bay
NBC-187	NAB-OLF39	32° 40’ 32” N	117° 09’ 50” W	Industrial Low Risk	San Diego Bay
NBC-188	NAB-OLF42	32° 40’ 30” N	117° 09’ 23” W	Industrial High Risk	San Diego Bay
NBC-189	NAB-OLF43	32° 40’ 49” N	117° 09’ 36” W	Industrial Low Risk	San Diego Bay
NBC-190	NOLF-2	32° 33’ 50” N	117° 06’ 28” W	Industrial Low Risk	Tijuana Estuary
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RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-1	GENERAL	
	COMMENT: *Implementation of the Tentative Order and its burdensome, untested regulations will be too costly.* Comments were submitted by members of the Building Industry, Community Planning Groups, Copermittees, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities generally expressing concerns with costs to implement requirements. Commenters also generally expressed support for practical, cost-effective, and scientifically based regulation.	**Building Industry / Industry** Associated General Contractors of America **Community Planning Groups** Jamul Dulzura Community Planning Group Julian Community Planning Group Pala Pauma Valley Community Sponsor Group Ramona Community Planning Group **Copermittees** County of San Diego San Diego County Fire Authority San Diego Unified Port District **Environmental Organizations** Clean Water Now **Engineering/Design Consultants** Latitude 33 Planning and Engineering **State/Federal Government** Senator Mark Wyland **Societies/Associations/Coalitions** BIOCOM East Otay Mesa Property Owners Association Otay Mesa Property Owners Association San Diego Association of Realtors San Diego County Taxpayers Association South County Economic Development Council **Other Entities** Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. National Enterprises Inc. Nuffer, Smith, Tucker, Inc. Peter Hekman Jr. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT

Gnl-1	GENERAL	
	RESPONSE: The San Diego Water Board understands the concerns expressed by the commenters about the potential costs to implement the requirements, but disagrees that the requirements are burdensome and untested. Most of the requirements in the Tentative Order are not new to the San Diego Region. The Tentative Order incorporates many existing requirements from the MS4 permits for Orange and Riverside Counties. The San Diego Water Board has put considerable effort into developing a draft Regional MS4 permit (referred to as the Tentaitve Order) that that will jointly cover thirty-nine (39) municipal, county government, and special district entities (Copermittees) in San Diego County , southern Orange County abnd southwest Riverside County. The Tentaitve Order significantly modifies the prescriptive action-based regulatory approach of the current municipal storm water permits to an outcome-based approach, with a focus on measuring and achieving improvements in MS4 discharges and receiving water quality. A key feature of the Tentaitve Order is that it provides an adaptive management pathway for the Copermittees to select and address the highest priority water quality issues through a non-punitive iterative process. The proposed adaptive management permit provisions have great promise and will allow the Copermittees to more flexibly deploy resources to achieve goals that will yield the greatest water quality improvements in the most effective and efficient manner to restore and protect the quality of the San Diego Region's receiving waters. The regional approach of the Tentaitve Order offers the opportunity to better achieve regulatory consistency as well as maximum efficiency and economy of resources for both the San Diego Water Board and the Copermittees. The San Diego Water Board has carefully considered costs of both the Tentative Order and the TMDLs included in the Tentative Order and found them to be necessary. Consideration of costs is discussed under the Economic Considerations in Section IV of the Fact Sheet. The commenters assert that the Tentative Order is too expensive, but do not consider the costs of not addressing impacts from discharges from the MS4. In addition, the San Diego Water Board has significantly modified the structure and focus of the requirements in the Tentative Order to allow the Copermittees to more efficiently and cost effectively utilize their resources, which is expected to result in the realization of significant cost savings that could not be realized in the existing MS4 permits. The Tentative Order was developed over a two year period beginning in February 2011 through a participatory approach designed to actively engage key stakeholders, The transparent and comprehensive stakeholder participation process has resulted in a Tentative Order designed to be a strategic, cost-effective, and water	

Gnl-1	GENERAL	
	quality outcome based permit. Strategic in that it allows for identifying the highest priority water quality conditions to be addressed first. Cost-effective in that the Copermittees are allowed to use their limited resources on the highest priority water quality conditions and can look for efficiencies on a watershed scale. The Tentative Order is water quality outcome based in that it has a clearly defined iterative and adaptive management process that fccuses on measuring and achieving improvements in MS4 discharges and receiving water quality. The Tenaitve Order evaluates success based on water quality monitoring data and assessment, not just completing a minimum number of actions without consideration if these actions are succeeding in improving water quality.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-2	GENERAL	
	COMMENT: *Allow current permit requirements to remain in effect until Water Quality Improvement Plans are developed.* Comments were submitted by members of the Building Industry, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities generally requesting that the Copermittees be allowed to continue implementing the current permit requirements until Water Quality Improvement Plans are developed and implemented.	**Building Industry / Industry** Associated General Contractors of America Otay Land Company **Engineering/Design Consultants** Latitude 33 Planning and Engineering **Societies/Associations/Coalitions** BIOCOM San Diego Association of Realtors **Other Entities** Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT
	RESPONSE: The San Diego Water Board agrees that the jurisdictional runoff management program requirements of the current permits should remain in effect until the Water Quality Improvement Plans are developed and accepted. The jurisdictional runoff management program requirements of the existing MS4 permits will remain in effect until the Water Quality Improvement Plans are developed and implemented. The introductory paragraph to Provision E states, "*Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program*." This includes the development planning requirements. The Copermittees, however, will be required to comply with the prohibitions and limitations, and implement the transitional monitoring requirements, transitional reporting requirements, and TMDL requirements upon adoption of the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-3	GENERAL	
	COMMENT: *Regional MS4 Permit approach allowing prioritization may result in the neglect of parts of the watershed.* The Environmental Groups and the South Laguna Civic Association submitted comments expressing support for the Regional MS4 Permit allowing the Copermittees to focus on priorities, but they also expressed concern that the approach may also result in the neglect of parts of the watersheds. The South Laguna Civic Association are particularly concerned that high value habitats and coastal receiving waters of the Aliso Creek watershed will continue to be impacted by runoff from residential developments. The Environmental Groups are concerned that there will be "orphaned" priorities, or one jurisdiction will carry most of the burden of implementing the water quality improvement strategies within the watershed.	**Environmental Organizations** Environmental Groups South Laguna Civic Association
	RESPONSE: The San Diego Water Board understands the concerns, but disagrees that the approach of the Regional MS4 Permit will result in the neglect of parts of the watershed. The San Diego Water Board developed the approach of the Regional MS4 Permit because the Copermittees are no longer focused on achieving outcomes of improved water quality, but compliance with actions that must be implemented. In effect, the current approach is actually resulting in the neglect of the entire watershed because of the "everything, everywhere" approach. When everything is a priority, nothing is a priority. In contrast, the approach of the Regional MS4 Permit is to re-focus the Copermittees' efforts toward achieving outcomes that will result in improvements in MS4 discharges and receiving water quality. While not all priorities will be addressed immediately, all priorities will be addressed at some point. In allowing the Copermittees to focus on the highest priorities, lower priorities may also be addressed by the strategies being implemented to address the highest priorities. The requirements of the Tentative Order also include several elements that are intended to provide the San Diego Water Board and the public the information necessary to determine if each Copermittee is participating in implementing the Water Quality Improvement Plans. The San Diego Water Board encourages the Environmental Organizations to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for the priority water quality conditions that should be addressed. By remaining involved, the environmental organizations can also understand the opportunities and constraints that are identified during the prioritization process.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-4	GENERAL	
	COMMENT: *Meaningful enforcement of permit requirements is necessary to protect receiving waters.* The San Diego Green Building Council, Laguna Bluebelt Association, and South Laguna Civic Association each submitted comments that the Tentative Order must include requirements that result in meaningful enforcement actions. Without requirements for meaningful enforcement actions, the commenters are concerned that discharges from the MS4 and dry weather flows will continue to degrade water quality.	**Building Industry / Industry** San Diego Green Building Council **Environmental Organizations** Laguna Bluebelt Coalition South Laguna Civic Association
	RESPONSE: The San Diego Water Board agrees that meaningful enforcement actions are necessary to protect receiving waters. The requirements of the Tentative Order are all intended to result in the protection of the quality of receiving waters from MS4 discharges. The Tentative Order also includes requirements for the Copermittees to demonstrate that they are issuing enforcement actions in a timely manner to obtain compliance from sources that are discharging to their MS4s. Enforcement of the requirements of the Tentative Order by the San Diego Water Board may be necessary to compel the Copermittees to properly implement and enforce their legal authorities to adequately protect water quality. By issuing the Regional MS4 Permit, the San Diego Water Board expects to be able to reallocate its resources to better enforce permit requirements instead of developing permits and permit requirements.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-5	GENERAL	
	COMMENT: *Include requirements to develop maps or charts to track and monitor coastal receiving waters subject to MS4 runoff flows and impacts.* The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the creation of maps to show water quality impacted areas of all creeks and coastal receiving waters within the region. The South Laguna Civic Association would like an interactive map that identifies protected coastal receiving water resources and dominant littoral currents and counter currents to help identify distribution patterns of urban runoff induced algal plumes and thermal plumes.	**Environmental Organizations** Laguna Bluebelt Coalition South Laguna Civic Association
	RESPONSE: The San Diego Water Board has considered the concept, but does not agree this requirement is appropriate or necessary to be included in the requirements of the Tentative Order. The San Diego Water Board understands the desire for such spatial and temporal information to be available in a visual format. However, the creation and maintenance of such map would require the collection and processing of data that is beyond the scope of what is required to be measured and reported for the purposes of the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-6	GENERAL	
	COMMENT: *Increase use of recycled water to reduce need for imported water and discharges from MS4s.* The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the increasing the use of recycled water to reduce imported water demand. The commenters contend that increasing recycled water use will reduce discharges to the ocean.	**Environmental Organizations** Laguna Bluebelt Coalition South Laguna Civic Association
	RESPONSE: The San Diego Water Board supports and promotes the use of recycled water. The Tentative Order does not prohibit the use of recycled water, but does limit the discharge of recycled water to receiving waters. The requirements of the Tentative Order do not specifically encourage the use of recycled water, nor is it appropriate for the Tentative Order to do so. Recycled water and the discharge of recycled water are regulated by the San Diego Water Board under separate regulatory mechanisms. The San Diego Water Board agrees that the recycling of wastewater, as well as recycling non-storm water discharges and retaining and using storm water runoff has the potential to reduce the need to import water to the San Diego Region. The San Diego Water Board encourages the Environmental Organizations to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for identifying opportunities to promote recycled water use and recycling of non-storm water and storm water discharges to and from the MS4.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-7	GENERAL	
	COMMENT: *Portions of San Diego County in the Colorado River Region should not be subject to requirements of San Diego Region.* The Julian Community Planning Group submitted a comment stating that the portion of San Diego County under the jurisdiction of the Colorado River Water Board should not be subject to the requirements of the Tentative Order.	**Community Planning Groups** Julian Community Planning Group
	RESPONSE: The San Diego Water Board agrees. The requirements of the Tentative Order are only applicable to the portion of San Diego County within the jurisdiction of the San Diego Water Board.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-8	GENERAL	
	COMMENT: *Urban runoff is the San Diego Region's most urgent pollution problem.* Several Environmental Organizations, the San Diego Green Building Council, and Other Entities submitted comments stating that urban runoff is the San Diego Region's most urgent problem. Most of the commenters also acknowledged that it is a difficult problem to solve, but they are willing to work together to help solve the problem.	**Building Industry / Industry** San Diego Green Building Council **Environmental Organizations** The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition Los Penasquitos Lagoon Foundation Natural Resources Defense Council San Diego Canyonlands San Elijo Lagoon Conservancy **Other Entities** Curious Company Hector Valtierra
	RESPONSE: The San Diego Water Board agrees that runoff from developed and developing areas pose a significant problem to protecting water quality in the San Diego Region. The San Diego Water Board has developed the Regional MS4 Permit approach to allow the Copermittees to tap into the community and the resources the community is willing to provide to help address the problems associated with runoff from developed and developing areas. The San Diego Water Board encourages the community to remain involved during the development and implementation of the Water Quality Improvement Plans to provide recommendations to the Copermittees for identifying opportunities to the public for addressing problems associated with runoff from developed and developing areas.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-9	GENERAL	
	COMMENT: *The term "prohibit" should be changed to "effectively prohibit" throughout Tentative Order when referring to non-storm water discharges.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the language of the Tentative Order be revised to "effectively prohibit" non-storm water discharges to the MS4 instead of just "prohibit" to be consistent with the language of the Clean Water Act. The Natural Resources Defense Council submitted comments that assert that the Clean Water Act and the Code of Federal Regulation require an absolute prohibition of non-storm water discharges, in any amount, to the MS4.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Natural Resources Defense Council
	RESPONSE: The San Diego Water Board agrees that the language of the Tentative Order should be consistent with the Clean Water Act and Code of Federal Regulations. The Clean Water Act requires MS4 permits to include a requirement that non-storm water discharges are to be "effectively prohibited" to the MS4. The Code of Federal Regulations requires each Copermittee to have the legal authority to "prohibit" non-storm water discharges to the MS4. The Phase I Final Rule clarifies what "effectively prohibit" means (55 FR 47995): "*Section 402(p)(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to "effectively prohibit" non-storm water discharges from the municipal separate storm sewer…Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit (other than the permit for the discharge from the municipal separate storm sewer.)*" Where appropriate, the language in the Tentative Order has been revised to be consistent with the language of the Clean Water Act to include the term "effectively prohibit" instead of "prohibit" or "reduce and eliminate." In other cases, the language has been maintained to be consistent with the requirements of the Code of Federal Regulations requiring the Copermittees to establish the legal authority to "prohibit" non-storm water discharges to their MS4s and enforce that legal authority. The establishment and enforcement of the legal authority to "prohibit" non-storm water discharges to their MS4s is how the Copermittees will "effectively prohibit" non-storm water discharges to their MS4s.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-10	GENERAL	
	COMMENT: *The requirements of the Tentative Order do not allow Copermittees to adaptively manage their programs.* The Riverside County Copermittees submitted comments contending that the requirements of the Tentative Order will not allow the Copermittees to adaptively manage their programs. In particular, the Riverside County Copermittees cite the prohibitions and limitations of Provision A and the development planning requirements of Provision E.3 as requirements that will limit their ability to adaptively manage.	**Copermittees** Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees that the requirements of the Tentative Order will not allow the Copermittees to adaptively manage their programs. The approach used in developing the requirements in the Tentative Order departs significantly from the approach used in developing the requirements of previous and current permits. The current MS4 permits essentially prescribe the programs that must be implemented by each Copermittee, resulting in a focus on complying with the implementation of required actions. The current permits provide the Copermittees little or no ability to adaptively manage the programs to become more focused on achieving outcomes. In contrast, the requirements of the Tentative Order allow the Copermittees to strategically plan by identifying the highest priority pollutants or conditions in a specific watershed, goals and strategies to address those pollutants or conditions, and resources to implement the strategies. Furthermore, the Copermittees are provided the monitoring and assessment information that allows them to determine when those priorities, goals and strategies should be adjusted or are no longer appropriate. The Tentative Order is predicated on a new emphasis on water quality based outcomes (i.e., restoration or protection of water quality and beneficial uses) instead of a prescriptive action based regulatory approach (e.g., implementation of programs). The flexibility that is provided in the Tentative Order should not be mistaken as the San Diego Water Board wishing to grant full autonomy to the Copermittees to implement their jurisdictional runoff management programs. The requirements of the Clean Water Act and the Code of Federal Regulations must still be incorporated into the requirements of the Tentative Order. The Code of Federal Regulations includes several program components that must be implemented by the Copermittees. The USEPA has also provided guidance as to what minimum requirements should be included in those programs. The San Diego Water Board must balance the Copermittees' desire to have more flexibility to adjust their	

Gnl-10	GENERAL	
	programs with the statutory requirements of the Clean Water Act and the California Water Code which hold the Copermittees accountable for compliance with a minimum set of requirements that are enforceable. Given that the Tentative Order already provides the Copermittees great latitude in adjusting their programs to focus their resources on achieving improved water quality, the San Diego Water Board has extended that flexibility further by incorporating additional opportunities into the revised Tentative Order for identifying and implementing more watershed-specific requirements in areas of the Tentative Order where the Copermittees perceive and assert there is little to no flexibility provided. Please see responses to comments A-1 and E3c-2.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-11	GENERAL	
	COMMENT: *Implementation of current permit requirements and accomplishments of Orange and Riverside County Copermittees not being considered.* The Orange County and Riverside County Copermittees each submitted comments expressing concern that the Tentative Order has been developed without considering the programs and plans being developed under their current permit requirements, and does not acknowledge the accomplishments achieved by the Copermittees during the previous and current permit terms. In addition, the Orange County and Riverside County Copermittees each submitted comments that they must have an opportunity to propose changes to the requirements of the Tentative Order through the Report of Waste Discharge. The San Diego Green Building Council recommended that the Tentative Order also take into account successes that have been achieved in other jurisdictions outside of the San Diego Region.	**Building Industry / Industry** San Diego Green Building Council **Copermittees** Orange County Copermittees Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees that the Tentative Order does not consider the implementation of current permit requirements, and accomplishments and successes of the Orange County and Riverside County Copermittees and other jurisdictions. Most of the requirements included in the Tentative Order are also in the current permits issued to the Orange County and Riverside Copermittees (Order Nos. R9-2009-0002 and R9-2010-0016). The current permits issued to the Orange County and Riverside County Copermittees include prohibitions and limitations, numeric action levels, and the same jurisdictional runoff management program components. The structural BMP performance standards (i.e. storm water pollutant control retention and hydromodification management) are effectively the same as in the Orange County and Riverside County MS4 permits. The Watershed Workplans of the current permits are very similar to, and are expected to serve as the basis of the Water Quality Improvement Plans. The monitoring program requirements are very similar, with potential reductions of monitoring requirements in several instances. The reporting requirements in the Tentative Order have actually been significantly reduced compared to the current permits. The San Diego Water Board expects the Orange County and Riverside County Copermittees' implementation of their current permit requirements will make the transition from to the Tentative Order much easier than the San Diego County Copermittees because so many of the MS4 permit requirements are similar, and in many cases more prescriptive, than the requirements of the Tentative Order. The flexibility of the requirements of the Tentative Order compared to their current permit requirements will provide the Orange County and Riverside	

Gnl-11	GENERAL	
	County Copermittees many opportunities to identify more effective and efficient ways to utilize their resources to improve water quality. However, until the Orange County and Riverside County Copermittees obtain coverage under the Tentative Order, they will remain subject to the more prescriptive requirements of their current permits. Furthermore, the requirements of the Tentative Order were developed with a strong consideration of the current permit requirements being implemented by the Orange County and Riverside County Copermittees, as well the accomplishments of all the Copermittees in the San Diego Region. In fact, the Tentative Order was developed and improved based on comments received from the Orange County and Riverside County Copermittees during the 18 month administrative draft focused meeting and comment process. The Tentative Order was also developed considering the accomplishments and successes of other jurisdictions outside of the San Diego Region. The basis of incorporating an allowance for implementing a true iterative and adaptive management process is because of the accomplishments, successes, and failures observed by the San Diego Region's Copermittees, as well as those observed in other jurisdictions within California and other states. By allowing a true iterative and adaptive management process to be implemented, the San Diego Water Board expects the Copermittees to not only learn from each other's successes and failures within the San Diego Region, but the successes and failures from other jurisdictions outside the San Diego Region. The fact of the matter is that the requirements of the Tentative Order are more similar to the current permits issued to the Orange County and Riverside Copermittees than the current permit issued to the San Diego County Copermittees (Order No. R9-2007-0001). This is because most of these elements in the Tentative Order were developed based on the requirements in the current Orange County and Riverside County MS4 permits. The Tentative Order also allows the Orange County and Riverside County Copermittees to provide additional recommendations and propose changes for consideration by the Board based on their experiences and successes when they submit their Report of Waste Discharge for coverage under the Regional MS4 Permit.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-12	GENERAL	
	COMMENT: *Updating the Basin Plan needs to be a priority of the San Diego Water Board.* The Riverside County Copermittees commented that the San Diego Water Board should make updating the Basin Plan with water quality objectives based on background conditions, beneficial uses of specific water bodies, and specific conditions that influence the water bodies a priority. The Riverside County Copermittees contend that without the updates, the desired outcomes the Copermittees include in the Water Quality Improvement Plans will be arbitrary and may not achieve desired beneficial use improvements, or be appropriate.	**Copermittees** Riverside County Copermittees
	RESPONSE: The San Diego Water Board agrees that updating the Basin Plan should be a priority. Updating the Basin Plan, however, is not within the scope of developing and issuing the Tentative Order. On many occasions, dischargers have asserted that the water quality standards are not achievable, and because they are not achievable they are not appropriate. The San Diego Water Board disagrees. The water quality standards in the Basin Plan are protective of water quality and are therefore appropriate. The San Diego Water Board maintains that because they are appropriate, they must be achieved to protect water quality. If the Copermittees believe a different water quality objective is appropriate and will protect water quality, the San Diego Water Board recommends that the Copermittees collect the data and develop the evidence to support a different water quality objective to be incorporated into the Basin Plan through an amendment to the Basin Plan. Until then, the water quality standards in the Basin Plan are considered appropriate and must be implemented in MS4 permits.	

Gnl-13	GENERAL	
	COMMENT: *"Clarify" responsibilities of the Copermittees under the Tentative Order.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the requirements of the Tentative Order "clarify" the responsibilities of the Copermittees, consistent with the requirements of the Clean Water Act. The Copermittees requested revisions throughout the requirements of the Tentative Order to specify that the Copermittees must "effectively prohibit" non-storm water discharges "into the MS4" instead of "into and from the MS4," and control the discharge of "pollutants" not "pollutants in storm water" from the MS4 to the MEP. The Copermittees also requested including several qualifying phrases that the Copermittees could only operate "to the extent allowable" or "as applicable" or other such phrases to "clarify" the Copermittees were only responsible for implementing requirements subject to their legal authority The Natural Resources Defense Council (NRDC) expressed concern that the non-storm water action levels (NALs) may violate the effective prohibition of non-storm water discharges to the MS4. The NRDC requested that the Tentative Order be very clear that the Copermittees are responsible for prohibiting non-storm water discharges to the MS4. The Orange County and Riverside County Copermittees objected to language in the Tentative Order that implied the Copermittees were responsible for "enhancing" and "restoring" water quality in receiving waters, contending that they are only responsible for the discharges from their MS4s. The Orange County Copermittees also objected to the requirements for the Copermittees to evaluate stream channels for restoration, asserting the Copermittees are not responsible for restoring stream channels. The San Diego Unified Port District supported including requirements that result in jurisdictional accountability, recognizing that most of the discharges from the MS4 to San Diego Bay originate from upstream jurisdictions. The San Diego Unified Port District also provided requests for modifications to specify the downstream owners and operators of the MS4 are not responsible and should not be held liable for discharges and pollutants in discharges originating from upstream MS4s. The San Diego Unified Port District requested that the Tentative Order include requirements for the San Diego Water Board to demonstrate a Copermittee caused or contributed to an exceedance of water quality standards. The San Diego Unified Port District also encouraged the San Diego Water Board to include additional monitoring to ensure jurisdictional accountability.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District San Diego Unified Port District / Brown and Winters **Environmental Organizations** Natural Resources Defense Council

Gnl-13	GENERAL	
	RESPONSE: The San Diego Water Board reviewed and considered the recommendations and requests. The San Diego Water Board has revised the language in the Tentative Order to emphasize the Copermittees are responsible for "effectively prohibiting" non-storm water discharges "to the MS4." The language has not been revised from the control of "pollutants in storm water" to "pollutants" from the MS4 to the MEP. The San Diego Water Board maintains that the Copermittees are required to control "pollutants in storm water" to the MEP. Pollutants in non-storm water discharges are controlled through the effective prohibition of non-storm water discharges to the MS4. Please see the response to comments Gnl-9 and Fnd-3. The Tentative Order has also been revised to replace any language of "restoring water quality standards in receiving waters" to "protecting water quality standards in receiving waters from MS4 discharges." The San Diego Water Board generally did not revise the language with the qualifying phrases requested by the Copermittees. The Copermittees are required to establish the legal authority to implement the requirements of the Tentative Order. The Tentative Order does not require the Copermittees to implement requirements outside of their jurisdictions or outside of their legal authority. Please see response to comments E1-1 and E1-2. The San Diego Water Board appreciates the support expressed for the requirements that result in jurisdictional accountability. The San Diego Water Board agrees that the requirements of the Tentative Order must provide the San Diego Water Board the information necessary to account for each individual Copermittee's contribution toward improving or degrading water quality. This information will allow the San Diego Water Board to provide support to improve the Copermittee's programs, where needed, and the evidence necessary to enforce the requirements of the Tentative Order, when appropriate. The San Diego Water Board generally disagreed with the modifications to the Tentative Order requested by the San Diego Unified Port District. The San Diego Water Board maintains that the Copermittees are responsible for the discharges from their MS4s to receiving waters. If there are sources that originate from outside a Copermittee's jurisdiction, it is the Copermittee's responsibility to demonstrate to the San Diego Water Board that the source is outside of the Copermittee's legal authority to control. The San Diego Water Board considered the request by the San Diego Unified Port District for additional monitoring to ensure jurisdictional accountability. The San Diego Water Board included additional monitoring for this purpose. Please see response to comment D-5.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-14	GENERAL	
	COMMENT: *Request for consistency in MS4 permit requirements for Copermittees under the jurisdiction of multiple Regional Water Boards.* The Orange County Copermittees submitted comments requesting that the requirements in the Tentative Order be as consistent as possible with requirements in MS4 permits from other Regional Water Boards. The Orange County Copermittees include 5 municipalities that are split between 2 Regional Water Boards. The Orange County Copermittees provided recommended revisions to the Tentative Order aimed at creating greater uniformity and implementability for these 5 municipalities under two MS4 permits.	**Copermittees** Orange County Copermittees
	RESPONSE: The San Diego Water Board has reviewed and considered the recommended revisions. The San Diego Water Board understands implementing requirements that are not consistent between multiple Regional Water Board permits can present some challenges for a Copermittee. The requirements in the Tentative Order provide significantly more flexibility that will allow a Copermittee to align the implementation of its programs with the requirements of different permit requirements. The San Diego Water Board, however, has not and will not modify any requirements in the Tentative Order to reduce the accountability, enforceability or protectiveness to be more consistent with another Regional Water Board's permit requirements. For those areas of the MS4 permits where there are inconsistent requirements, the solution for the Copermittee would be to develop jurisdictional runoff management programs that implement the most protective elements of both Regional Water Boards' permit requirements and apply them throughout its jurisdiction. In doing so, the Copermittee will be in compliance with the requirements of both MS4 permits and have programs that will be most protective of water quality.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-15	GENERAL	
	COMMENT: *Findings and Fact Sheet do not provide adequate justification for new or modified requirements.* The Building Industry Association of Southern California and the Orange County Copermittees submitted comments asserting that the Findings and the Fact Sheet do not provide adequate justification for the new or modified requirements in the Tentative Order. The Building Industry Association of Southern California is particularly interested in the justification for the development planning structural BMP performance standards. The Orange County Copermittees provided examples of several specific requirements in the Tentative Order that they assert were not adequately justified.	**Building Industry / Industry** Building Industry Association of Southern California **Copermittees** Orange County Copermittees
	RESPONSE: The San Diego Water Board disagrees that the Findings and Fact Sheet do not provide adequate justification for the new or modified requirements in the Tentative Order. The San Diego Water Board understands that the commenters may not be satisfied with the justification for the requirements of the Tentative Order provided in the Findings and Fact Sheet. The San Diego Water Board maintains that the Findings and the Fact Sheet provide the background information, regulatory and legal citations, references and additional explanatory information and data in support of all the Findings and requirements in the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-16	GENERAL	
	COMMENT: *Recommendation for revising numbering system in the Tentative Order.* The Orange County Copermittees submitted comments recommending that the numbering system of the provisions in the Tentative Order provide the full number of the provision (e.g. A.1 instead of 1). The recommended revisions would assist and better orient the reader.	**Copermittees** Orange County Copermittees
	RESPONSE: The San Diego Water Board appreciates the recommendation. The San Diego Water Board understands that the length and the numerous subsections of the provisions in the Tentative Order can be difficult to navigate at times. The San Diego Water Board has included footers to assist the reader in navigating through the provisions of the Tentative Order. Additionally, the electronic PDF version of the Tentative Order will have bookmarks for the major provisions to assist in navigating the requirements of the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-17	GENERAL	
	COMMENT: *Requests for changes to schedules and deadlines in the Tentative Order.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting changes to the schedules and deadlines for developing, submitting, and implementing several requirements in the Tentative Order. In particular, the requests were focused on additional time for developing the Water Quality Improvement Plans. The San Diego Unified Port District supported the requests. The BIA Regulated Community Coalition and Environmental Groups each submitted comments with recommendations to include more time for public participation during the development of the Water Quality Improvement Plans. The commenters provided several recommendations for modifications to the schedules and deadlines in the Tentative Order that would result in more time to develop and implement the Water Quality Improvement Plans and the monitoring and assessment programs.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District **Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board reviewed and considered the recommendations to change the schedules and deadlines in the Tentative Order. The San Diego Water Board generally agrees that additional time should be provided to develop the Water Quality Improvement Plans, to allow for a robust public participation process and to provide enough time to implement the optional requirements that have been included in the revised Tentative Order if the Copermittees choose to do so. The San Diego Water Board modified many of the schedules to provide additional flexibility in scheduling the development of several deliverables, as well as including later deadlines for submitting several deliverables. The requirements have also been modified to allow the Copermittees more control in developing the schedules for implementing the monitoring requirements in the Water Quality Improvement Plans. Please see the revisions to Provisions B.3 and F.1 in the revised Tentative Order, as well as the responses to comments B-3 and F1-1.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-18	GENERAL	
	COMMENT: *Requests for additional opportunities to provide comments.* The Riverside County Copermittees, Clean Water Now, and Environmental Groups each submitted comments expressing interest in additional opportunities to provide comments. The Riverside County Copermittees requested an additional public review and comment period after the Tentative Order is revised and the responses to comments are released by the San Diego Water Board. Clean Water Now expressed disappointment with the focused meeting process used in the development of the Tentative Order, and the lack of time available to have protracted discussions. The Environmental Groups requested additional opportunities for the public to participate and provide comments during the development of the Water Quality Improvement Plans.	**Copermittees** Riverside County Copermittees **Environmental Organizations** Clean Water Now Environmental Groups
	RESPONSE: The San Diego Water Board considered the requests for additional opportunities to provide comments. The San Diego Water Board disagrees that an additional public review and comment period needs to be provided after the revised Tentative Order and responses to comments are released. Federal regulations only require that the San Diego Water Board provide at least 30 days for public comment on the Tentative Order. The lengthy public review and comment period that was provided for the Tentative Order complies with and exceeds the statutory and regulatory requirements for bringing the Tentative Order before the Board for consideration and adoption. The San Diego Water Board released an administrative draft of the Tentative Order in April 2012, which went through a 5 month review and comment period, with several focused meetings to discuss the requirements. The administrative draft of the Tentative Order was significantly revised based on the comments and information received during the focused meetings and written comments received. The Tentative Order was released in October 2012 and the public comment period was closed in January 2013. The revised Tentative Order will be the third draft of the permit, with a second round of revisions, and revisions reflected in it were made in direct response to written comments received by the San Diego Water Board. The San Diego Water Board has already provided multiple opportunities to comment on the Tentative Order. An additional opportunity to submit written comments is not required or necessary. There will be an opportunity to make oral comments on the revisions to the Tentative Order at the San Diego Water Board hearing. The San Diego Water Board understands that the commenter wished to have more lengthy discussions during the focused meetings that were held during the administrative draft review and comment period. With the exception of the commenter, the San Diego Water Board has received very positive feedback on the focused	

Gnl-18	GENERAL	
	meetings that were held. The focused meeting process was above and beyond what is required and the discussions that did take place were more inclusive than previous permit renewal processes. At each focused meeting the San Diego Water Board also extended invitations to everyone present for additional meetings outside the focused meetings. The San Diego Water Board had multiple additional in depth discussions with several groups outside of the focused meeting process on specific topics. If the commenter had contacted the San Diego Water Board for an additional meeting, the San Diego Water Board could have scheduled a meeting with the commenter to have more in depth discussions. The San Diego Water Board agrees that additional opportunities should be provided to the public to participate and comment during the development of the Water Quality Improvement Plans. The San Diego Water Board disagrees that Water Quality Improvement Plans are equivalent in meaning to "water quality control plans" as defined in Water Code section 13050, subdivision (j), requiring a public hearing for the acceptance of the Water Quality Improvement Plans. Please see response to comment B-3.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-19	GENERAL	
	COMMENT: *The maximum extent practicable (MEP) standard is the floor, not the limit, for MS4 permit requirements.* The Natural Resources Defense Council (NRDC) submitted comments asserting that the San Diego Water Board has the authority to include MS4 permit requirements that are more stringent than the MEP standard if necessary to ensure that discharges from the Copermittees' MS4s do not cause or contribute to exceedances of water quality standards in receiving waters. The NRDC cited several court decisions that support their position that the MEP standard is the floor for MS4 permit requirements, and the San Diego Water Board has the authority to impose additional more stringent requirements over and above MEP as determined to be appropriate.	**Environmental Organizations** Natural Resources Defense Council
	RESPONSE: The San Diego Water Board agrees that the MEP standard is the floor for permit requirements. In concept, the MEP standard is supposed to evolve and improve and become more stringent over time through an iterative process. In reality, in the current and previous permits issued by the San Diego Water Board, the MEP standard was essentially defined by the requirements of the MS4 permit and the iterative process only occurred when an MS4 permit was renewed by incorporating additional and more stringent requirements. Thus, the MEP standard became static rather than dynamic for each permit term, and only advanced with each permit renewal. This has resulted in multiple MS4 permits by the San Diego Water Board that have different requirements, each a little more stringent that the last one issued. In the Tentative Order the San Diego Water Board has incorporated a new regulatory approach that is expected to result in a more dynamic iterative process to advance the MEP standard during the permit term. Instead of dictating the actions that must be implemented by the Copermittees, and defining the MEP "floor" of requirements that will be utilized to determine compliance, the requirements of the Tentative Order define the iterative process that must be implemented to achieve water quality improvement outcomes through an ever advancing and improving MEP standard. With the exception of the TMDL requirements, the San Diego Water Board disagrees it is necessary to include requirements that are more stringent that the MEP standard. The approach incorporated into the Tentative Order redefines the MEP "floor" from being a "static floor" to a "dynamic floor" that is expected to rise as the Copermittees learn from their failures and successes while working toward achieving tangible improvements in water quality.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-20	GENERAL	
	COMMENT: *Include graphical representation of areas covered by the Tentative Order.* The San Diego Green Building Council submitted comments recommending that the final permit include a graphic representation of both the political and natural boundaries related to the area under the jurisdiction of the Order.	**Building Industry / Industry** San Diego Green Building Council
	RESPONSE: The San Diego Water Board appreciates the recommendation. Including a graphical representation of the area under the jurisdiction of the Tentative Order is not necessary. The Tentative Order is expected to cover all the Phase I municipalities in the San Diego Region in a phased manner. The Tentative Order will no longer be issued to three separate counties or include requirements separated by political boundaries.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-21	GENERAL	
	COMMENT: *Federal regulations require that the term of the Tentative Order not exceed five years.* The USEPA submitted comments that expressed concern that the San Diego Water Board was considering a permit term longer than five years. The USEPA supported a permit term that does not exceed five years.	**State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees that the term of the permit will not exceed five years.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Gnl-22	GENERAL	
	COMMENT: *Identification of grammatical and typographical errors.* The San Diego County Copermittees submitted comments noting several grammatical and typographical errors in the text of the Tentative Order that should be corrected.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board appreciates the identification of grammatical and typographical errors. The San Diego Water Board has corrected the grammatical and typographical errors identified by the commenter. The San Diego Water Board has corrected any grammatical and typographical errors to the extent possible in the revised Tentative Order. If there are additional grammatical and typographical errors identified in the revised Tentative Order after adoption, the San Diego Water Board can correct them without re-opening the adopted Order if they are considered minor modifications pursuant to the requirements of Provision H.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-1	LEGAL	
	COMMENT: *Concerns with strict liability for exceedances of water quality standards and receiving water limitations.* Comments were submitted by members of the Community Planning Groups, Copermittees, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities generally expressed concerns with the strict liability that the Copermittees are exposed to for exceedances of the water quality standards and receiving water limitations. The Copermittees submitted several comments that a recent Ninth Circuit Court of Appeals decision resulted in a new interpretation of precedential receiving water limitations language, or that it creates any new third party liability risks.	**Community Planning Groups** Jamul Dulzura Community Planning Group Ramona Community Planning Group **Copermittees** City of Dana Point City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego Unified Port District / Brown and Winters **Engineering/Design Consultants** Latitude 33 Planning and Engineering **State/Federal Government** Senator Mark Wyland **Societies/Associations/Coalitions** BIOCOM San Diego Association of Realtors South County Economic Development Council **Other Entities** Carol Crossman Continental Maritime of San Diego Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT
	RESPONSE: The San Diego Water Board disagrees that the recent Ninth Circuit Court of Appeals decision in NRDC v. County of Los Angeles (*Natural Resources Defense Council v. County of Los Angeles, et al.* (673 F.3d	

Lgl-1	LEGAL	
	1235 (9th Cir. 2011) (revd. on other grounds and remanded,*Los Angeles County Flood Control District v. Natural Resources Defense Council* (133 S.Ct. 710 (2013))), adopted a new interpretation of precedential receiving water limitations language or that it creates any new third party liability risks. Rather the Ninth Circuit's interpretation is consistent with the San Diego Water Board's interpretation of the precedential receiving water limitations language that affords the San Diego Water Board with discretion to take enforcement action for violations of receiving water limitations and discharge prohibitions and also allows for citizen suit enforcement – in other words, engagement in the iterative process does not create a safe harbor from liability for violations of water quality standards. In precedential orders, the State Water Board exercised its discretion to require compliance with water quality standards by directing that MS4 permits contain provision requiring discharges of pollutants in storm water to be controlled so as not to cause or contribute to exceedances of water quality standards in receiving waters. (State Water Baord Order WQ-98-01 (*Environmental Heatlh Coalition*), and WQ 99-05 (*Environmental Health Coalition*.) Consistent with federal law, the State Water Board also found it appropriate to implement best management practices (BMPs) in lieu of imposing numeric water quality-based effluent limitations to meet water quality standards. (See SWRCB Orders WQ 91-03 (*Citizens for a Better Environment*), WQ 98-01 (*Environmental Health Coalition*), WQ 2001-15 (*Building Industry Association of San Diego County*); See also 40 CFR sec. 122.44(k); Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits, USEPA, September 1995.) In these orders and USEPA guidance, the State Water Board and USEPA recognize that the storm water program will evolve over time to incorporate more stringent limitations, including improved BMPs, to meet water quality standards or numeric water quality based effluent limitations. While the State Water Board and San Diego Water Board in its recent MS4 permits have directed MS4 dischargers to achieve compliance with water quality standards through an "iterative process," using the State Water Board's precedential receiving water limitations language, the Water Boards have never interpreted the iterative process to provide a "safe harbor" for MS4 dischargers. Thus, the Ninth Circuit's recent opinion is consistent with the Water Boards' interpretation and does not create any new uncertainty or third party liability risks that did not previously exist. The San Diego Water Board recognizes and will continue to follow the State Water Board's process (commenced with a public workshop in November 2012) for reconsidering the precedential receiving water limits language and the possibility of creating a "safe harbor" from enforcement for violations of water quality	

Lgl-1	LEGAL	
	standards while an MS4 discharger engages in an iterative process of improving its controls and practices. However, the Tentative Order has been revised to provide a discharge prohibitions and receiving water limitations compliances option. Please see response to comment A-1.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-2	LEGAL	
	COMMENT: *Concerns with the Copermittees' legal authority to impose requirements on development projects where a nexus between impact on the receiving water and the project cannot be established.* Comments were submitted by members of the Copermittees, Societies/ Associations/Coalitions, and Other Entities generally expressed concerns with the Copermittees' legal authority to imposed requirements on development projects where a nexus between impact on the receiving water and the project cannot be established. The Copermittees assert that they would be subject to liability under takings clauses of the US and California Constitutions and the Mitigation Fee Act for requiring hydromodification management BMP requirements on new development or redevelopment projects that discharge to hardened channels where a hydromodification impact would be questionable and difficult to establish. Comments from the Societies/ Associations/Coalitions assert that allowing an in lieu fee for improvements to Priority Development Projects that do not cause hydromodification impacts is a direct violation of CEQA. In contrast, the South Laguna Civic Association asserts that the regulatory and legal nexus is clear between MS4 discharges and creek erosion and infrastructure damage, ocean pollution and public health hazards.	**Copermittees** City of Dana Point City of Imperial Beach City of Rancho Santa Margarita City of San Diego City Attorney County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** South Laguna Civic Association **Societies/Associations/Coalitions** East Otay Mesa Property Owners Association Otay Mesa Property Owners Association **Other Entities** National Enterprises Inc.
	RESPONSE: The San Diego Water Board recognizes the concerns of about the Copermittees' legal authority to impose hydromodification management requirements on development that causes no hydromodification impacts. Federal law mandates that permits issued to MS4s require management practices that will result in reducing pollutants to the maximum extent practicable. The state is required, by law, to select the BMPs. (See *NRDC v. USEPA* (9th Cir. 1992) 966 F.2d 1292; *Environmental Defense Center v. USEPA* (9th Cir. 2002) 344 F.3d 832, 855; *Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389.) The Tentative Order's requirements for Low Impact Development and hydromodification management controls are authorized by federal law. Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a management program which is to include "*A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plans shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed*." The Tentative Order does not impose land use regulations, nor does it restrict or control local land-use decision-	

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	making authority. Rather, the Tentative Order requires the permittees to fulfill Clean Water Act requirements and protect water quality in their land use decisions. The requirements in the Tentative Order allow for flexibility in compliance options to the extent allowable under the Clean Water Act. The substantive regulatory requirements of the Clean Water Act are a valid exercise of the federal government's enumerated powers and authority over navigable waters. (*NRDC v. USEPA* (9th Cir. 1998) 863 F.2d 1420, 1436.) Environmental regulation is not land use regulation, and therefore does not infringe upon local authority over land use decisions. (*California Coastal Commission v. Granite Rock* (1987) 480 U.S. 572. In addition, local land use planning must be consistent with general statewide laws. (*County of Los Angeles v.California State Water Resources Control Board* (2006) 143 Cal.App.4th 985, 1003.) Article 11, section 7, of the California Constitution states that a county or city may not enact laws that conflict with general laws. The Porter-Cologne Water Quality Control Act contains the California Legislature's finding that water quality is a matter of state-wide concern, requiring a statewide program administered at a regional level. (See, e.g., Wat. Code, § 13000; see also generally *Southern California Edison v. State Water Resources Control Board* (1981) 116 Cal.App.3d 751, 758.) Section 101 of the CWA has a companion policy statement, where Congress found that water quality is a matter of federal concern. The Tentative Order also does not dictate specific methods of compliance or dictate the manner in which the Copermittees use their land. Where the Tentative Order includes detailed requirements, it is to comply with the Clean Water Act and its regulations. USEPA's regulations mandate that certain requirements be included in MS4 permits in order to achieve the requirements of the Clean Water Act. Thus, federal law mandates that permits issued for MS4s require certain actions that will result in the elimination or reduction of pollutants to receiving waters and the state is required, by federal law, to select the controls necessary to meet this standard. (See *NRDC v. USEPA* (9th Cir. 1992) 966 F .2d 1292, 1308; *City of Rancho Cucamonga v. Regional Water Quality Control Bd., Santa Ana Region* (2006) 135 Cal.App.4th 1377, 1389-90.) The requirement that the Copermittees require Priority Development Projects to control post-project runoff flow rates and durations so that they do not exceed pre-development runoff flow rates and durations by more than ten percent is appropriate and necessary to reduce erosion and the discharge of pollutants into receiving waters. It does not require mitigation beyond redevelopment project impacts because the requirement lessens (although does not eliminate) the perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion) absent improved controls of post-project runoff flow rates and durations. The San Diego Water Board maintains that the Copermittees have authority to implement this	

Lgl-2	LEGAL	
	requirement, and that if implemented it would not rise to the level of a taking of private property. The pre-development condition provision is also consistent with the requirements in both the current Orange County and Riverside County MS4 permits. Please see response to comment E3c2-2. However, to remove the question of the nexus between a project's impact on an already hardened channel, the San Diego Water Board has included a hydromodification management exemption for projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Please see response to comment E3c2-3. The hydromodification management requirements that may be imposed on projects with no hydromodification impacts has been modified, but in any case would not have violated CEQA because the mitigation requirement was not imposed as a result of a CEQA analysis.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-3	LEGAL	
	COMMENT: *The Tentative Order must address water quality inconsistencies with the California Coastal Act and California Water Code.* The South Laguna Civic Association submitted comments that asserts the Tentative Order is inconsistent with the California Coastal Act and the water reclamation requirements of the California Water Code. The commenter asserts that the Tentative Order must address the water quality inconsistencies.	**Environmental Organizations** South Laguna Civic Association
	RESPONSE: The Tentative Order is not issued pursuant to the requirements of the California Coastal Act. The Tentative Order is issued pursuant to and consistent with the requirements of the federal Clean Water Act, Code of Federal Regulations, and the California Water Code for discharges of non-storm water and discharges of pollutants in storm water from the Copermittees' MS4s to receiving waters. Compliance with the requirements of the Tentative Order should also allow the Copermittees to be in compliance with the requirements of the California Coastal Act. When and where applicable, however, the Copermittees may be required to comply with the California Coastal Act under other regulatory mechanisms. The Tentative Order is not required to implement the requirements of the California Coastal Act. The Tentative Order also is not the appropriate regulatory mechanism for implementing the water reclamation requirements of the California Water Code. The water reclamation requirements of the California Water Code are implemented by the San Diego Water Board under separate regulatory mechanisms.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-4	LEGAL	
	COMMENT: *San Diego Water Board has legal authority to not incorporate the Beaches and Creeks Bacteria TMDLs into the Tentative Order.* The County of San Diego and the County of San Diego Office of County Counsel each submitted comments that assert that the San Diego Water Board has the authority to not incorporate the Beaches and Creeks Bacteria TMDLs into the Tentative Order. The comments from the County cite the MEP standard, *Defenders of Wildlife v. Browner*, and a November 2010 USEPA memorandum as providing the the basis for the legal authority. The City of Lake Forest submitted comments that also cited *Defenders of Wildlife v. Browner* as providing the the basis for the legal authority to not incorporate TMDLs into the Tentative Order. The comments from the County also assert that the scientific basis of the Beaches and Creeks Bacteria TMDLs is flawed, the requirements of the TMDLs are not achievable, and the costs to implement the requirements of the TMDLs are not worth the benefits that may be achieved. The County requested that the San Diego Water Board elect not to include the Beaches and Creeks Bacteria TMDLs in the Tentative Order and re-evaluate the TMDL. Clean Water Now submitted comments alluded to "recent legal renderings" that called into question the TMDL provisions included in the Tentative Order. Conversely, the USEPA submitted comments in support of the the San Diego Water Board's approach for incorporating applicable TMDL requirements into the Tentative Order.	**Copermittees** City of Lake Forest County of San Diego County of San Diego Office of County Counsel **Environmental Organizations** Clean Water Now **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board disagrees that it has the legal authority to not incorporate the requirements of the Beaches and Creeks Bacteria TMDLs into the Tentative Order. Federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate water quality based effluent limitations (WQBELs) that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations do not provide the option or discretion to not incorporate these WQBELs into NPDES permits. The San Diego Water Board is required to adopt and implement TMDLs through the MS4 permit, where the Copermittees' MS4 discharges are a source of the impairment. TMDLs are adopted by the San Diego Water Board pursuant to CWA section 303(d) and CWC sections 13240 and 13242. TMDL implementation programs consist of a description of the nature of actions that are necessary to achieve the WLAs (and LAs), a time schedule for the actions to be taken, and a description of the monitoring and reporting to be undertaken to	

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	determine compliance with the WLAs. Because TMDLs and their programs of implementation are adopted through the Basin Plan amendment process in California, the TMDL implementation program contained in a regional water board's basin plan becomes a regulation upon approval by the State of California Office of Administrative Law. All permits must implement the applicable water quality control plan (i.e. Basin Plan), including any applicable TMDL implementation programs (CWA §§ 303(d), 402(p)(3)(B)(iii); Cal. Water Code §§ 13263, 13377). These Basin Plan provisions thus become the applicable regulations that authorize an MS4 permit to include compliance schedules to achieve effluent limitations derived from TMDL WLAs. It is unclear whether the commenters understand that the TMDL implementation programs are the basis for the compliance schedules and, without the TMDL implementation program, Copermittees would be required to comply with final WQBELs immediately. Further, USEPA has set forth guidance regarding MS4 permits, that such permits must require compliance with applicable TMDLs to meet water quality standards. (See "Revisions to the November 22, 2002 Memorandum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) (for Storm Water Sources and NPDES Requirements Based on Those WLAs.'" (USEPA Office of Water, Nov. 10, 2010.) "*Where a TMDL has been established and there is an accompanying implementation plan that provides a schedule for an MS4 to implement the TMDL, the permitting authority* [in this case, the Regional Water Board] *should consider the schedule as it decides whether and how to establish enforceable interim requirements and interim dates in the permit*." (Id.) The San Diego Water Board is aware that the USEPA memorandum is not legally binding, but finds it very instructive and it is appropriate to consider USEPA guidance, even if that guidance *may* be modified in some manner in the future. NPDES permits are intended to support the objective of the federal Clean Water Act "*to restore and maintain the chemical, physical, and biological integrity of the Nation's waters*" (Clean Water Act section 101(a)). Water quality standards, which are the basis for the receiving water limitations in the Tentative Order, are the foundation for achieving this objective. To ensure that discharges do not cause or contribute to exceedances of water quality standards, receiving water limitations provisions are included in all NPDES permits issued pursuant to CWA section 402. Further, Clean Water Act section 402(p)(3)(B)(iii) requires permits for discharges from municipal storm sewers to "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design, and engineering methods, *and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants*." [Emphasis added.] In its Phase I Stormwater Regulations, Final Rule, USEPA elaborated on these requirements, stating that, "permits for discharges from municipal separate storm sewer systems must require	

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	controls to reduce the discharge of pollutants to the maximum extent practicable, and where necessary, water quality-based controls." (See 55 Fed. Reg. 47990, 47994 (Nov. 16, 1990).) USEPA reiterated in its Phase II Stormwater Regulations, Final Rule, that MS4 "permit conditions must provide for attainment of applicable water quality standards (including designated uses), allocations of pollutant loads established by a TMDL, and timing requirements for implementation of a TMDL." The Clean Water Act provides the San Diego Water Board, to the same extent as the Administrator of USEPA, the discretion to determine what controls are appropriate to protect water quality and achieve the objectives of the Clean Water Act. (See *Defenders of Wildlife v. Browner* (1999) 191 F.3d 1159, 1166.) As explained in the Tentative Order, compliance with the WLAs established in TMDLs is necessary to achieve compliance with water quality standards. The State Water Board and the San Diego Water Board have previously concluded that discharges from the MS4 contain pollutants that have the reasonable potential to cause or contribute to excursion above water quality standards. As such, receiving water limitations are included in the Tentative Order to ensure that individual and collective discharges from the MS4 do not cause or contribute to exceedances of water quality standards necessary to protect the beneficial uses of the receiving waters. Compliance with the WLAs established in TMDLs is necessary to achieve compliance with water quality standards. In recognition of the purpose of the NPDES program in supporting the objective of the Clean Water Act and utilizing its authority provided by CWA section 402(p)(3)(B)(iii), and considering USEPA's statements and guidance, the State Water Board has determined that MS4 permits must include compliance with water quality standards. (See State Water Board Order Nos. WQ91-03, WQ 98-01, WQ 99-05 and WQ 2001-15.) Accordingly, the provisions contained in 40 CFR 122.44(d), are applicable to MS4 permits. The San Diego Water Board also disagrees that incorporation of TMDL requirements is based on state law provisions of the Porter Cologne Water Quality Control Act and that consideration of the factors under Water Code section 13241 is required before the requirements may be implemented. TMDLs implement existing water quality objectives that are designed to protect designated beneficial uses. Numeric targets used by TMDLs to implement water quality standards are not designed to re-balance the policy interests underlying those standards. While policy considerations are important in developing water quality standards in the first instance, they are less important in formulating TMDLs that implement them. The statutory directive to adopt TMDLs in the first instance is to "implement the applicable water quality standards with seasonal variations and a margin of safety." (33 U.S.C. § 1313(c)(2)(A). See also 40 CFR §§ 131.10-13.) While consideration of economic	

Lgl-4	LEGAL	
	factors may be appropriate in adopting TMDLs, a section 13241 economic analysis is not required either in the adoption of TMDLs or in the implementation through an NPDES permit. Additionally, the implementation plan included as part of the Beaches and Creeks Bacteria TMDLs requires the San Diego Water Board to incorporate the requirements of the TMDLs into the appropriate regulatory mechanisms to implement the TMDL requirements. If the requirements of the Beaches and Creeks Bacteria TMDLs are not incorporated into any regulatory mechanisms (e.g. NPDES permits), the TMDL requirements will not be implemented and will not be enforceable. Implementation of the TMDL requirements in regulatory mechanisms must be initiated as soon as possible to achieve the requirements of the TMDL within the compliance schedules of the TMDL. The San Diego Water Board is obligated to incorporate the requirements into the MS4 permit. Otherwise, the San Diego Water Board would be in conflict with its own implementation plan requirements within the Basin Plan as well as the requirements of the Code of Federal Regulations. Please also see response to comment Lgl-10.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-5	LEGAL	
	COMMENT: *San Diego Water Board does not have the legal authority to issue a regional MS4 permit.* The Orange County and Riverside County Copermittees each submitted comments asserting that the San Diego Water Board does not have the authority to issue a regional MS4 permit under the Clean Water Act. The Orange County Copermittees argue that while it geographically abuts San Diego County, there is extensive federal land separating MS4s within its county from other MS4s and the federal regulations to not allow the issuance of a regional MS4 permit without a "connection." The commenters also raised concerns over the regulatory requirement to file a Report of Waste Discharge before obtaining coverage under the Tentative Order.	**Copermittees** Orange County Copermittees Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees that the federal regulations do not authorize the issuance of a region-wide MS4 permit coextensive with the jurisdictional boundaries of the San Diego Region. Despite the geographic separation, the San Diego Water Board has legal authority to issue a regional MS4 permti through its authority in the Clean Water Act. (See Attachement No. 2, September 7, 2012 Letter from San Diego Water Board Counsel on Legal Authority Supporting Issuance of a Regional MS4 Permit) Section 402, subpart (p)(3)(B) of the Clean Water Act states that "Permits for discharges from municipal storm sewers – (i) may be issued on a system- or jurisdiction-wide basis . . . ." The federal storm water regulations in 40 CFR at Part 122.26, subdivision (a)(1)(v) also state that the Director (the San Diego Water Board) may designate dischargers from municipal separate storm sewers on a system-wide or jurisdiction-wide basis, taking into consideration the following factors: (A) location of the the discharge with respect to waters of the United States; (B) the size of the discharge; (C) the quantity and nature of the pollutants discharged to waters of the United States and (D) other relevant factors. Consideration of these factors provides wide discretion to the San Diego Water Board in issuing MS4 permits. More specifically, the regulations permit issuance of system-wide permits covering all MS4s in "adjacent . . . large or medium separate storm sewer systems." (See 40 CFR sec. 122.26(a)(3)(iv). The regulations also support issuance of MS4 permits on watershed or "other basis" contemplating that such permits may "specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas . . . ." (40 CFR Part 122.26(a)(3)(v).) The USEPA responses to comments for the above regulations also make clear that the permitting authority, in this case, the San Diego Water Board, has flexibility to establish system- or region-wide permits. In the Final	

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	Rule published in the Federal Register and containing USEPA's responses to comments, USEPA notes that paragraph (iv) of section 122.26(a)(3) would allow an entire system in a geographical region under the purview of a state agency to be designated under a permit. (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, 55 Fed.Reg. 47990, 48030-48042 (Nov. 16, 1990).) It is important to note that a regional MS4 permit does not expand the requirements for each municipality beyond its borders as the federal regulations make clear that MS4 permittees need only comply with permit conditions relating to discharges from the MS4s for which they are operators. (40 CFR Part 122.26(a)(3)(vi).) See also September 7, 2012, memorandum from Jessica Jahr and Catherine Hagan, State Water Board's Office of Chief Counsel, to Ryan Baron and David Huff, counsels for Orange and Riverside Counties, respectively which is incorporated into this response. The other objection commenters raise concerns the regulatory requirement to file a Report of Waste Discharge (ROWD). The Tentative Order does not cover or become effective for either the Orange County or Riverside County Copermittees until the earlier of (1) either or both Counties voluntarily seeks to be covered by the permit, once adopted, or (2) Orange or Riverside County timely submits its respective ROWD proposing changes or other recommendations to the Tentative Order and appropriate changes are made concurrent with permit coverage becoming effective as to one or each County. In other words, the obligation to submit a ROWD and for the San Diego Water Board to consider an ROWD has not been abandoned and the Tentative Order reflects that the San Diego Water Board will rely on the ROWD process to frame prospective revisions to the permit. And while neither county has yet filed its next ROWD, both have been provided with ample and extensive opportunities to participate fully in the development of this Tentative Order.	

Lgl-6	LEGAL	
	COMMENT: *The requirements of the Tentative Order are more stringent that Federal law and require a CWC 13241 analysis.* The Orange County and Riverside County Copermittees, City of Lake Forest, and the Building Industry Association of Southern California assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The commenters also make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet, and assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion.	**Building Industry / Industry** Building Industry Association of Southern California **Copermittees** City of Lake Forest Orange County Copermittees Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees that there are "many requirements in the Draft Permit which exceed the federal MEP standard." The San Diego Water Board is charged with construction of and administration of the Clean Water Act in the San Diego Region. In issuing MS4 permits, "*[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants*." (*City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region* (2006) 135 Cal.App.4th 1377,1389.) However, the "*Regional Board must comply with federal law requiring detailed conditions for NPDES permits*." (*Ibid.*) Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (*NRDC v. USEPA* (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See *City of Rancho Cucamonga, supra,* 135 Cal.App.4th at 1389*; Building Industry Association of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 882-883.) Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (*Id.* at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).) Accordingly, a determination of whether the conditions contained in Tentative Order exceed the requirements of federal law cannot be based on a point by point comparison of the permit conditions with federal law. The appropriate focus is whether the permit conditions as a whole exceed the MEP standard. The commenters have failed to cite any evidence that demonstrates how requirements in the Tentative Order exceed the MEP	

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	standard or applicable requriements of federal law. The commenters assert that provisions of the Tentative Order are more stringent than the requirements of the Clean Water Act and therefore require an analysis of the factors, including economic considerations, in Water Code section 13241 before the San Diego Water Board can approve such provisions. As indicated above, the San Diego Water Board disagrees that provisions of the Tentative Order are more stringent than requirements of the Clean Water Act. Because the Tentative Order is not more stringent than federal law, its adoption does not require the San Diego Water Board to consider Water Code section 13241 factors. The California Supreme Court in *City of Burbank v. State Water Resources Control Board, et al.,* ((2005) 35 Cal.4th 613) (*Burbank*), held: [Water Code s]ection 13377 specifies that wastewater discharge permits must meet the federal standards set by federal law. In effect, section 13377 forbids a regional board's consideration of any economic hardship on the part of the permit holder if doing so would result in the dilution of the requirements set by Congress in the Clean Water Act. That act prohibits the discharge of pollutants into the navigable waters of the United States unless there is compliance with federal law (33 U.S.C. § 1322(a)), and publicly operated wastewater treatment plants such as those before us here must comply with the act's clean water standards, regardless of cost [citations]. Because [Water Code] section 13263 cannot authorize what federal law forbids, it cannot authorize a regional board, when issuing a wastewater discharge permit, to use compliance costs to justify pollutant restrictions that do not comply with federal clean water standards." (*Burbank,* 35 Cal.4th at 625.) While the *Burbank* decision does require an analysis of Water Code section 13241 factors when the state adopts permit conditions that are more stringent than federal law (*id.* at 618) the Tentative Order reflects that all of the challenged provisions are necessary to implement federal law. Thus, the San Diego Water Board is not required to consider economic information to justify a "dilution of the requirements" established in federal law. Even when applicable, consideration of economic information pursuant to section 13241 does not require a cost-benefit analysis, as some commenters suggest. And section 13241 neither specifies how regional water boards must consider its enumerated factors nor does it require that regional water boards may specific findings documenting consideration of the factors. (See *California Ass'n of Sanitation Agencies, et al. v. State Water Resources Control Board, et al.,* (208 Cal.App.4th 1438, 1464 (2012).) Nonetheless, the Fact Sheet and Response to Comments reflect economic information that has either been developed or gathered by the San Diego Water Board or has been submitted by Copermittees or others as part of this proceeding. To the extent that economic information in connection with compliance and other costs associated with challenged permit provisions, the San Diego Water Board has fully considered this information. Under these circumstances, *Burbank* does not require more.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Lgl-7	LEGAL	
	COMMENT: *The San Diego Water Board cannot determine whether a particular mandate is unfunded.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments asserting that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board does not dispute that the Commission on State Mandate ultimately has jurisdiction to determine whether the State has imposed a mandate requiring state subvention. However, it is entirely appropriate for the San Diego Water Board to set forth its legal basis to support the provisions in the Tentative Order, finding them to be necessary and appropriate to meet the federal Clean Water Act standards. While the Commission may be expert in state mandates, it has no expertise in the field of water law. As indicated in response to comment Lgl-6, above, the San Diego Water Board does not agree that provisions in the Tentative Order exceed federal requirements of the Clean Water Act. The San Diego Water Board is charged by law with administering and constructing the Clean Water Act's requirements and is entitled to considerable deference in its interpretation of the Act. (See *Buidling Industry Ass'n of San Diego, supra,* 124 Cal.App.5th at pp. 873, 879 fn.9; *County of Los Angeles v. California State Water Resources Control Bd.* (2006) 143 Cal.App.4th 985, 997.) In issuing MS4 permits, "[t]he permitting agency has discretion to decide what practices, techniques, methods and other provisions are appropriate and necessary to control the discharge of pollutants." (*City of Rancho Cucamonga v. Regional Water Quality Control Board-Santa Ana Region* (2006) 135 Cal.App.4th 1377,1389.) However, the "Regional Board must comply with federal law requiring detailed conditions for NPDES permits." (*Ibid.*) Further, USEPA expects the permitting authority to develop the specific practices that comply with the Clean Water Act on a permit-by-permit basis. (*NRDC v. USEPA* (9th Cir. 1992) 966 F.2d 1292, 1308.) To the extent the Board is exercising discretion in including certain permit requirements, the Board is exercising discretion required and/or authorized by federal law, not state law. (See *City of Rancho Cucamonga, supra,* 135 Cal.App.4th at 1389*; Building Industry Association of San Diego County v. State Water Resources Control Bd.* (2004) 124 Cal.App.4th 866, 882-883.) Further, the MEP standard is a flexible standard that balances a number of considerations, including technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness. (*Id.* at pp. 873, 874, 889.) Such considerations change over time with advances in technology and with experience gained in storm water management. (55 Fed. Reg. 47990, 48052 (Nov. 16, 1990).) The San Diego Water Board's findings are the	

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	expert conclusions of the principal state agency charged with implementing the NPDES program in California. (Cal. Wat. Code §§ 13001, 13370.) The San Diego Water Board is not precluded from including provisions in the Tentative Order which commenters may contend are state mandates and it is well within the San Diego Water Board's authority to conclude, based on its expertise in administering the Clean Water Act, the the Tentative Order does not exceed federal law and is therefore not a state mandate subject to subvention.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Lgl-8	LEGAL	
	COMMENT: *"Waters of the state" should be revised to "waters of the U.S" or "receiving waters" throughout the Tentative Order.* The Riverside County and San Diego County Copermittees each submitted comments objecting to applying the requirements of the Tentative Order to "waters of the state" instead of "waters of the U.S." which is consistent with the Clean Water Act, or "receiving waters." The Copermittees are concerned that "waters of the state" may include groundwater, which exceeds federal requirements. The Copermittees requested several revisions throughout the Tentative Order reflecting this comment.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees that certain requirements of the Tentative Order should be revised to "waters of the U.S." or "receiving waters." Where applicable and appropriate, the San Diego Water Board revised "waters of the state" to "waters of the U.S." or "receiving waters" to limit the application of a requirement to surface waters. However, because the Tentative Order also serves as waste discharge requirements and incorporates the water quality standards of the Basin Plan (i.e. discharge prohibition A.1.a), the term "waters of the state" remains appropriate where the phrase exists in the applicable Basin Plan provision, incorporated into the Tentative Order. Because the Tentative Order regulates discharges of pollutants to waters of the United States, the San Diego Water Board does not anticipate there being any MS4 discharges to groundwaters that could violate the prohibition as to waters of the state. Additionaly, such provisions are not new to San Diego Region MS4 permits. .	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-9	LEGAL	
	COMMENT: *The Tentative Order cannot include requirements to regulate storm water flow.* The Riverside County and San Diego County Copermittees, the City of Lake Forest, and the BIA Regulated Community Coalition each submitted comments that assert the Tentative Order cannot include requirements (i.e. hydromodification management requirements) to regulate storm water flow. The commenters cite a recent court decision from Virgina (*Virginia Dept. of Transp. v. U.S. Environmental Protection* Agency) as the basis for this assertion. In contrast, the Los Penasquitos Lagoon Foundation requests that the Tentative Order finds discharges (i.e. flow) from the MS4s can generate and/or contribute to discharges of pollutants downstream of the MS4 outfalls (e.g. discharge of sediment due to scouring of the natural channels).	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** City of Lake Forest Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board disagrees that the Tentative Order cannot include requirements that will result in decreasing the impact of pollutants in storm water runoff discharged from the MS4s on the physical, chemical, and biological integrity of receiving waters to the maximum extent practicable (MEP). The Tentative Order includes requirements to effectively prohibit non-storm water discharges to the MS4, and control the discharge of pollutants from the MS4 to the MEP, consistent with the requirements of the Clean Water Act and Code of Federal Regulations. If non-storm water discharges are effectively prohibited to the MS4s, there should be little to no flow from the MS4s to receiving waters. Thus, the Tentative Order already includes requirements to regulate non-storm water flow to and from the MS4s. In contrast, the MEP standard is a technologically based effluent limitation (TBEL) that applies specifically to storm water discharges from the MS4s. The Tentative Order includes development planning structural BMP requirements that act as BMP-based TBELs to implement the MEP standard for new development and significant redevelopment projects. While the development planning structural BMP requirements are separated into "*storm water pollutant control*" and "*hydromodification management*" BMP requirements, they are both for the control of pollutants in storm water discharges from the MS4 to the MEP. The hydromodification management BMP requirements of the Tentative Order do, to a significant extent, regulate flow. However, the primary purpose of the hydromodification management BMP requirements still stems from the requirement that MS4 permits include controls to reduce the discharge of pollutants in storm water from the MS4s to receiving waters. The increases in flows and durations caused by new development	

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	and significant redevelopment also results in increases to pollutants that are discharged in storm water from the MS4s to the receiving waters. The pollutants discharged will always be in excess of what would be generated in a natural environment, even with controls in place. Those increased pollutant loads associated with increased flows and durations of storm water discharging from the MS4s impact the chemical integrity (e.g. salinity, temperature, toxic pollutants), biological integrity (e.g. biological toxicity, supportable flora and fauna, habitat alteration), and physical integrity (e.g. destabilization of stream channels, excessive sediment deposition) of receiving waters. Thus, the hydromodification management BMP requirements of the Tentative Order are necessary to control the discharge of pollutants generated by new development and significant redevelopment projects in storm water discharges from the MS4 to the MEP, even if they do result in the regulation of flow. The recent district court decision from the Eastern District of Virginia (*Virginia Dept. of Transportation, et al. v. United States Environmental Protection Agency,* et al. (2013 WL 53741 (E.D.Va.) (Virginia Decision)) cited by commenters does not support their argument in the context of the Tentative Order. In the Virginia Decision, USEPA had established a TMDL limiting the flow rate of stormwater into a creek to 681.8 ft/acre-day. USEPA characterized the flow rate as a "surrogate" for sediment, a pollutant. USEPA recognized that flow in and of itself is not a pollutant. As some commenters acknowledge, the Virginia Decision is not precedential and does not bind the San Diego Water Board. More importantly, the decision is inapposite as it concerns section 303(d) of the Clean Water Act concerning total daily maximum loads (TMDLs) which sets forth a very specific requirement that for impaired water bodies, states must establish numeric loads "for those *pollutants* which the Administrator identifies under section 1314(a)(2) of this title are suitable for such calculation." Instead of setting a load for a pollutant, USEPA calculated a load for flow as a surrogate for the relevant pollutant. In contrast, as explained above, section 402(p) of the Clean Water Act provides that states issuing MS4 permits shall "require *controls* to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." (CWA, § 402(p)(3)(B)(iii).) Following the directives of this section of the Clean Water Act, the Tentative Order establishes controls discussed above such as best management practices to remove pollutants in storm water, source control and restrictions on the flow rate and duration of post-construction runoff, the latter of which not only can	

Lgl-9	LEGAL	
	contain pollutants but can affect the discharge of pollutants in the runoff. (See State Water Board Order No. WQ 2000-11 (p. 5) (*Cities of Bellflower, et al.*,) and State Water Board Order WQ 2001-15 (fn.23) (*Building Industry Association of San Diego).*). One commenter also cites to the Virginia Decision in requesting that the San Diego Water Board conform the TMDL provisions in the Tentative Order to the Virginia Decision. It is unclear how the commenter believes the Virginia Decision applies to the TMDL provisions in the Tentative Order, but as indicated above, the decision is not binding on the San Diego Water Board and any concerns with the loads established in TMDLs should most appropriately be raised in the context of the TMDL approval proceeding.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-10	LEGAL	
	COMMENT: *The numeric WQBELs violate requirements of law because they are infeasible.* The Orange County Copermittees submitted comments that object to the incorporation of numeric WQBELs for TMDLs, and assert that the inclusion of the numeric WQBELs violate the law because they are infeasible (presumably, to achieve). The Copermittees assert that the WQBELs should be BMP-based and not numeric. The Copermittees cite a 2010 USEPA memorandum, 40 CFR 122.44(k), and the Caltrans MS4 permit as justification for BMP-based instead of numeric WQBELs in the Tentative Order.	**Copermittees** Orange County Copermittees
	RESPONSE: The San Diego Water Board disagrees that including numeric WQBELs for the TMDLs in the Tentative Order violate the requirements of law. The federal regulations under 40 CFR 122.44(d)(1)(vii)(B) require that NPDES permit requirements incorporate WQBELs that must be consistent with the requirements and assumptions of any available wasteload allocations (WLAs) developed under TMDLs. The federal regulations under 40 CFR 122.44(k) do not require WQBELs to be BMP-based if numeric effluent limitations are infeasible, but only that WQBELs that implement WLAs may be expressed in the form of BMPs. BMP-based WQBELs may be allowed if BMPs alone adequately implement WLAs, and additional controls are not necessary. This is consistent with a 2002 USEPA memorandum for "*Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs*." WQBELs are required for point source discharges that have the reasonable potential to cause or contribute to an excursion of water quality standards and technology based effluent limitations or standards are not sufficient to achieve water quality standards. Where a WLA has been assigned to a discharge in a TMDL, it is concluded that there is reasonable potential for the discharger to cause or contribute to an excursion of water quality standards. The 2010 USEPA memorandum for "*Revisions to the November 22, 2002 Memoradum 'Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs'"* cited by the Copermittees states, "*For the purpose of this memorandum, numeric WQBELs use numeric parameters such as pollutant concentrations, pollutant loads, or numeric parameters actings as surrogates for pollutants […].*" The memorandum goes on to recommend, "*Where the NPDES authority determine that MS4 discharges have a reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that, where feasible, the NPDES permitting authority exercise its discretion to include numeric effluent limitations necessary to meet water quality standards*." The "where feasible" in the memorandum applies to the NPDES permitting authority's discretion to include numeric effluent	

Lgl-10	LEGAL	
	limitations necessary to meet water quality standards, not to the feasibility of achieving the numeric effluent limitations. The State Water Board, in Order WQ 2006-0012 (Boeing), has made clear that "infeasibility" in the context of numeric effluent limitations refers to "the ability or propriety of establishing" numeric limits, as opposed to the feasibility of compliance. Please also see response to comment Lgl-4. The Caltrans MS4 permit is issued by the State Water Board. Even though the Caltrans MS4 permit may allow for BMP-based WQBELs, this does not require the San Diego Water Board to include BMP-based WQBELs in the Tentative Order regardless of any potential or apparent conflict. The San Diego Water Board will issue additional requirements to Caltrans with numeric WQBELs when and where warranted. The San Diego Water Board considered the feasibility of incorporating numeric WQBELs to implement the requirements of each of the TMDLs and has determined that they are feasible, and necessary, to include to meet water quality standards, consistent with the 2010 USEPA memorandum. Numeric WQBELs are also "additional controls" necessary to implement the WLAs, consistent with the 2002 USEPA memorandum. Each of the TMDLs in the Tentative Order, however, includes BMP-based WQBELs which must be implemented to achieve the numeric WQBELs. The Tentative Order requires the Copermittees to implement the BMP-based WQBELs to achieve the numeric WQBELs. This is consistent with the 40 CFR 122.44(d)(1)(vii)(B) and 40 CFR 122.44(k), and the recommendations of the 2010 USEPA memorandum. The Tentative Order has also been revised to include interim and final TMDL compliance determination options that allow the Copermittees to demonstrate that the BMP-based WQBELs will achieve the numeric WQBELs. The numeric WQBELs are necessary for the Copermittees to quantitatively demonstrate that the BMPs implemented are achieving the WLAs of the TMDLs. Please see response to comments AttE-1 and AttE-3. Thus, the Tentative Order appropriately includes numeric WQBELs and does not violate any requirements of law.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Lgl-11	LEGAL	
	COMMENT: *Storm water pollutant control retention requirements of the Tentative Order conflict with Rainwater Capture Act of 2012 (AB 1750).* The BIA Regulated Community Coalition commented that the Rainwater Capture Act does not provide the authority to collect and retain storm water from impervious surfaces other than rooftops. Thus, the BIA Regulated Community Coalition asserts that the storm water pollutant control retention requirements of the Tentative Order may be in conflict with the Rainwater Capture Act and the retention requirements of the Tentative Order should not be enforced.	**Building Industry / Industry** BIA Regulated Community Coalition
	RESPONSE: The San Diego Water Board disagrees that the storm water pollutant control retention requirements of the Tentative Order are in conflict with the Rainwater Capture Act. The Rainwater Capture Act provides additional clarification that the collection of rainwater from rooftops does not require a water right permit. The Rainwater Capture Act does not address collection of water from other surfaces, nor does it modify or alter existing law pertaining to appropriative water rights. Retention of rainwater or diffuse surface flow before it flows into a watercourse does not require a water right permit. The storm water pollutant control retention requirements of the Tentative Order are not in conflict with the Rainwater Capture Act or existing water rights law.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-1	FINDINGS	
	COMMENT: *Requests for additional findings.* The Riverside County Copermittees requested several additional findings be included in the Tentative Order associated with water law, flooding, flood control acts, and limitations on legal authority. The County of San Diego and the County of San Diego Department of Environmental Health requested a finding with vector-related language.	**Copermittees** County of San Diego County of San Diego Department of Environmental Health Riverside County Copermittees
	RESPONSE: The San Diego Water Board considered the requests for the additional findings and determined that including the additional findings is not necessary. The requirements of the Tentative Order are consistent with the federal Clean Water Act, Code of Federal Regulations, and the California Water Code. The additional findings requested associated with water law, flooding, flood control acts, limitations on legal authority and vector-related issues are not necessary to establish that the requirements of the Tentative Order are consistent the federal Clean Water Act, Code of Federal Regulations, and the California Water Code. The San Diego Water Board did not include any additional findings as requested by the commenters. The San Diego Water Board did, however, incorporate an additional requirement under the general requirements of all development projects (new Provision E.3.a.(1)(c)) to avoid the creation of nuisance or pollution associated with vectors. Subsequently, additional discussion was also included in the Fact Sheet to encourage the design and implementation of BMPs in consultation with local vector control agencies and the California Department of Public Health.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-2	FINDINGS	
	COMMENT: *Findings 2 and 26: Remove language that states the San Diego Water Board has the authority to issue a regional MS4 permit.* The Orange County and Riverside County Copermittees each submitted comments asserting that Findings 2 and 26 were inaccurate and the San Diego Water Board does not have the authority to issues a regional MS4 permit under the Clean Water Act.	**Copermittees** Orange County Copermittees Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees that it does not have the authority to issue a regional MS4 permit. The San Diego Water Board maintains Findings 2 and 26 are accurate and the San Diego Water Board has the authority to issue a regional MS4 permit. Please see the response to comment Lgl-5.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-3	FINDINGS	
	COMMENT: *Finding 3 and 15 (and elsewhere in the Tentative Order): Remove "in storm water" from "reduce discharges of pollutants in storm water to the maximum extent practicable."* The Riverside County and San Diego County Copermittees each submitted comments that objected to requiring the control of pollutants "in storm water" to the MEP. The Copermittees assert that the Tentative Order is inconsistent with the Clean Water Act and the control of pollutants to the MEP applies to both storm water and non-storm water. The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Findings 3 and 15. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Clean Water Now
	RESPONSE: The San Diego Water Board disagrees that there is any inconsistency with the requirements of the Clean Water Act, or that the adoption of the Tentative Order should be delayed. Comments received assert that the "plain language" of the Clean Water Act states that the MEP standard applies to all pollutants discharged from the MS4, not just pollutants in storm water. The commenter, however, fails to acknowledge the "plain language" of the Clean Water Act that specifically makes a clear distinction that non-storm water discharges are to be effectively prohibited from entering the MS4. Since the "plain language" of the Clean Water Act states that non-storm water discharges to the MS4 are to be effectively prohibited (CWA section 402(p)(3)(B)(ii)), then no pollutants in non-storm water will enter the MS4 if the discharger is in compliance with this requirement. If no pollutants are entering the MS4 because non-storm water discharges are not entering the MS4, then clearly the very next requirement to control pollutant discharges from the MS4 be reduced to the MEP (CWA section 402(p)(3)(B)(iii)) intends that the discharge of pollutants only apply to storm water. Provisions A.1.b and A.3.a are consistent with CWA section 402(p)(3)(B)(ii) and CWA section 402(p)(3)(B)(iii), respectively, and the Fact Sheet further clarifies this distinction between non-storm water discharges and pollutants in storm water discharges. Findings 3 and 15 are consistent with the Clean Water Act have not be modified. The United States Supreme Court decision, *Los Angeles County Flood Control v. Natural Resources Defense Council* (2013) 133 S.Ct. 710 does not require any modifications to the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-4	FINDINGS	
	COMMENT: *Finding 7: Finding should be modified to support construction of BMPs in receiving waters.* The BIA Regulated Community Coalition submitted comments requesting revisions to Finding 7 to support the construction of BMPs in receiving waters. The commenter is concerned that the Tentative Order will not allow the construction of BMPs, or implementation of retrofitting or rehabilitation projects in waters of the U.S. or waters of the state to treat pollutants in storm water from areas of existing development. The commenter also requested a revision to Provision E.3.a.(1)(b) to reflect the requested revision to Finding 7.	**Building Industry / Industry** BIA Regulated Community Coalition
	RESPONSE: The San Diego Water Board disagrees revisions to Finding 7 are appropriate or necessary. Finding 7 correctly provides that pursuant to federal regulations under 40 CFR 131.10(a) waste transport or waste assimilation cannot be a designated use for any waters of the U.S. Thus, waters of the U.S. cannot be utilized for the treatment of pollutants in storm water discharges from the MS4s, and treatment control BMPs must not be constructed in waters of the U.S. to treat pollutants in storm water discharges from the MS4s. Finding 7 does not, however, include construction of BMPs for the treatment of pollutants in waters of the state. Thus, the San Diego Water Board has revised Provision E.3.a.(1)(b) to limit the prohibition of constructing structural BMPs in only waters of the U.S. consistent with 40 CFR 131.10(a).	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-5	FINDINGS	
	COMMENT: *Findings 8, 16 and 17: Findings should not include presumption that discharges from MS4s always contain waste or pollutants.* The Orange County and San Diego County Copermittees objected to Finding 8 stating that discharges from the MS4s contain waste, and does not acknowledge that there may not be pollutants in the discharges from the MS4s. The Copermittees requested revisions to Findings 8, 16 and 17 to reflect this position. The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 8. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available. In contrast, the Los Penasquitos Lagoon Foundation recommended that Finding 8 should also acknowledge pollutant discharges that are caused as a result of discharges from the MS4s (e.g. sediment discharged due to scouring of the receiving waters).	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** Orange County Copermittees San Diego County Copermittees **Environmental Organizations** Clean Water Now Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board disagrees that Findings 8, 16, or 17 are inaccurate, or that the adoption of the Tentative Order should be delayed. The Tentative Order is implementing the requirements of the California Water Code as well as the requirements of the Clean Water Act. Under the California Water Code section 13376, any person discharging waste, or proposing to discharge wastes to waters of the state is not authorized to discharge waste unless issued waste discharge requirements. The requirements of the Clean Water Act, specific to discharges of pollutants to waters of the U.S. are also included in the California Water Code, Chapter 5.5 of Division 7. Thus, under the California Water Code, any person discharging pollutants, or proposing to discharge pollutants to waters of the U.S. is not authorized to discharge pollutants unless issued waste discharge requirements that include NPDES requirements. Waste discharge requirements that include NPDES requirements is also an NPDES permit under the Clean Water Act. The Clean Water Act requires municipalities to obtain NPDES permits to authorize discharges of pollutants from their MS4s. Commenters cite the definition of "waste" in the California Water Code to assert that the definition does not include storm water or any discharge that is not created by human activity. Comments received also assert that	

Fnd-5	FINDINGS	
	waste discharge requirements and NPDES permits cannot regulate the discharge of "pure storm water" and that not all discharges from the MS4 contain pollutants. Discharges from the MS4 are not "pure storm water." Storm water that flows over the surface of any developed area, which includes the MS4 itself, do not enter or discharge from the MS4 without coming into contact with pollutants or constituents that alter the storm water such that it is no longer "pure storm water." Thus, storm water discharges from the MS4 contains pollutants and contain waste. It is well-known and documented that urban runoff and storm water contains pollutants. (See, e.g., State Water Board Order WQ 2001-015 ("As we stated in Board Order WQ 95-2, the requirement to adopt permits for urban runoff is undisputed, and Regional Water Boards are not required to obtain any information on the impacts of runoff prior to issuing a permit (citation). It is also undisputed that urban runoff contains 'waste' within the meaning of Water code section 13050(d), and that the federal regulations define 'discharge of a polltuant' to include 'additions of pollutants into waters of the United States from surface runoff which is collected or channeled by man.' (40 C.F.R. § 122.2.) But it is the waste or pollutants in the runoff that meet these definitions of 'waste' and 'pollutant.' And not the runoff itself. [fn]. (p. 5.)) The Tentative Order is not regulating "pure storm water" but the discharge of storm water that is being discharged as a waste and contains pollutants. Finding 8 accurately states that discharges from the MS4s contain waste, as defined in the California Water Code. Finding 8 also accurately states that discharges from the MS4s contain pollutants that adversely affect the quality of waters of the state. Findings 16 and 17 also accurately conclude that BMPs and implementation of BMPs are necessary to remove waste and pollutants in storm water discharges from the MS4s. The San Diego Water Board does not understand the comments concerning the recent United States Supreme Court decision in Los Angeles County Flood Control District v. NRDC (133 S.Ct 710 (2013). The San Diego Water Board has reviewed the opinion and does not believe the opinion necessitates any changes to the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-6	FINDINGS	
	COMMENT: *Finding 10: Finding should be modified to specify linear underground projects (LUPs) should not be subject to permanent post construction BMP requirements.* San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting revisions to Finding 10 to specify that linear underground/overhead (utility) projects (LUPs) are not subject to post construction requirements to be consistent with the State Water Board Construction General Permit findings.	**Building Industry / Industry** San Diego Gas and Electric Southern California Gas Company
	RESPONSE: The San Diego Water Board disagrees that revisions to Finding 10 are appropriate or necessary. Finding 10 accurately states that pollutants are generated by land development. Finding 10 discusses the generation of pollutants by land development in broad and general terms, and does not specify types of land development activities. Incorporating language into Finding 10 specific to LUPs is inappropriate and not necessary.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-7	FINDINGS	
	COMMENT: *Finding 11: Finding should not classify natural waters as part of the MS4, and cannot be classified as both an MS4 and receiving water.* The Orange County, Riverside County, and San Diego County Copermittees each submitted comments asserting that Finding 11 was inaccurate and the San Diego Water Board cannot classify natural waters as part of the MS4. The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 11. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available. In contrast, the Los Penasquitos Lagoon Foundation recommended that the language of Finding 11 should be maintained.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Clean Water Now Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board disagrees that Finding 11 is inaccurate, or that the adoption of the Tentative Order should be delayed. An MS4 is defined in the federal regulations as a conveyance or system of conveyances owned or operated by a Copermittee, and designed or used for collecting or conveying runoff. Therefore, the San Diego Water Board considers natural drainages that are used by the Copermittees as conveyances of runoff, as both part of the MS4 and as receiving waters. The State Water Board supports this approach. In reviewing a Petition on Order No. R9-2001-0001, the State Water Board stated "*We also agree with the Regional Water Board's concern, as stated in its response, that there may be instances where MS4s use 'waters of the United States as part of their sewer system* [...]" State Water Resources Control Board Order WQ 2001-15. Furthermore, the U.S. Supreme Court's 2006 *Rapanos* decision supports the conclusion that natural streams in developed areas can be both receiving waters and MS4s by confirming that ephemeral and intermittent streams can be waters of the U.S. subject to regulation under Clean Water Act section 404 and also be considered point sources of pollution discharges regulated under Clean Water Act section 402. (See *Rapanos, et al. v. United*	

Fnd-7	FINDINGS	
	States and Carabell et al. v. United States Army Corps of Engineers, et al. (2006) 547 U.S. 715, 743-744.) Finding 11 is accurate and consistent with the Clean Water Act and NPDES regulations.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-8	FINDINGS	
	COMMENT: *Finding 12: Finding should not state that Copermittees provide free and open access to MS4s; Copermittees are not responsible for all discharges not prohibited.* The Orange County and Riverside County Copermittees each submitted comments objecting to Finding 12 stating that the Copermittees provide free and open access to MS4s. The Riverside County Copermittees also objected to Finding 12 stating that the Copermittees cannot passively receive and discharge pollutants from third parties. The Copermittees assert that they are not responsible for discharges from their MS4s that are from third parties that are subject to the jurisdiction of the San Diego Water Board.	**Copermittees** Orange County Copermittees Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees that Finding 12 is inaccurate. The Copermittees have the option to request the authority to discharge from their MS4s under an NPDES permit or comply with the complete prohibition against the discharge of pollutants pursuant to Clean Water Act section 301(a) (33 U.S.C. § 1311(a)). These choices are provided by the federal Clean Water Act, not state laws. The Copermittees have opted to discharge from their MS4s under an NPDES permit. In doing so, they are responsible for discharges from the MS4s. Thus, Finding 12 correctly provides that the Copermittees provide free and open access to their MS4s and they are responsible for discharges into the MS4 that they do not prohibit or otherwise control. Finding 12 also correctly provides that the Copermittees cannot passively receive and discharge pollutants from third parties. The Copermittees have the responsibility of identifying the sources of discharges and pollutants from their MS4s. If the Copermittees are not actively identifying sources and cannot identify sources of discharges and pollutants to and from their MS4s, then the Copermittees are the source of the MS4s discharges and pollutants to receiving waters, even if they believe third parties are responsible for the discharges and pollutants. If, however, the Copermittees identify the sources of discharges and pollutants to or from the MS4s as outside of their legal authority to prohibit or otherwise control, then they are not passively receiving and discharging pollutants, even if they are providing free and open access to the MS4s. The data and information that the Copermittees collect to identify the third party sources can provide the evidence that the Copermittees are not responsible for the discharges and pollutants from the MS4s that can be attributed to third parties. Until the data and information are provided to identify those third parties, and demonstrate those parties are not subject to the Copermittees' legal authority, then the Copermittees are responsible for all of the discharges to and from their MS4s unless such discharges are authorized by a separate NPDES permit.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

Fnd-9	FINDINGS	
	COMMENT: *Finding 15: Finding should state that the maximum extent practicable standard applies to both non-storm water and storm water, not just storm water.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments that assert Finding 15 is inaccurate. The Copermittees assert that the Tentative Order is inconsistent with the Clean Water Act and the MEP standard applies to both non-storm and water storm water, not just storm water. The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 15. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available. San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting revisions to Finding 15 to clarify that non-storm water discharge authorized by a NPDES permit are authorized to be discharged to the MS4s.	**Building Industry / Industry** BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company **Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Clean Water Now
	RESPONSE: The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. The San Diego Water Board also disagrees that Finding 15 should be revised. Finding 15 accurately states the requirements of the Clean Water Act. The San Diego Water Board maintains that MEP standard only applies to pollutants in storm water. The San Diego Water Board also maintains that Finding 15 does not need to be clarified to state that non-storm water discharge authorized by a NPDES permit are authorized to be discharged to the MS4s. Please see the responses to comments Fnd-3 and Fnd-8, and also see Memorandum from San Diego Water Board Counsel to San Diego Water Board dated 5 November 2009, incorporated by reference herein.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Fnd-10	FINDINGS	
	COMMENT: *Finding 27: Finding should state that implementation of the requirements of the Tentative Order "will" not "may" allow the San Diego Water Board to re-categorize impaired water bodies to Category 4 in the Integrated Report.* The San Diego County Copermittees requested that Finding 27 be revised to state that the requirements of the Tentative Order "will" allow the San Diego Water Board to re-categorize impaired water bodies to Category 4 in the Integrated Report, as opposed to only "may" allow the re-categorization.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that revising Finding 27 is appropriate. Finding 27 is accurate to state that the implementation of the Water Quality Improvement Plan "may" allow the San Diego Water Board to re-categorize an impaired water body in Category 4 in the Integrated Report meaning a TMDL is not required. The Integrated Report is ultimately approved by the USEPA. The USEPA may not allow the San Diego Water Board to re-categorize an impaired water body from Category 5 (i.e. TMDL required) to Category 4 (i.e. TMDL not required) if they do not agree that the implementation of the requirements of the Tentative Order will result in attainment of the water quality standards.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Fnd-11	FINDINGS	
	COMMENT: *Finding 28: Finding should state that the requirements of the Tentative Order are more stringent than Federal law and require a CWC 13241 analysis.* The Orange County and Riverside County Copermittees each submitted comments objecting to Finding 28. The Copermittees assert that several requirements of the Tentative Order go beyond the requirements of Federal law, thus an analysis pursuant to California Water code section 13241 is required. The Copermittees make several assertions about the deficiencies they perceive with the economic considerations discussed in the Fact Sheet. The Copermittees assert that a cost-benefit analysis needs to be included in the Fact Sheet discussion. The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 28. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** Orange County Copermittees Riverside County Copermittees **Environmental Organizations** Clean Water Now
	RESPONSE: The San Diego Water Board disagrees that provisions of the Tentative Order go beyond the requirements of the Clean Water Act or Code of Federal Regulations, or that the adoption of the Tentative Order should be delayed. The San Diego Water Board considered economic information in developing the Tentative Order using the best available information, but did not do so in accordance with an analysis pursuant to California Water code section 13241. The provisions of the Tentative Order are based on and fully supported by federal requirements, as demonstrated by the legal authority provided by the Clean Water Act and Code of Federal Regulations sections cited in the Fact Sheet. Thus, the San Diego Water Board maintains that an analysis pursuant to California Water code section 13241 is not required. Federal NPDES regulations do not require that the San Diego Water Board conduct a cost-benefit analysis. Please also see response to comment Lgl-6.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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Fnd-12	FINDINGS	
	COMMENT: *Finding 29: San Diego Water Board cannot determine what is a state mandate.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments objecting to Finding 29 generally asserting that the San Diego Water Board does not have the legal authority to determine whether any provisions in the Tentative Order constitute a state mandate, and only the Commission on State Mandates can make the determination. The County of San Diego also submitted a similar comment.	**Copermittees** County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees that the Commission on State Mandates ultimately has jurisdiction to determine that a provision in the Tentative Order constitutes a state mandate. Finding 29 is, nonetheless, appropriate and necessary to express and support the San Diego Water Board's position that the Tentative Order is the result of a federal and not a state mandate. Please see the response to comment Lgl-7.	

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Fnd-13	FINDINGS	
	COMMENT: *Finding 31: Finding should support implementation of the iterative process to comply with prohibitions and limitations.* The Riverside County Copermittees submitted a comment related to Finding 31 requesting that the Tentative Order be revised to support the iterative process as a means to comply with the discharge prohibitions and receiving water limitations of Provision A. The Copermittees did not request or recommend any revisions to Finding 31, but requested revisions to Provision A to support implementation of the iterative process to comply with the discharge prohibitions and receiving water limitations.	**Copermittees** Riverside County Copermittees
	RESPONSE: The San Diego Water Board agrees that implementation of the iterative process is necessary to achieve compliance with the discharge prohibitions and receiving water limitations of Provision A. The San Diego Water Board did not make any revisions to Finding 31 or Provision A as requested by the commenter. The San Diego Water Board did, however, include an option as part of the Water Quality Improvement Plan requirements that each Copermittee may choose to implement to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provision A. Please see response to comment A-1.	

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Fnd-14	FINDINGS	
	COMMENT: *Finding 32: Finding should clarify that NPDES permitted discharges to MS4s that discharge to ASBS are authorized.* San Diego Gas and Electric and Southern California Gas Company requested modifications to Finding 32 to specify that the San Diego Water Board finds that NPDES-permitted discharges to the MS4 that subsequently discharge to ASBS will not alter ocean water quality and the Tentative Order authorizes these NPDES-permitted discharges. The commenters are concerned that the Tentative Order does not clearly state that NPDES permitted discharges to the Copermittees' MS4s that then discharge to ASBS are authorized. The BIA Regulated Community Coalition cited a recent court decision that they assert calls into question several findings, including Finding 32. Clean Water Now supported the BIA Regulated Community Coalition concerns and also alluded to court decisions that call into question several findings. In both cases, the commenters requested that the Tentative Order be delayed until a definitive interpretation of the legal decisions is made available.	**Building Industry / Industry** BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company **Environmental Organizations** Clean Water Now
	RESPONSE: The San Diego Water Board disagrees that revisions to Finding 32 are appropriate or necessary, or that the adoption of the Tentative Order should be delayed. The Tentative Order requires discharges from the Copermittees' MS4 to be consistent with the requirements of Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 (Special Protections). The Tentative Order includes provisions that apply to the Copermittees' MS4 discharges to ASBS, thus the Copermittees are subject to the requirements of the Special Protections. Incorporating the requested language into Finding 32 to find that the San Diego Water Board authorizes discharges of other NPDES-permitted discharges to the MS4 is inappropriate and not necessary.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	COMMENT: *Revise Provision A to clarify how compliance with prohibitions and limitations can be achieved*. The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the requirements of Provision A be modified to provide a clear linkage between the prohibitions and limitations of Provisions A.1 to A.3 with the iterative process required under Provision A.4 to be demonstrated through the implementation of the Water Quality Improvement Plans. The Copermittees are concerned that the language of Provision A, if not modified, will be interpreted as requiring strict and immediate compliance with the prohibitions and limitations, and the implementation of the iterative process would not be enough the demonstrate compliance with the prohibitions and limitations. Among the many recommended modifications to the requirements of Provision A, the Copermittees are generally requesting that the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a specifically state that implementation of Provision A.4 constitutes compliance. Furthermore, the Copermittees have requested that Provision A.4 explicitly state that the implementation of the iterative process constitutes compliance with any of the prohibitions and limitations under Provision A.1 to A.3, including compliance with the effective prohibitions of non-storm water discharges to the MS4s, the special protections for ASBS, and the TMDL requirements. Many Copermittees submitted separate comments in support of the requested modifications. One commenter from the Building Industry also requested similar modifications to the requirements of Provision A. In contrast, commenters from Environmental Organizations were strongly in support of maintaining the existing language and asserted that modifications to Provision A that would "weaken" the requirements, or provide "safe harbor" and would violate federal anti-backsliding requirements.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** City of Del Mar City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Diego City of San Juan Capistrano County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District / Brown and Winters **Environmental Organizations** Environmental Groups Natural Resources Defense Council
	RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees and their supporters, as well as the Environmental Organizations. The San Diego Water Board understands the concerns that the Copermittees have expressed regarding the requirements of Provision A and the apparent lack of a linkage between the iterative process under Provision A.4 and the strict compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. This language, however, is consistent with the precedential language that was issued under State Water Board Order WQ-1999-05 and has been implemented in all MS4 permits issued by the San Diego Water Board since 2001. The State Water Board has not issued an order or taken other action to supersede the	

A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	precedential language. Under the Porter-Cologne Water Quality Control Act, waste discharge requirements must implement applicable water quality control plans, including water quality objectives. The discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c and A.2.a are consistent with this requirement, and are included in all NPDES permits and Waste Discharge Requirements issued by the San Diego Water Board. These are the fundamental requirements that protect water quality by ensuring that discharges comply with applicable water quality standards to ensire protection of receving water benficial uses. The San Diego Water Board does recognize an increasing body of monitoring data indicates that water quality standards are in fact not being met by many of the Copermitees' MS4 discharges. The San Diego Water Board has as a matter of practice chosen not to enforce the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a if the Copermittees are actively engaged in implementing the other requirements of the MS4 permit. The focus of the previous MS4 permits and the San Diego Water Board has been on compliance with implementation of the actions required by the permit, rather than the water quality outcomes that are expected to be achieved. The San Diego Water Board has initiated enforcement against the Copermittees on several occasions for noncompliance with permit requirements. As noted by the Copermittees, however, the approach of the Tentative Order is a significant departure from the approach of previous MS4 permits. Previous MS4 permits did not provide the Copermittees enough flexibility to truly implement an iterative process to adaptively manage their programs to identify innovative new ways to improve the quality of discharges from their MS4s or in the receiving waters, because the actions required by the permit were relatively fixed and prescriptive. In contrast, the Tentative Order is structured to allow the Copermittees to take advantage of the iterative process and adaptively manage their programs to focus on achieving outcomes. The Tentative Order has been revised to provde an optional pathaway for the Copermittees to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provision A.1.a, A.1.c or A.2.a through implementation of technically supported iterative and adaptive management processes applicable to specific pollutant/waterbodiy combinations. The appropriate location in the Tentative Order for providing this "compliance mechanism," however, is not under Provision A. Instead, the appropriate location is under Provision B. Under the requirements of Provision B for the development of the Water Quality Improvement Plans, the San Diego Water Board has added Provision B.3.c. Provision B.3.c explicitly provides that a Copermittee will be in compliance with the requirements of Provision A.1.a, A.1.c and A.2.a if a specific set of	

A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	requirements are incorporated and implemented as part of an accepted Water Quality Improvement Plan. Under this option, a Copermittee can demonstrate compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.for specifc pollutant/waterbody combinations if the Water Quality Improvement Plan demonstrates through a robust technical analysis that the water quality improvement strategies the Copermittee plans on implementing will achieve applicable water quality stand based numeric goals by a certain date. The implementation must be verified through monitoring and assessments, and the goals, strategies and schedules in the plan can be adjusted accordingly based on those results. The more specific planning, implementation, monitoring and assessment program required under Provision B.3.c, combined with a clear set of numeric goals, strategies, and schedules that the Copermittee demonstrates will achieve compliance through, becomes the iterative and adaptive management process that the San Diego Water Board may accept as being in compliance with Provisions A.1.a, A.1.c and A.2.a, as well as Provision A.4. As recommended by the Environmental Organizations, the San Diego Water Board did not revise Provisions A.1.a, A.1.c, A.2.a and A.4, and the language of Provision A remains consistent with State Water Board Order WQ 1999-05. The addition of Provision B.3.c provides the linkage for compliance with the discharge prohibitions and receiving water limitations through the iterative process that the Copermittees and their supporters requested. The San Diego Water Board did modify Provision A.1.b to clarify how to demonstrate compliance with the effective prohibition of non-storm water discharges to the MS4s. The San Diego Water Board recognizes that the effective prohibition of non-storm water discharges to the MS4 is specifically required by the federal regulations to be achieved through the implementation of an illicit discharge detection and elimination program as specified under 40CFR122.26(d)(2)(iv)(B). Provision A.1.b has been revised to refer to Provision E.2, which is the illicit discharge detection and elimination program requirements that must be implemented by each Copermittee within its jurisdiction to effectively prohibit non-storm water discharges to its MS4. As for the requests to modify the requirements of Provision A to allow the Copermittees to utilize the Water Quality Improvement Plan to demonstrate compliance with the other requirements of Provision A pertaining to the special protections for ASBS and the TMDL requirements, the San Diego Water Board generally did not agree to modify the requirements as requested.	

A-1	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	The linkage for compliance with the ASBS requirements is provided under Provision A.1.d. Provision A.1.d specifies that discharges from MS4s to ASBS are authorized subject to the Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012. The provisions of the Special Protections are provided in Attachment A to the Order for easy reference, but the Special Protections are actually part of the Ocean Plan. The requirements for the Water Quality Improvement Plan take into account the requirements for the Special Protections. The development and implementation of the Water Quality Improvement Plans should allow the Copermittees that discharge to ASBS to demonstrate that they are in compliance with the Special Protections. As for the linkage for compliance with the TMDL requirements, the linkage is provided under Provision A.3.b. The Copermittees are required to comply with the WQBELs for the TMDLs in Attachment E. The requirements for the Water Quality Improvement Plan take into account the requirements for the TMDLs. The requirements of the TMDLs in Attachment E must be incorporated into the Water Quality Improvement Plan. The development and implementation of the Water Quality Improvement Plans should allow the Copermittees subject to TMDL requirements to demonstrate that they are in compliance with the WQBELs.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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A-2	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	COMMENT: *The maximum extent practicable (MEP) standard applies to both non-storm water and storm water.* The Riverside County Copermittees submitted comments asserting that the MEP standard of the Clean Water Act and federal regulations applies to reducing pollutants in non-storm water discharges as well as in storm water discharges. Accordingly, non-storm water discharges are authorized to be discharged if pollutants in non-storm water are reduced to the MEP. The Riverside County Copermittees requested that the language be revised to reflect this concept throughout the Tentative Order. In contrast, the Natural Resources Defense Council (NRDC) submitted comments that the non-storm water action levels (NALs) in the permit may contradict the effective prohibition of non-storm water discharges to the MS4. The NRDC is concerned that stating that the NALs are not considered by the San Diego Water Board to be enforceable limitations could be interpreted as an authorization for discharges of non-storm water, which would be in conflict with the effective prohibition requirements of the Clean Water Act for non-storm water discharges to the MS4.	**Copermittees** Riverside County Copermittees **Environmental Organizations** Natural Resources Defense Council
	RESPONSE: The San Diego Water Board disagrees that the MEP standard applies to both non-storm water and storm water. Building on the effective prohibition against non-storm water discharges, the Clean Water Act requirement to reduce pollutants discharged from the MS4 to the MEP standard necessarily is limited to storm water discharges. (See Attachment 1 November 5, 2009 Memorandum from San Diego Water Board Counsel, Non-Storm Water Discharges) The San Diego Water Board disagrees that including the NALs in the permit may contradict the effective prohibition of non-storm water discharges to the MS4. Please see the responses to comments Fnd-3 and C-1.	

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A-3	PROVISION A: PROHIBITIONS AND LIMITATIONS	
	COMMENT: *The Copermittees should only be subject to "applicable" prohibitions and water quality standards in the Basin Plan, plans and policies.* The Riverside County Copermittees are concerned that there are prohibitions and water quality standards included in Provisions A.1.c and A.2.a that do not apply to their jurisdictions. Thus those prohibitions or water quality standards should be deleted or clarified to state that they are only applicable if those discharges or water bodies are within their jurisdictions.	**Copermittees** Riverside County Copermittees
	RESPONSE: The San Diego Water Board does not agree that it is necessary to delete or clarify any of the requirements under Provisions A.1.c or A.2.a. If there are discharge prohibitions that are not applicable, then there should not be any violations of those discharge prohibitions. Likewise, if there are water quality standards that are not applicable, there should not be any violations of those water quality standards. If, however, any of those prohibitions or water quality standards is applicable, the Copermittees are required to comply or demonstrate compliance with those prohibitions and water quality standards.	

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A1-1	PROVISION A.1: Discharge Prohibitions	
	COMMENT: *MS4 discharges to environmentally sensitive area (ESA) shellfish habitat should be prohibited.* The South Laguna Civic Association commented that dry weather discharges and elevated storm water flows are incompatible with the protection of ESA shellfish habitat and should be vigorously regulated and prohibited in the Tentative Order.	**Environmental Organizations** South Laguna Civic Association
	RESPONSE: The San Diego Water Board agrees that dry weather discharges and storm water flows should be regulated to protect ESA shellfish habitats. Provision A.1.a prohibits discharges from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance in receiving waters of the state. Provision A.2.c requires that discharges from MS4s must not cause or contribute to the violation of water quality standards in any receiving waters. And, specifically for dry weather discharges, Provision A.1.b requires the Copermittees to effectively prohibit non-storm water discharges to the MS4s. Thus, the Tentative Order includes requirements for MS4 discharges that are protective of ESAs.	

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A1-2	PROVISION A.1: Discharge Prohibitions	
	COMMENT: *Specify that NPDES permitted discharges to MS4s discharging to ASBS are authorized.* San Diego Gas and Electric and Southern California Gas Company requested modifications to Provision A.1.d to specify that storm water and non-storm water discharges from the Copermittees MS4s from ASBS "made pursuant to NPDES permit" are authorized under the Tentative Order. The commenters are concerned that the Tentative Order does not clearly state that NPDES permitted discharges to the Copermittees' MS4s that then discharge to ASBS are authorized.	**Building Industry / Industry** San Diego Gas and Electric Southern California Gas Company
	RESPONSE: The San Diego Water Board disagrees that it is necessary to revise Provision A.1.d. Provision A.1.d requires discharges from the Copermittees' MS4 to be consistent with the requirements of Special Protections contained in Attachment B to State Water Board Resolution No. 2012-0012 (Special Protections). Provision A.1.d applies to the Copermittees' MS4 discharges to ASBS, thus the Copermittees are subject to the requirements of the Special Protections. If storm water and non-storm water discharges are authorized under an NPDES permit and discharged to a Copermittee's MS4, the Copermittee is responsible for identifying this NPDES permitted discharge to its MS4 that then discharges to ASBS. If the NPDES permitted discharge does not allow the Copermittees to be consistent with the requirements of the Special Protections, the Copermittees should notify the NPDES permitted discharger and/or the San Diego Water Board that the discharge must be brought into compliance with the requirements of the Special Protections. Additionally, please see the response to comment Fnd-14.	

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B-1	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	COMMENT: *Link compliance with prohibitions and limitations to development and implementation of Water Quality Improvement Plans.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that they be allowed to utilize the development and implementation of the Water Quality Improvement Plans as a compliance mechanism for the prohibitions and limitations of Provisions A.1 to A.3. Several Copermittees submitted separate comments in support of the request. Comments submitted by the Environmental Groups were not in support of such an approach, but did support incorporating numeric goals into the Water Quality Improvement Plans that are based on water quality standards and using the Water Quality Improvement Plans to hold the Copermittees accountable for achieving the water quality standards.	**Copermittees** City of Del Mar City of Poway Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District **Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees and the Environmental Organizations. The San Diego Water Board has added Provision B.3.c to provide a "pathway" to compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. Please see the response to comment A-1. Several commenters indicated that including an analysis to demonstrate that the implementation of the water quality improvement strategies would achieve compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a is not necessary. The San Diego Water Board disagrees that the analysis is not necessary. Without the analysis, the San Diego Water Board would not be able to make a determination that the implementation of the water quality improvement strategies would result in the achievement of and compliance with Provisions A.1.a, A.1.c and A.2.a for specific pollutant /waterboady combinations. In addition, the required analysis provides another level of transparency that would allow the public to make a determination that the Copermittees are in fact implementing strategies that are making progress toward achieving the requirements of Provisions A.1.a, A.1.c and A.2.a. Thus, the analysis has been incorporated into the requirements of Provision B.3.c.	

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B-2	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	COMMENT: *Support for the Water Quality Improvement Plan approach.* Comments were submitted by members of the Building Industry, Industry, the Copermittees, Environmental Organizations, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities generally supporting the approach in the Tentative Order to utilize the Water Quality Improvement development and implementation process as a more strategic, cost effective, holistic approach to improving water quality in the San Diego Region.	**Building Industry / Industry** American Society of Landscape Architects Associated General Contractors of America BIA Regulated Community Coalition Industrial Environmental Association Otay Land Company Otay Ranch New Homes **Copermittees** Orange County Copermittees Riverside County Copermittees San Diego Unified Port District **Environmental Organizations** The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition San Diego Canyonlands San Elijo Lagoon Conservancy **Engineering/Design Consultants** Latitude 33 Planning and Engineering **Societies/Associations/Coalitions** BIOCOM San Diego Association of Realtors **Other Entities** Carol Crossman Continental Maritime of San Diego Curious Company Hector Valtierra Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT
	RESPONSE: The San Diego Water Board appreciates the support expressed by the commenters for the Water Quality Improvement Plan and the more structured iterative and adaptive management process.	

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B-3	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	COMMENT: *Ensure adequate public participation in the development and updating of the Water Quality Improvement Plans.* Comments were submitted by members of the Building Industry, Environmental Organizations, Engineering/Design Consultants, USEPA, Societies/Associations/Coalitions, and Other Entities requesting the requirements of the Tentative Order ensure that there is adequate public participation during the development of the Water Quality Improvement Plans. Comments from the Environmental Organizations, the San Diego Green Building Council, and a joint comment letter from San Diego Coastkeeper and the BIA, requested that the Tentative Order require the Copermittees to form a stakeholder advisory group with knowledge of the watersheds. The comments from the Environmental Groups recommending several additional requirements for public participation during the development of the Water Quality Improvement Plans, including: 1) Requiring the Copermittees to create a schedule for developing the Water Quality Improvement Plans, 2) Modifying the required formal public review requirements to occur after identifying priorities, after identifying strategies, and after identifying goals and assessment methods, 3) Requiring Water Quality Improvement Plans to be developed consecutively instead of concurrently, 4) Require approval of the Water Quality Improvement Plans at a public hearing, and 5) Require public participation during the adaptive management process.	**Building Industry / Industry** American Society of Landscape Architects Associated General Contractors of America BIA Regulated Community Coalition San Diego Green Building Council **Environmental Organizations** Environmental Groups The Escondido Creek Conservancy Friends of Rose Canyon Creek / Rose Creek Watershed Alliance Laguna Bluebelt Coalition Los Penasquitos Lagoon Foundation Natural Resources Defense Council San Diego Canyonlands San Diego Coastkeeper and BIA San Elijo Lagoon Conservancy **Engineering/Design Consultants** Latitude 33 Planning and Engineering **State/Federal Government** USEPA **Societies/Associations/Coalitions** BIOCOM San Diego Association of Realtors **Other Entities** Continental Maritime of San Diego Hector Valtierra Curious Company Carol Crossman Gable PR Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT
	RESPONSE: The San Diego Water Board agrees that the Tentative Order should ensure adequate public participation during the development and updating of the Water Quality Improvement Plans. The public participation requirements for the development and updates of the Water Quality Improvement Plan	

B-3	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	are contained in Provisions F.1 and F.2.c. The San Diego Water Board has revised Provisions F.1 and F.2.c to include several of the elements into the public participation requirements as recommended by the commenters, and provide additional time for a robust public participation process to be included in the development of the Water Quality Improvement Plans. Provision F.1.a has been modified to include a set of public participation requirements for the development of the Water Quality Improvement Plan under Provision F.1.a.(1). Included in Provision F.1.a.(1) are requirements to: a) develop a publicly available and noticed schedule of the opportunities for the public to participate and provide comments during the development of the Water Quality Improvement Plan; b) form a Water Quality Improvement Consultation Panel that will consist of at least one San Diego Water Board staff, one representative of the environmental community, and one representative of the development community; and c) coordinate the schedules for the public participation process among the Watershed Management Areas to provide the public as much time and opportunity as possible to participate during the development of the Water Quality Improvement Plans. The role of the Water Quality Improvement Consultation Panel is similar to the requested stakeholder advisory group, which will review the elements that the Copermittees propose to include in the Water Quality Improvement Plan after the public is provided an opportunity to provide data, information and recommendations for each element. The elements of the Water Quality Improvement Plan that require public review and comment remain the same, but have been revised and reorganized under Provisions F.1.a.(2) and F.1.a.(3). The Tentative Order required a public review of the priorities and goals and then a public review of the strategies and schedules. The revised Tentative Order has been modified to first require a public review of the priorities and potential water quality improvement strategies and then a review of the goals, strategies that Copermittees plan on implementing, and the schedules. In each case, the public will be provided an opportunity to provide data, information and recommendations and the Water Quality Improvement Consultation Panel will review the elements required to be developed with the Copermittees to provide recommendations or concurrence prior to submitting to the San Diego Water Board for a public review and comment period. Provisions B.2 and B.3 were also revised and reorganized to be consistent with revisions made to Provisions F.1.a.(2) and F.1.a.(3). Provision B.2.e was revised to require the Copermittees to identify the “potential” water quality improvement strategies that could be implemented to address the highest priority water quality conditions	

B-3	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	identified by the Copermittees. The requirements for identifying numeric goals and schedules for achieving the goals were moved to Provision B.3. Thus the requirements of Provision B.2 will be subject to the public participation and development process requirements of Provision F.1.a.(2), and the requirements of Provision B.3 will be subject to the public participation and development process requirements of Provision F.1.a.(3). Provision F.1.b has also been revised to clarify the completed Water Quality Improvement Plan public review and acceptance process. The San Diego Water Board will make the determination if a public hearing to accept the Water Quality Improvement Plans will be required, or if public input will be limited to written comments. Provision F.1.b has been revised to clarify when the Water Quality Improvement Plans will be considered accepted. Finally, Provision F.2.c has been revised to clarify the requirements for public participation during the updates of the Water Quality Improvement Plans. The public will be provided an opportunity to provide data, information and recommendations and the Water Quality Improvement Consultation Panel will review the elements required to be developed with the Copermittees to provide recommendations or concurrence prior to submitting the requested updates to the San Diego Water Board.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B-4	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	COMMENT: *Allow current permit requirements to remain in place until Water Quality Improvement Plans are developed.* Comments were submitted by members of the Building Industry, Engineering/Design Consultants, State Government, Societies/Associations/Coalitions, and Other Entities requesting the Tentative Order allow the requirements of the current permits to remain in place until the Water Quality Improvement Plans were developed. There was general concern that enforcement and implementation of the new requirements of the Tentative Order would preempt the Water Quality Improvement Plans before the Water Quality Improvement Plans had a chance to be developed.	**Building Industry / Industry** Associated General Contractors of America Otay Land Company Otay Ranch New Homes **Engineering/Design Consultants** Latitude 33 Planning and Engineering **State/Federal Government** Senator Mark Wyland **Societies/Associations/Coalitions** BIOCOM San Diego Association of Realtors **Other Entities** Continental Maritime of San Diego Carol Crossman Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT
	RESPONSE: The San Diego Water Board agrees that the jurisdictional runoff management program requirements should remain in place until the Water Quality Improvement Plans are developed and accepted by the San Diego Water Board. According to the second paragraph of the opening to Provision E, "*Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E the Copermittee must continue implementing its current jurisdictional runoff management program*." Provision F.2.c does not require the jurisdictional runoff management program documents to be updated until 3 months after the acceptance of the Water Quality Improvement Plan. The Copermittees will be subject to requirements of Provision A (Prohibitions and Limitations), and responsible for implementing the requirements of Provision D (Monitoring and Assessment Program Requirements), Provision F (Reporting), and Attachment E (Specific Provisions for TMDLs) upon the effective date of the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B-5	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	COMMENT: *Adopt Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.* Comments were submitted by Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities requesting that the San Diego Water Board adopt the Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order.	**Engineering/Design Consultants** Latitude 33 Planning and Engineering **Societies/Associations/Coalitions** BIOCOM San Diego Association of Realtors **Other Entities** Continental Maritime of San Diego Carol Crossman Gable PR Hughes Marino Marston+Marston, Inc. Nuffer, Smith, Tucker, Inc. San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton Southern Cross Property Consultants Transition IT
	RESPONSE: The San Diego Water Board disagrees with adopting the Water Quality Improvement Plans as Orders to implement the requirements of the Tentative Order. The Tentative Order, when adopted by the San Diego Water Board, is an Order issued to the Copermittees to implement the requirements of the Clean Water Act and Code of Federal Regulations. The Tentative Order includes specific requirements that must be included in the Water Quality Improvement Plans, which are to be developed by the Copermittees. The Water Quality Improvement Plans themselves, therefore, cannot and should not be adopted as Orders issued by the San Diego Water Board.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B-6	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	COMMENT: *Align Water Quality Improvement Plan requirements with the Jurisdictional Runoff Management Program requirements.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that requirements in Provision E be allowed to be modified based on what is proposed in the Water Quality Improvement Plans. The Copermittees assert that the jurisdictional runoff management program requirements of Provision E are a "one size fits all" set of requirements, and the requirements of the Water Quality Improvement Plan become "additive" rather than "complimentary." Several Copermittees submitted separate comment letters supporting the concept by requesting the San Diego Water Board align the development and implementation of the Water Quality Improvement Plan better with the jurisdictional runoff management program requirements. The BIA Regulated Community Coalition also submitted comments supporting the concept. The Environmental Groups are concerned with the flexibility of the jurisdictional runoff management program requirements and commented that the Water Quality Improvement Plan should include a detailed list of activities and what activities each Copermittee will implement within its jurisdiction. The Environmental Groups are concerned that without this specificity in the Water Quality Improvement Plans, and the flexibility that is provided in the jurisdictional runoff management program requirements, would result in the burden of achieving water quality improvement within a watershed falling to only one or two Copermittees. The Environmental Groups would like to see a clearer commitment of what will be implemented by each Copermittee either in the Water Quality Improvement Plan or in the jurisdictional runoff management program documents for each Copermittee.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** City of Dana Point City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plans and jurisdictional runoff management program requirements should be better aligned and clearly present the water quality improvement strategies that each Copermittee will implement within its jurisdiction. The San Diego Water Board does not agree that the jurisdictional runoff management program requirements of Provision E should be allowed to be modified by the Water Quality Improvement Plan. The revised Tentative Order requires the Copermittees to clearly present the water quality improvement strategies that each Copermittees will implement within its jurisdiction in the Water Quality Improvement Plan. Each Copermittee must incorporate the strategies that the Copermittee commits to implement, as identified in the Water Quality Improvement Plan, into its jurisdictional runoff management program document. Please see the response to comment E-1.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B-7	PROVISION B: WATER QUALITY IMPROVEMENT PLANS	
	COMMENT: *Recommendations for revisions to the introductory paragraph of Provision B.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments recommending revisions to the introductory paragraph under Provision B. The Copermittees recommended revising the goal statement to be focused more on MS4 discharges and not on receiving waters. The Copermittees also recommended adding a statement about the linkage between the Water Quality Improvement Plan and compliance with the prohibitions and limitations of Provision A.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the recommended revisions to the introductory paragraph of Provision B. The recommended revisions by the Copermittees were not necessary and not appropriate for the introductory paragraph to Provision B. After considering the comments and recommendations from the Copermittees, however, the San Diego Water Board did make one minor revision to the introductory paragraph of Provision B. Please see the revised Tentative Order for the revision to the introductory paragraph to Provision B.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B1-1	PROVISION B.1: Watershed Management Areas	
	COMMENT: *Allow San Diego County to use Watershed Urban Runoff Management Plan (WURMP) for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the Tentative Order.* The County of San Diego and the San Diego County Copermittees requested that the requirement to develop a Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area be postponed until the Riverside County Copermittees become covered by the Tentative Order. The Riverside County Copermittees supported the request.	**Copermittees** County of San Diego Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request. The San Diego Water Board has revised the footnote to Table B-1 to state that the County of San Diego is not required to develop a Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees receive notification of coverage under the Tentative Order. Until then, the County of San Diego will be required to implement their jurisdictional runoff management program in conformance with the requirements of Order No. R9-2007-0001, and implement the transitional monitoring and assessment requirements of Provision D, the transitional reporting requirements of Provisions F.3.b, and the TMDL requirements in Attachment E.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B2e-1	PROVISION B.2.e: Numeric Goals and Schedules	
	COMMENT: *Clearly state that numeric goals are enforceable or not enforceable limitations.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the Tentative Order specify that numeric goals are not enforceable limitations. In contrast, the USEPA recommended that the Tentative Order or Fact Sheet clarify that the numeric goals (and the schedule for attainment of the goals) would become enforceable requirements once the Water Quality Improvement Plans are accepted by the San Diego Water Board.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board disagrees that additional revisions are necessary to specify the numeric goals are not enforceable limitations. The San Diego Water Board agrees with the USEPA interpretation, but disagrees with the recommendation. The San Diego Water Board did not modify the language of Provision B.2.e (now Provision B.3.a.(1) in the revised Tentative Order) because the San Diego Water Board will utilize the numeric goals to determine if the Copermittees are making progress toward improving water quality. As part of the iterative and adaptive management process, the Copermittees are allowed to modify the numeric goals and the schedules for achieving the goals if the monitoring and assessments provide the rationale to do so. If, however, the Copermittees did not modify the numeric goals or the schedules to achieve the goals, and an interim or final goal was not achieved pursuant to the schedule, the San Diego Water Board would consider the failure to achieve the numeric goal a point of non-compliance. The non-compliance would include the failure to achieve the numeric goal within the schedule, the failure to implement the iterative and adaptive management process, and a demonstration that one or more prohibitions or limitations under Provision A have been violated. Thus, the numeric goals and schedules are enforceable.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B2e-2	PROVISION B.2.e: Numeric Goals and Schedules	
	COMMENT: *Remove or modify the language for the 10 year limitation of the schedules to achieve numeric goals.* The Orange County and San Diego County Copermittees each submitted comments requesting modifications to the requirement to achieve the numeric goals within 10 years of the effective date of the Tentative Order. The Orange County Copermittees provided several reasons for removing the 10 year requirement. The San Diego County Copermittees requested that the Tentative Order clarify that the 10 year requirement be limited to achieving a goal that represents progress toward attainment of water quality standards.	**Copermittees** Orange County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request to remove the requirement. The San Diego Water Board has removed the requirement that the Copermittees must include the final dates for achieving the numeric goals that do not initially extend more than 10 years beyond the effective date of the Tentative Order. In its place, the Copermittees must develop a schedule to achieve the numeric goals within a "reasonable period of time" that can be identified during the public participation process required for the development of the Water Quality Improvement Plans. The modifications are provided under Provision B.3.a.(2) of the revised Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B3-1	PROVISION B.3: Water Quality Improvement Strategies and Schedules	
	COMMENT: *Provide a mechanism for compliance with the prohibitions and limitations in Provision A through the Water Quality Improvement Plan.* The San Diego County Copermittees proposed modifications to the requirements of Provision B.3 to include a compliance mechanism that could be included in the Water Quality Improvement Plan to demonstrate compliance with the prohibitions and limitations in Provision A. The San Diego County Copermittees proposed including an option to perform a Reasonable Assurance Analysis to demonstrate that the water quality improvement strategies will attain discharge prohibitions, receiving water limitations, and effluent limitations. The San Diego Unified Port District submitted separate comments that did not support the inclusion of a compliance option utilizing the Water Quality Improvement Plan. The Orange County and Riverside County Copermittees supported the concept of allowing the Copermittees to demonstrate that the water quality improvement strategies in the Water Quality Improvement Plan will attain discharge prohibitions, receiving water limitations, and effluent limitations, but objected to requiring a Reasonable Assurance Analysis.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District
	RESPONSE: The San Diego Water Board agrees with including an optional mechanism for compliance with the prohibitions and limitations in Provision A as part of Provision B.3. The San Diego Water Board has added Provision B.3.c as an optional mechanism that the Copermittees may utilize to demonstrate compliance with the discharge prohibitions and receiving water limitations of Provisions A.1.a, A.1.c and A.2.a. Please see the responses to comments A-1 and B-1.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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B3-2	PROVISION B.3: Water Quality Improvement Strategies and Schedules	
	COMMENT: *Allow the Copermittees to "reduce" instead of "prevent and eliminate" non-storm water discharges through the Water Quality Improvement Plan.* Comments from the Building Industry included a recommendation to modify the language of Provision B.3 to allow the Copermittees to "reduce" non-storm water discharges instead of "prevent and eliminate" these discharges to the MS4.	**Building Industry / Industry** BIA Regulated Community Coalition
	RESPONSE: The San Diego Water Board disagrees with the proposed recommendations. The Clean Water Act requires MS4 permits to include a requirement that the MS4 dischargers must "effectively prohibit" non-storm water discharges to the MS4, not just "reduce" non-storm water discharges to the MS4. Provision B.3 included the phrase "prevent and eliminate" to specify what "effectively prohibit" means. To be consistent with the language in the Clean Water Act, the San Diego Water Board has revised "prevent and eliminate" to "effectively prohibit" in Provision B.3.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B5-1	PROVISION B.5: Iterative Approach and Adaptive Management Process	
	COMMENT: *Recommendations for minor revisions to the language under iterative and adaptive management process requirements.* The Riverside County and San Diego County Copermittees each submitted comments recommending minor revisions to the language under Provision B.5 to "clarify" the requirements or to be consistent with their comments regarding non-storm water discharges (see comment Gnl-13).	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the recommended revisions to Provision B.5. The San Diego Water Board did not make any of the minor revisions recommended by the Copermittees as they were not necessary, not appropriate, or changed the intent of the requirement. The San Diego Water Board did, however, make several revisions to Provision B.5 to be consistent with the revisions made to Provisions B.2 and B.3, as discussed in the response to comment B-3.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

B6-1	PROVISION B.6: Water Quality Improvement Plan Submittal, Updates, and Implementation	
	COMMENT: *Clarify that the implementation of Water Quality Improvement Plans may demonstrate TMDLs are not required.* The San Diego County Copermittees requested that the Tentative Order, under Finding 27, clarify that the implementation of the requirements "will" not "may" allow the San Diego Water Board to include an impaired water body in Category 4 in the Integrated Report (i.e. TMDL not required). The USEPA recommended including language in the Fact Sheet to clarify that the monitoring and assessments implemented as part of the Water Quality Improvement Plan may demonstrate that TMDLs are not necessary for water bodies listed on the 303(d) List.	**Copermittees** San Diego County Copermittees **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board disagrees with the request by the Copermittees. The San Diego Water Board agrees with the recommendation from the USEPA. Finding 27 is correct to state that the implementation of the Water Quality Improvement Plan "may" allow the San Diego Water Board to re-categorize an impaired water body in Category 4 in the Integrated Report meaning a TMDL is not required. Please see the response to comment Fnd-8. The San Diego Water Board has modified the Fact Sheet discussion for Provision B.6 as recommended by the USEPA.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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C-1	PROVISION C: ACTION LEVELS	
	COMMENT: *Clarify that action levels are enforceable or not enforceable limitations.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the Tentative Order clarify that the non-storm water action levels (NALs) and storm water action levels (SALs) developed pursuant to Provision C are not enforceable limitations. San Diego Gas and Electric and the Southern California Gas Company requested that the permit clarify that the NALs and SALs are not applicable to non-storm water discharges that have NPDES permits. The Natural Resources Defense Council is concerned that stating that the NALs are not considered by the San Diego Water Board to be enforceable limitations could be interpreted as an authorization for discharges of non-storm water, which would be in conflict with the effective prohibition requirements of the Clean Water Act for non-storm water discharges to the MS4. The USEPA also expressed concern that action levels based on wasteload allocations (WLAs) established as WQBELs in the TMDL requirements of Attachment E may be interpreted as not enforceable.	**Building Industry / Industry** San Diego Gas and Electric Southern California Gas Company **Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Natural Resources Defense Council **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees that additional clarification of the enforceability of the action levels is necessary. The San Diego Water Board did not revise the footnotes as requested by the Copermittees, but did revise the footnotes to clarify that NALs and SALs are not enforceable limitations unless they are based on WQBELs expressed as interim or final effluent limitations for any TMDLs in Attachment E and the interim or final compliance dates have passed. The San Diego Water Board also revised the introductory paragraph under Provision C.1 to specify that the NALs must be incorporated into the Water Quality Improvement Plans to support the development and prioritization of water quality improvement strategies for "effectively prohibiting" not just "addressing" non-storm water discharges to the MS4, consistent with the requirements of the Clean Water Act. Finally, the San Diego Water Board did not revise the requirements of Provision C to clarify that NALs do not apply to non-storm water discharges that have NPDES permits. The requirements of the Tentative Order, including the NALs and SALs, apply to the Copermittees' MS4 discharges, not to other NPDES permitted discharges, thus it is not necessary or appropriate to specify that the NALs are not applicable to other NPDES permitted discharges.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

C-2	PROVISION C: ACTION LEVELS	
	COMMENT: *Allow the Copermittees to develop action levels instead of prescribing required action levels.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that they be allowed to develop or propose non-storm water action levels (NALs) and storm water action levels (SALs) as part of the Water Quality Improvement Plan development process rather than being required to include a prescribed set of NALs and SALs in addition to other NALs and SALs that may be developed as part of the Water Quality Improvement Plan. The Copermittees expressed concern that requiring the prescribed NALs and SALs under Provision C would result in unnecessary analyses for constituents that are not a priority identified in the Water Quality Improvement Plan. The Orange County and San Diego County Copermittees are concerned that the inclusion of the chemically-based prescribed action levels under Provision C may not be the best metric to measure progress toward protection and enhancement of receiving waters if the numeric goals are biologically- or physically-based.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request to remove the requirements to include the prescribed NALs and SALs in the Water Quality Improvement Plans. The NALs and SALs under Provision C have been included to support the development and prioritization of the water quality strategies that will be implemented based on the highest priority water quality conditions identified by the Copermittees in the Water Quality Improvement Plans. The NALs and SALs have been included as a tool that the Copermittees and the San Diego Water Board can utilize to determine if the Copermittees are implementing the requirements of the Clean Water Act for MS4 permits, which is to *effectively prohibit non-storm water discharges to the MS4* and *reduce pollutants in storm water discharges from the MS4 to the MEP*. The NALs and SALs are not new, and are included in both of the current MS4 permits issued to Orange County (Order No. R9-2009-0002) and Riverside County (Order No. R9-2010-0016). The Copermittees are required to effectively prohibit non-storm water discharges to their MS4s, which in turn should result in little to no discharges from their MS4s to receiving waters. If there are non-storm water discharges from the Copermittees' MS4s to receiving waters, those discharges should only be NPDES permitted discharges. Even if those discharges are NPDES permitted discharges, the Copermittees are responsible for demonstrating that those discharges are not illicit discharges by identifying the sources as	

C-2	PROVISION C: ACTION LEVELS	
	NPDES permitted discharges. The prescribed NALs in Table C-1 through C-4 are associated with most if not all the pollutants that are known or suspected to be causing or contributing to impairments in water bodies on the 303(d) List for the San Diego Region. The NALs are appropriately based on water quality objectives because non-storm water discharges that do not contain pollutants at levels in exceedance of the NALs are not expected to cause or contribute to exceedances of water quality standards in receiving waters. Thus, the prescribed NALs have been included to allow the Copermittees to prioritize their efforts in effectively prohibiting unpermitted non-storm water discharges to their MS4s, demonstrate that they have effectively prohibited non-storm water discharges to their MS4s that could cause or contribute to exceedances of water quality standards, or identify NPDES permitted sources that are resulting in discharges from their MS4s that are causing or contributing to exceedances of water quality standards in receiving waters. In any case, the prescribed NALs are necessary to allow the San Diego Water Board to determine if the Copermittees are effectively prohibiting non-storm water discharges to the MS4. In contrast, the prescribed SALs are not based on water quality objectives, but set at higher levels because the San Diego Water Board recognizes that reducing pollutants in wet weather discharges from the MS4s to water quality objectives is difficult. The prescribed SALs, however, will allow the Copermittees to prioritize their efforts in reducing pollutants in storm water discharges from their MS4s, and allow the San Diego Water Board to determine if the Copermittees are reducing pollutants in storm water discharges from their MS4s to the MEP. The San Diego Water Board disagrees with the concerns about monitoring for constituents that are not associated with the highest priority water quality conditions. Periodically analyzing non-storm water and storm water discharges from the Copermittees' MS4 for other pollutants other than those associated with the highest priority water quality conditions is necessary if the Copermittees would like to re-prioritize or identify new priority water quality conditions that will be addressed. The San Diego Water Board does recognize that there is a cost associated with analyzing for additional constituents. Thus, the San Diego Water Board has modified the MS4 outfall monitoring requirements to reduce the number of dry weather MS4 outfall monitoring stations that must be analyzed (see Provision D.2.b.(2)(b) of the revised Tentative Order), and provided the Copermittees some flexibility to modify the analytes for the wet weather MS4 outfall monitoring stations (see Provision D.2.c.(5)(f) of the revised Tentative Order).	

C-2	PROVISION C: ACTION LEVELS	
	As for the concerns about the chemically-based NALs and the biologically- or physically-based numeric goals for receiving waters, the San Diego Water Board disagrees that they cannot be linked or may be incompatible. Biologically- or physically-based numeric goals will likely be measured in the receiving waters. The chemically-based NALs apply to the MS4 outfalls. The quality of the MS4 discharges and the improvement of biological or physical measurements can be linked. Both are likely necessary to demonstrate that MS4 discharges are either not causing or contributing to a biological or physical impairment of the receiving water, or an improvement in MS4 discharges is resulting in improvements in the biological or physical conditions of the receiving water. The San Diego Water Board did not revise Provision C as requested by the Copermittees.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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C-3	PROVISION C: ACTION LEVELS	
	COMMENT: *Notes to Table C-3 should refer to the California Toxics Rule (CTR) instead of including equations.* The San Diego County Copermittees recommended removing the equations to calculate the non-storm water action levels (NALs) for the priority pollutants from the notes under Table C-3 and instead refer to the CTR under 40 CFR 131.38(b)(2), where the equations can be found.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the recommendations. The San Diego Water Board has revised the notes under Table C-3 to refer to 40 CFR 131.38(b)(2).	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

C-4	PROVISION C: ACTION LEVELS	
	COMMENT: *Action levels should be included for insecticides.* The Los Penasquitos Lagoon Foundation recommended specifying action levels for insecticides.	**Environmental Organizations** Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board disagrees with this recommendation. Provision C includes numeric actions levels for specific pollutants consistent with Order Nos. R9-2009-0002 and R9-2010-0016. Provisions C.1.b and C.2.b require the Copermittees to develop additional numeric action levels for pollutants or waste constituents that cause or contribute, or are threatening to cause or contribute to a condition of pollution or nuisance associated with the highest water quality priorities related to non-storm water and storm water discharges from the MS4s, respectively. If insecticides cause or contribute to the highest priority water quality conditions identified in the Water Quality Improvement Plan, the Copermittees are required to incorporate numeric action levels into the Water Quality Improvement Plan for insecticides. The San Diego Water Board did not revise Provision C to specify action levels for insecticides.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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D-1	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	COMMENT: *Revise monitoring and assessment requirements as recommended by San Diego County Copermittees.* The San Diego County, Orange County, and Riverside County Copermittees designed a question driven monitoring and assessment program that would allow the Copermittees to adaptively manage their storm water programs more effectively and efficiently based on the monitoring data collected and the program assessments. The monitoring and reporting program in Provision D of the Tentative Order largely includes the monitoring and assessment program designed by the Copermittees. The commenters requested further revisions be made to the monitoring and assessment program in Provision D of the Tentative Order. Commenters from Environmental Organizations and Industry support the monitoring and assessment program in Provision D, however stress the importance of the Tentative Order requiring enough monitoring so that the Copermittees are able to track specific short, medium, and long term progress towards detecting and eliminating illicit discharges and improving water quality throughout the San Diego Region. Failing to require enough monitoring puts at risk a Copermittee's ability to detect increases in pollutant discharges and their effects on receiving water conditions.	**Building Industry / Industry** Industrial Environmental Association **Copermittees** City of San Diego City of Imperial Beach City of National City **Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees as well as the Environmental Organizations and Industry. Provision D largely includes the question driven monitoring and assessment program collectively designed by the Copermittees. The program requires a sufficient amount of monitoring such that the Copermittees are able to track specific short, medium, and long term progress towards the goals established in the Water Quality Improvement Plan. Through development of the Water Quality Improvement Plans, the monitoring and assessment program required in Provision D can be modified to address specific needs and strategies developed to address the highest priority water quality conditions within each jurisdiction in each Watershed Management Area. The monitoring approach in Provision D has been further refined, based on the specific comments received on the Tentative Order, to allow Copermittees to more efficiently and effectively address the critical questions necessary to adaptively manage their storm water programs and achieve improved water quality within their jurisdiction and each watershed throughout the San Diego Region.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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D-2	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	COMMENT: *Include requirements to track and monitor progress toward watershed goals and health of watersheds*. The Coastal Environmental Rights Foundation, Environmental Health Coalition, and the San Diego Coastkeeper jointly provided comments expressing concern that the monitoring and assessment requirements of the Tentative Order are not robust enough to: 1) support the Copermittees' ability to track progress towards achieving the goals and requirements of the Clean Water Act and the San Diego Basin Plan (i.e. effectively prohibiting non-storm water discharges, reducing pollutants in storm water to the maximum extent practicable, supporting the beneficial uses of the receiving waters), 2) enable the San Diego Water Board to determine compliance with the requirements of the Tentative Order, and 3) inform the public of the Copermittees' compliance with the requirements of the Tentative Order and progress towards achieving its goals. Other commenters from the Environmental Organizations expressed their support to include more monitoring in the Tentative Order, specifically requesting monitoring that provides assurances that Copermittees are able to detect any increase in pollutant discharges from their MS4 systems and be better able to address them sooner rather than later. Commenters from Industry requested the monitoring approach be iterative, strategic, cost-effective and question–driven so that it can provide the Copermittees with cost-effective informed data to guide their future storm water program actions through coordination with the San Diego Water Board staff. Several other commenters provided topic specific comments related to the need for mapping of coastal receiving waters and creeks. The USEPA commented on the need to bring the toxicity sampling requirements up to date with those recently adopted in other general and regional MS4 permits, as well as clarification to the monitoring locations required for determining compliance with TMDLs.	**Building Industry / Industry** Industrial Environmental Association **Environmental Organizations** South Laguna Civic Association CERF, EHC and SDCK Environmental Groups Laguna Bluebelt Coalition **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board disagrees with commenters from the Environmental Organizations that the monitoring and assessment requirements of the Tentative Order are not robust enough to support the Copermittees' ability to track progress towards achieving goals and requirements of the Clean Water Act (CWA), the California Water Code (CWC), and the San Diego Basin Plan (i.e. effectively prohibiting non-storm water discharges, reducing pollutants in storm water to the maximum extent practicable, and supporting the beneficial uses of the receiving waters). Provision D includes a monitoring program structure that is expected to be refined through the Water Quality	

D-2	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	Improvement Plan. The Provision D monitoring and assessment program should be customized to achieve the desired outcomes of the Water Quality Improvement Plan and ultimately the CWA and the CWC. The desired outcomes of the CWA and the CWC are about conditions in water bodies (chemical, physical, and biological integrity), and information about conditions in water bodies is essential to help guide the work of protection and restoration. The Tentative Order's monitoring and assessment program requires collection of chemical, physical, and biological data from outfalls and receiving waters designed to inform the Copermittees, the San Diego Water Board, and the public about the condition of the discharge and the conditions of the water bodies in the San Diego Region. The Tentative Order's assessment requirements are designed to take the data collected from the monitoring program and convert it to useful information about the successfulness of the Copermittees' storm water management programs to achieve the desired outcomes of the CWA and the CWC. The San Diego Water Board agrees with comments from Industry that the monitoring program needs to be iterative, strategic, cost-effective and question–driven. As part of the iterative approach and adaptive management requirements of the Tentative Order, Provision D.4 requires the Copermittees to integrate: 1) the data collected pursuant to Provision D.1 through D.3; 2) the assessment findings required pursuant to Provision D.4a-c; and, 3) information collected during the implementation of the jurisdictional runoff management programs required pursuant to Provision E to assess the effectiveness of, and any necessary modifications to, the Water Quality Improvement Plans. The requirements of the Tentative Order allow the Copermittees to adapt the monitoring based on watershed specific priority conditions within the confines of a robust Water Quality Improvement Plan development and implementation process. The San Diego Water Board agrees that the Tentative Order should be modified to increase clarity of what is required of each Copermittee, thus enabling the San Diego Water Board to better determine compliance. Several commenters provided suggested improvements to Provision D language. Selected modifications to Provision D of the Tentative Order were made to increase clarity of what is expected of the Copermittees throughout the iterative monitoring approach in efforts to increase specificity of what is minimally required and how compliance with the Tentative Order will be determined. The San Diego Water Board also agrees that the Tentative Order should be modified to increase the public's awareness of the Copermittees' compliance and progress towards achieving the goals of the Water Quality Improvement Plans. Provision F.1.a was modified to require the Copermittees implement a robust public participation process with multiple opportunities for public participation throughout the development of each component of the Water Quality Improvement Plan. Provision F.1.b provides the public another opportunity to	

D-2	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	submit comments on the Water Quality Improvement Plan during the acceptance process. The Copermittees are also required to include public participation during any updates to the Water Quality Improvement Plan. Finally, the data and information collected from monitoring, and the findings from the assessments will be reported in the Water Quality Improvement Plan Annual Reports. The San Diego Water Board has revised Provision D to be consistent with the toxicity sampling requirements included in the most recently adopted State Water Board and other Regional Water Board MS4 permits. Modifications were also made to Provision D requirements to clarify the monitoring locations for determining compliance with TMDLs.	

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D-3	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	COMMENT: *Requests for changes to schedules for monitoring and monitoring reports*. The San Diego County Copermittees submitted comments requesting an extension to the duration of the transitional monitoring program to accommodate the acceptance process of the Water Quality Improvement Plan and municipal program budget cycles. The Orange County Copermittees also submitted a comment requesting the commencement of the wet weather transitional outfall monitoring be delayed to year 2 of the transitional period to allow time to inventory and evaluate MS4 outfalls as required by Provision D.2.a.(1).	**Copermittees** Orange County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the comment that the transitional monitoring program should be continued until such time that the monitoring program within a Water Quality Improvement Plan is accepted by the San Diego Water Board. Provision D.1.a. Receiving Water, D.2.a. MS4 Outfall Discharge Monitoring, D.2.a.(2) Dry Weather MS4 Outfall Discharge Field Screening, and D.2.a.(3) Wet Weather MS4 Outfall Discharge Monitoring have been revised to require the Copermittees to conduct the transitional monitoring program until the Water Quality Improvement Plan is accepted. The San Diego Water Board disagrees with the recommendation to begin wet weather transitional monitoring in year two of the transitional period. Municipalities have already mapped the location of their MS4s for operation and maintenance reasons. Municipalities are also already aware of the majority of information listed in Provision D.2.a.(1), therefore delaying the commencement of the transitional wet weather MS4 outfall monitoring is not appropriate and no change to the Tentative Order was necessary.	

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D-4	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	COMMENT: *Require the Copermittees to utilize monitoring data from third party sources.* Comments submitted by Environmental Groups support the position that the Tentative Order should require the Copermittees to use third party data that meets particular criteria in their efforts to assess the watersheds and progress towards achieving water quality standards. The particular criteria would require third parties to maintain and make available for review the quality assurance plan, list of methods used, and standard operating procedures for the data. Additionally, the commenters requested the Tentative Order specify that data is "appropriate" if it has been collected using the latest Standard Methods of Water and Wastewater Analysis. The commenters further requested the Tentative Order require the Copermittees to solicit and evaluate third party data that meets the Tentative Order's criteria for collection, not just the data collected pursuant to Provisions D.1, D.2, and D.3 when evaluating the causes of water quality conditions. Lastly, the commenters support the position that the Copermittees should be allowed to partner with environmental groups or other third parties to complete regional special studies.	**Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board agrees that the Copermittees should be required to use appropriately collected data from third parties during their efforts to assess conditions of the watershed. During development of the Water Quality Improvement Plan, the Copermittees are required under Provision B.2.a.(6) and Provision B.2.d.(4)(e) to consider available, relevant, and appropriately collected and analyzed data, information, or studies during their efforts to identify water quality priorities based on impacts of MS4 discharges on receiving waters and pollutant sources and/or stressors that contribute to the highest priority water quality conditions. Provision B.2.a.(6) and Provision B.2.d.(4)(e) allow the Copermittees to consider other data, not just data collected by the Copermittees. Additionally, Provision D.2 allows any data, "*not collected specifically for the Order that meet the quality assurance criteria of the Copermittees and the monitoring requirements of the Order*" to be used by the Copermittees in their MS4 outfall monitoring program. Lastly, the assessments required under Provision D.4 require evaluation of the data collected pursuant to Provisions D.1, D.2, and D.3, which isn't restricted to that data which is collected solely by the Copermittees, and which will be heavily influenced by the Water Quality Improvement Plans which are required to use "*other available, relevant, and appropriately collected data, information, and studies*." The San Diego Water Board agrees that the Copermittees should be allowed to partner with Environmental Groups or other third parties to complete regional special studies and additional language has been added to Provision D.3.	

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D-5	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	COMMENT: *Include monitoring that will ensure compliance and jurisdictional accountability*. The Coastal Environmental Rights Foundation (CERF), Environmental Health Coalition (EHC), and the San Diego Coastkeeper (SDCK) collectively submitted comments in support of increasing the nature, frequency, and amount of monitoring in the Tentative Order. The commenters expressed concern that the "lax approach" to monitoring currently in the Tentative Order is not adequate to assess compliance with the requirements. The USEPA requested the Tentative Order be more specific with regards to required monitoring locations and minimum monitoring frequencies to determine compliance with the TMDLs in Attachment E. The San Diego Unified Port District specifically requested additional jurisdictional outfall monitoring be required to support the San Diego Water Board's and the Copermittees' ability to determine the sources of any exceedances(s) of water quality standard(s) in receiving waters.	**Copermittees** San Diego Unified Port District / Brown and Winters **Environmental Organizations** CERF, EHC and SDCK **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board generally disagrees with the comments from the Environmental Organizations that the monitoring approach in Tentative Order is too "lax." However, the San Diego Water Board agrees that certain monitoring provisions need additional specificity requiring minimum monitoring frequencies and monitoring at specific locations to track compliance with the TMDLs in Attachment E to the Tentative Order. The monitoring and assessment program in the Tentative Order is a question-driven monitoring approach largely designed to place monitoring resources where they are most needed. In order to answer the questions and accomplish efficiencies, the monitoring approach for non-storm water includes screenings, prioritization, and collection of data through visual observations. The Environmental Organizations call specific attention to the MS4 outfall screening required during the transitional monitoring period and monitoring the 10 highest priority non-storm water persistent flow MS4 outfall locations during the post transitional monitoring period. The San Diego Water Board considers this MS4 outfall screening approach necessary for the Copermittees to identify the highest priority non-storm water persistent flows and eliminate them. Elimination of non-storm water flows is a priority of the Tentative Order because eliminating non-storm water flows is consistent with the Clean Water Act requirement to effectively prohibit non-storm water discharges to the MS4. Elimination of non-storm water flows is the most effective way to prevent 100 percent of the pollutants in the non-storm water discharges from causing or contributing to exceedances in receiving water quality	

D-5	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	standards. Therefore, the Tentative Order requires more attention (monitoring, screening, and sampling) at the outfalls to eliminate non-storm water flows. That attention is based on a prioritization to address the outfalls causing or contributing to the very highest priority water quality conditions first. The monitoring and assessment program is designed to be dynamic with collection of data during both wet and dry weather at the MS4 outfalls and in the receiving water. The San Diego Water Board has made revisions in response to comments to ensure the monitoring program in the Tentative Order will be sufficient to inform all stakeholders and the San Diego Water Board on the Copermittees' progress to effectively eliminate non-storm water flows, reduce pollutants in storm water to the maximum extent practicable, and protect conditions in the receiving waters from MS4 discharges. The monitoring and assessment program is adaptable through the Water Quality Improvement Plan to allow the Copermittees to address the highest water quality priorities in a focused manner, directing resources towards those areas or sources within their jurisdiction causing and contributing to the priority water quality conditions. To address the comment on public transparency, the San Diego Water Board has modified the Water Quality Improvement Plan Development process of Provision F.1.a to require the Copermittees to identify the opportunities for public involvement in the development of the Water Quality Improvement Plans. Provision F.4 requires Copermittees to place data and information available to the public on the Regional Clearinghouse. Additional public participation and notification requirements can be found in Provision F that address comments regarding the public access to information concerning the nexus between the health of the receiving waters and the water quality conditions of the discharges from the Copermittees' MS4s. The USEPA requested the Tentative Order to be more specific with regards to the monitoring required to determine compliance with the TMDLs in Attachment E. Provision D.2.c.(2) now requires wet weather outfall monitoring be conducted at least once per year (during the transitional monitoring the Copermittees are still required to sample twice per year), with a requirement that the Copermittees may need to increase the frequency of monitoring to identify pollutants in storm water discharges from the MS4s in order to, among other things, determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E. Additionally, language in Provision D.2.b.(2)(b) has been modified to require the Copermittees to consider, notwithstanding all other priorities, compliance with applicable TMDLs in Attachment E when selecting MS4 outfall monitoring locations. The San Diego Unified Port District specifically requested additional jurisdictional outfall monitoring be required	

D-5	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	to support the San Diego Water Board's and the Copermittees' ability to determine the sources of any exceedances(s) of water quality standard(s) in receiving waters. The San Diego Water Board modified Provisions D.2.b.(2)(b) and D.2.c.(1)-(2) in response to USEPA's comments, thereby specifying a minimum frequency for MS4 outfall monitoring during wet weather and requiring both MS4 outfall and receiving water monitoring station locations be suitable to determine compliance with TMDLs in Attachment E, as well as suitable to determine progress towards achieving the goals of the Water Quality Improvement Plans. Provision D.4.b requires the Copermittees to utilize a watershed model to calculate or estimate the total flow volume and pollutant loadings during wet weather and dry weather discharges from the Copermittee's jurisdiction within the Watershed Management Area. These modifications to Provision D, along with the newly revised Water Quality Improvement Plan development process, address the comments on requiring more monitoring to determine compliance. Additionally, the Tentative Order does not preclude a Copermittee from collecting additional monitoring above what is required, if they deem it necessary to demonstrate that the sources are outside of their jurisdictional legal authority to control.	

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D-6	PROVISION D: MONITORING AND ASSESSMENT PROGRAM REQUIREMENTS	
	COMMENT: *Provide the County of San Diego an alternative transitional monitoring and assessment program for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the permit.* The monitoring and assessment program requirements should account for the phased coverage of the Riverside County Copermittees at a later date than the San Diego County Copermittees with regards to the Santa Margarita River Watershed Management Area.	**Copermittees** County of San Diego
	RESPONSE: The San Diego Water Board agrees with the commenter. Footnote 3 in Table B-1 of Provision B and Provision D.2.a.(3)(a)(iii), have been revised to allow the County of San Diego to delay development of the Water Quality Improvement Plan for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees have been notified of coverage under the Tentative Order. Footnote 3 in Table B-1 of Provision B clarifies that the County of San Diego is not required to implement the requirements of Provision B until the Riverside County Copermittees have been notified of coverage, but are required to implement the requirements of Provision D and Attachment E for its jurisdiction within the Santa Margarita River Watershed Management Area. Additionally, Provision D.2.a.(3)(a)(iii) was added to specify that the County of San Diego must select at least two (2) wet weather MS4 outfall discharge monitoring stations, reduced from the 5 stations required in Provision D.2.a.(3)(a)(i), for the portion of the Santa Margarita River Watershed Management Area within its jurisdiction until the Riverside Copermittees are notified of coverage. After the Riverside Copermittees are notified of coverage, the County of San Diego in concert with the County of Riverside Copermittees must comply with Provision B requirements and prepare a Water Quality Improvement Plan and implement the monitoring and assessment requirements according to Provision D for the Santa Margarita River Watershed Management Area.	

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D1-1	PROVISION D.1: Receiving Water Monitoring Requirements	
	COMMENT: *Requests for "clarifications" of receiving water monitoring requirements.* The Riverside County Copermittees provided suggested changes to the language in Provision D to clarify that the receiving water monitoring required pursuant to Provision D.1.a.(3) and D.1.e must be conducted as applicable to the Watershed Management Area and the Copermittees' MS4 discharges. The Riverside County Copermittees want a distinction written into the requirements because some of the monitoring requirements only apply to MS4 discharges to certain water bodies and not all Copermittees within a Watershed Management Area will have discharges to that water body. The USEPA requested the Tentative Order be more specific with regards to the transitional and post transitional receiving water monitoring required (frequency and station location) to determine compliance with the TMDLs in Attachment E.	**Copermittees** Riverside County Copermittees **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board disagrees with the requested changes to Provisions D.1.a.(3) and D.1.e. The requested changes to Provision D.1.a.(3) were not incorporated because the intent is to require the Copermittees, during the transitional monitoring period, to participate in regional receiving water monitoring programs, as applicable to the Watershed Management Area, including participation in (a) Storm Water Monitoring Coalition Regional Monitoring, (b) Southern California Bight Regional Monitoring, and (c) Sediment Quality Monitoring. Provision D.1.a.(3) correctly conditions the requirement by stating, 'as applicable' to the Watershed Management Area. For example, the expectation is that the Riverside County Flood Control and Water Conservation District, a current member of the Southern California Stormwater Monitoring Coalition (SMC), participate in SMC monitoring within the Watershed Management Area(s), in which their jurisdiction lies. The SMC was formed in 2001 by cooperative agreement of the Phase I municipal storm water NPDES lead Copermittees (including the Riverside County Flood Control and Water Conservation District), the NPDES regulatory agencies in southern California (including the San Diego Water Board) and the Southern California Coastal Water Research Project. It is the goal of the SMC to develop the technical information necessary to better understand storm water mechanisms and impacts, and then develop the tools that will effectively and efficiently improve storm water management decision-making. The SMC develops and funds cooperative projects to improve knowledge of storm water quality management for all throughout the San Diego Region.	

D1-1	PROVISION D.1: Receiving Water Monitoring Requirements	
	The requested changes to Provision D.1.e were not incorporated because the existing language is appropriate. Provision D.2.c.(2) has been revised to require wet weather MS4 outfall monitoring be conducted at least once per year after the Water Quality Improvement Plans are accepted, with a requirement that Copermittees may need to increase the frequency of monitoring in order to identify pollutants in storm water discharges from the MS4s in order to, among other things, determine compliance with the WQBELs associated with the applicable TMDLs in Attachment E. During the transitional monitoring period, the Copermittees are still required to conduct wet weather MS4 outfall monitoring twice per year. Additionally, the language in Provision D.2.b.(2)(b) has been modified to require the Copermittees to consider, notwithstanding all other priorities, compliance with applicable TMDLs in Attachment E when selecting MS4 outfall monitoring locations.	

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D1-2	PROVISION D.1: Receiving Water Monitoring Requirements	
	COMMENT: *Requests for modifications to receiving water monitoring stations, frequency, and data collection requirements.* Comments submitted by the Copermittees ranged from a broad request to remove the entire coastal storm drain monitoring program from the receiving water monitoring requirements (San Diego County), adding an alternate compliance option in lieu of the receiving waters monitoring program previously adopted in their current permit (Orange County), to very specific additions to what is recorded during receiving water station field observations (Riverside County). Multiple Environmental Organizations supported the need to increase the amount of monitoring in order to 1) better inform the Copermittees of the nexus between the health of receiving waters and the water quality condition of their discharge, 2) be sufficient to fulfill the San Diego Water Board's need to assess compliance, and 3) be sufficient to fulfill the public's need to stay informed. The USEPA commented on the need for the receiving water requirements to include minimum monitoring frequencies and a minimum number of station locations to measure compliance with the WLAs and associated water quality based effluent limitations of the TMDLs in the Order. The Los Penasquitos Lagoon Foundation requested continuous flow monitoring at the base of tributaries to 303(d) listed water bodies and monitoring of groundwater seepages into 303(d) listed water bodies be added to the monitoring requirements of the Watershed Management Area including the Los Penasquitos Lagoon.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** CERF, EHC, SDCK Los Penasquitos Lagoon Foundation **State / Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees with the request to discontinue the coastal storm drain monitoring program and has replaced it with the receiving water monitoring program of Provision D.1 along with the transitional outfall monitoring screening and post-transitional outfall monitoring program (Provision D.2). The San Diego Water Board disagrees with the requested changes to the field screening observations required in Tables D-1 and D-6. The requests included adding the requirement to record any observed connectivity between MS4 outfall discharges and flowing receiving waters during receiving water and outfall field screening efforts. This was not added to the required observations listed in Tables D-1 or D-6 because the observations are already required as part of the illicit connection and illegal discharge requirements of Provision E.2. Pursuant to Provision D.1.f Alternative Watershed Monitoring Requirements, the San Diego Water Board may	

D1-2	PROVISION D.1: Receiving Water Monitoring Requirements	
	direct the Copermittees to participate in an effort to develop alternative watershed monitoring with other regulated entities, other interested parties, and the San Diego Water Board to refine, coordinate, and implement regional monitoring and assessment programs to determine status and trends in receiving waters. This requirement calls attention to the San Diego Water Board's plan to involve the Copermittees in the development of regional monitoring and assessment programs. It further calls attention to the San Diego Waters Board's position that a regional monitoring and assessment program must include other regulated entities in addition to the Phase I Copermittees. The Draft Framework for Monitoring and Assessment in the San Diego Region lays out the San Diego Water Board's framework to develop a regional receiving water monitoring program. Prior to development and required implementation of a regional receiving water monitoring program, and to maintain historical water quality monitoring trends, the requirements of Provision D.1.a-f require Copermittees to continue the receiving water monitoring required by their current storm water permits until coverage under the Tentative Order commences, and the Water Quality Improvement Plans are accepted. The monitoring program in Provision D has been modified to include minimums (removing the language "as appropriate"). Required monitoring minimums also address concerns regarding the Copermittees' and the San Diego Water Board's ability to determine compliance with the requirements of the Tentative Order (including TMDLs). Additionally, the Water Quality Improvement Plan development process has been significantly changed to include more public participation. Furthermore, the Tentative Order recognizes that each Copermittee should evaluate the need to increase its monitoring above what is minimally required to the appropriate level necessary to achieve the goals of the Water Quality Improvement Plan. Within the process for a Copermittee to get a Water Quality Improvement Plan developed and accepted by the San Diego Water Board, the Environmental Organizations and the public at large will have opportunities to contribute their expertise and provide comments on the nature and extent of monitoring needed to measure progress towards achieving the goals of the Water Quality Improvement Plans. Each Copermittee must establish a public participation process to solicit data, information, and recommendations to be utilized in the development of the Water Quality Improvement Plan. The Tentative Order also requires the Copermittees to form a Water Quality Improvement Consultation Panel (Panel) to provide recommendations on the priorities, goals, and strategies of the Water Quality Improvement Plan. The Panel must include a member of the environmental community, a member of the development community, and a member of the San Diego Water Board staff. Any recommendations for monitoring specific to a particular Watershed Management Area, receiving water body, pollutant, or stressor could be provided by the Panel and	

D1-2	PROVISION D.1: Receiving Water Monitoring Requirements	
	addressed in the Water Quality Improvement Plan. The minimum monitoring required plus the monitoring needed to attain goals established in the Water Quality Improvement Plans will be sufficient to inform the Copermittees, the San Diego Water Board, the environmental groups, and the public on the nexus between the health of receiving waters and the water quality condition of the discharges, compliance with TMDLs, and progress towards achieving the goals of the Clean Water Act.	

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D1-3	PROVISION D.1: Receiving Water Monitoring Requirements	
	COMMENT: *Require Test of Significant Toxicity to be consistent with other recent MS4 permits.* The USEPA commented that the toxicity monitoring requirements should be modified and to be consistent with the requirements in MS4 permits recently issued by the State Water Resources Control Board (Caltrans MS4 Permit) and the Los Angeles Regional Water Quality Control Board (Los Angeles County MS4 Permit).	**State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees that the toxicity testing and data analysis requirements in the Tentative Orders should be consistent with other recently adopted MS4 Permits. The recently adopted Caltrans and Los Angeles County MS4 Permits include updated toxicity data collection procedures and data analysis methods that are consistent with the Draft State Water Resources Control Board Policy for Toxicity Assessment and Control, June 2012 (Draft State Board Toxicity Policy). Provision D has been updated to remove the acute toxicity test requirements, and only require chronic toxicity test biological endpoint data be analyzed using the Test of Significant Toxicity t-test approach specified in National Pollutant Discharge Elimination System Test of Significant Toxicity Document (USEPA, EPA 833-R-10-003, 2010), and other minor changes to make the Tentative Order consistent with recently adopted MS4 permits.	

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D2-1	PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements	
	COMMENT: *Requests for "clarifications" of MS4 outfall discharge monitoring requirements.* The San Diego County and Riverside County Copermittees requested the dry weather MS4 outfall field screening language in Provision D.2.a.(2) be modified to clarify the number of visual inspections at major outfall locations required per jurisdiction per Watershed Management Area. The Riverside County Copermittees additionally requested that the field screening only apply to those MS4 outfalls in a Copermittee's inventory that are 'accessible,' and clarification to the definition of persistent flow. USEPA supports the Copermittees' comments to improve clarity with respect to identification of MS4 outfall monitoring locations. USEPA further requested language specific enough to assure MS4 outfall monitoring locations are selected to include compliance points for the TMDLs in Attachment E.	**Copermittees** Riverside County Copermittees San Diego County Copermittees **State and Federal Government** USEPA
	RESPONSE: The San Diego Water Board generally agrees with comments from the Copermittees and USEPA. Additional language has been added to improve the clarity of Provision D.2.a.(2) for those jurisdictions with equal to or greater than 500 major MS4 outfalls within their inventory that are located within multiple Watershed Management Areas. The San Diego Water Board specifically retained language to allow for the Copermittees to conduct more than the minimum amount of visual inspections of their major MS4 outfalls should increased inspections be a part of the strategies specified to meet the goals of any Water Quality Improvement Plan. The San Diego Water Board disagrees with the comments requesting modifications to the persistent flow definition in Footnote 19. The San Diego Water Board maintains that the definition, as written, accomplishes the intent of the requested revision and does not need to be explicitly stated. Existing language in Provision D.2.a.(1)(e) addresses the comment about field screening "accessible" inventoried MS4 outfalls. The Copermittees can field screen an MS4 outfall location by screening a manhole just upgradient of the discharge where access is safe. Provisions D.2.b.(2)(b)(i) and D.2.c.(1) were modified to require additional outfall monitoring locations if the 5 chosen MS4 outfall locations were not sufficient to determine compliance with the TMDLs in the Tentative Order.	

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D2-2	PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements	
	COMMENT: *Requests for modifications to MS4 outfall monitoring stations, frequency, and data collection requirements.* The Orange County, Riverside County and San Diego County Copermittees each requested modifications to the MS4 outfall monitoring stations, frequency, and data collection requirements. The San Diego County Copermittees requested the MS4 outfall discharge monitoring requirements be changed for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees become covered under the Tentative Order, a reduction to the frequency of outfall sampling during the transitional period from annually to once per 2-year transitional period, a modification to the requirement to sample the 'first flush' during wet weather, a reduction to the number of dry weather outfall monitoring locations from 10 to 5, and an allowance for analytical testing to be reduced if demonstrated by supporting data. The Orange County and Riverside County Copermittees supported most of San Diego County Copermittees' requested revisions. Additionally, the Riverside County Copermittees commented on the disproportionality of the persistent flow MS4 outfall monitoring requirements, and the need to de-emphasize MS outfall monitoring locations if the discharge does not reach a receiving water due to infiltration, evaporation, or treatment. Environmental Organizations supported the need to increase the amount of monitoring in order to better inform the Copermittees of the nexus between the health of receiving waters and the water quality condition of their discharge, be sufficient to fulfill the San Diego Water Board's need to assess compliance, and be sufficient to fulfill the public's need to stay informed. The USEPA commented on the need for the MS4 outfall monitoring requirements to include minimum monitoring frequencies and a minimum number of MS4 outfall locations to measure compliance with the TMDLs.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** CERF, EHC, SDCK **State / Federal Government** USEPA
	RESPONSE: The San Diego Water Board agreed with several of the requested modifications. Revisions to Provision D.2 were made where appropriate. The requirement to monitor at least 10 major outfalls was reduced to monitoring at least 5 major outfalls with persistent flows. To address comments from the USEPA, this requirement was also modified to require additional MS4 outfall monitoring locations, if the 5 chosen outfall locations were not sufficient to determine compliance with the TMDLs. If a smaller jurisdiction has less than 5 major MS4 outfalls with persistent flow,	

D2-2	PROVISION D.2: MS4 Outfall Discharge Monitoring Requirements	
	they would be required to monitor all the MS4 outfalls with persistent flow until such time that they identify and terminate the discharge or met another criteria of Provision D.2.(2)(b)(ii). If any Copermittee eliminates all persistent flows from all of its MS4 outfalls, they would not be required to conduct dry weather MS4 outfall monitoring. The San Diego Water Board accepted most of the requested revisions from the Orange County Copermittees, except those concerning toxicity sampling and coliform sampling. Toxicity sampling was modified in response to comments provided by USEPA to make the toxicity requirements more consistent with recently adopted MS4 permits (i.e. Caltrans and Los Angeles County MS4 Permits). Please see the response to comment D1-3.	

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D3-1	PROVISION D.3: Special Studies	
	COMMENT: *Request to reduce the number of special studies required.* The San Diego County Copermittees submitted a comment requesting a reduction in the number of required special studies from three to two per Watershed Management Area, and from two to one for the San Diego Region to account for the time and resources required to plan and develop the special studies, and integrate the plans for the special studies into the monitoring and assessment programs of the Water Quality Improvement Plans. This comment was supported by the Riverside County Copermittees.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the commenters. Provision D.3 has been modified to reduce the number of required special studies from three to two per Watershed Management Area, and from two to one for the San Diego Region.	

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D3-2	PROVISION D.3: Special Studies	
	COMMENT: *Allow special studies initiated prior to the term of the Tentative Order to count toward the required special studies.* The San Diego County Copermittees submitted a comment requesting that the special studies initiated prior to the term of the Tentative Order be allowed to count towards the special studies required in Provision D.3, citing that special studies are typically multi-year efforts that require multi-stage planning, funding approval/allocation, and analysis. This comment was supported by the Riverside County Copermittees.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the commenters. Provision D.3 has been modified to allow the use of special studies initiate prior to adoption of the Tentative Order to comply with the requirements of Provision D.3.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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D4-1	PROVISION D.4: Assessment Requirements	
	COMMENT: *Requests for "clarifications" of assessment requirements.* The San Diego County and Riverside County Copermittees submitted comments requesting clarifications be made to the assessment requirements of Provisions D.4.b.(1)-(2). The Copermittees concurred that the timing of reporting be compatible with completion of the assessments. The Riverside County Copermittees requested specific revisions to Provision D.4.b.(1)(c)(iv) concerning extrapolation of calculated flow volumes and pollutant loads; and assessment of jurisdictional accountability.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the commenters. The San Diego Water Board modified Provision D.4.b.(1)(a) to add an annual assessment of data collected during the transition period and reporting as part of the Transitional Monitoring and Assessment Program Annual Report (Provision F.3.b.2). Provision D.4.b.(2)(a) requires assessment of MS4 outfall data collected after the transitional period and reporting as part of the Water Quality Improvement Plan Annual Report (Provision F.3.b.(3)). Requiring an annual report during the transitional years before the acceptance of the Water Quality Improvement Plan will allow Copermittees to perform 'complete' assessments and report on the progress for that year, whether it be a year within the transitional monitoring period or a year in which monitoring is conducted in accordance with the Water Quality Improvement Plan. Provisions D.4.b.(2)(c)(iv)[a]-[b] were modified to address comments concerning extrapolation of calculated flow volume and pollutant loads to outfalls that were not actually monitored. The assessment now requires the use of a model or other method to calculate or estimate the non-storm water volumes and pollutant loads collectively discharged from all the major MS4 outfalls in its jurisdiction identified as having persistent dry weather flows. To address the issue of jurisdictional accountability, the Copermittees are now required to identify and quantify (i.e. volume and pollutant loads) sources of non-storm water not subject to the Copermittee's legal authority that are discharged from the Copermittee's major MS4 outfalls to downstream receiving waters. The San Diego Water Board generally disagrees with the comment to require calculation of pollutant loads only for those priority water quality constituents identified in the Water Quality Improvement Plan. Calculation of all pollutant loads are required until a Copermittee collects sufficient data or other supporting information pursuant to Provision D.2.b.(2)(e)(iii)[e] to demonstrate analysis of a constituent is not necessary.	

D4-1	PROVISION D.4: Assessment Requirements	
	The San Diego Water Board agrees with the comment that MS4 outfall assessments are to be done for the area covered by each Copermittee and that the data to be used by each Copermittee would include the data collected from any Flood Control District MS4 operated within its jurisdiction. The San Diego Water Board has not modified any language within Provision D.4 to address this comment because the language adequately addresses the comment without further modifications.	

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D4-2	PROVISION D.4: Assessment Requirements	
	COMMENT: *Requests for modifications to assessment requirements.* The San Diego County Copermittees commented on the need for a longer assessment term (once per permit term rather than annually) to provide meaningful analysis of the annual pollutant load and flow calculations from MS4 outfalls during dry weather. The Copermittees further commented on the need to modify the requirements to calculate jurisdictional loads during wet weather, as well as modifications to clarify assessments necessary to track jurisdictional accountability. The Riverside County Copermittees agreed in large part with the comments provided by the San Diego County Copermittees. The Riverside County Copermittees also expressed a desire to clarify MS4 outfall assessments are to be done by each municipal Copermittee and that the data to be used by each municipal Copermittee include the data collected from any flood control district within its jurisdiction. Additionally, the Riverside County Copermittees expressed concern that the assessment requirements were requiring evaluations beyond their expertise and suggested pollutant loads only be calculated for priority pollutants. The Los Penasquitos Lagoon Foundation requested that the Tentative Order require the Copermittees to work with local land managers to assess the status and trends of receiving water quality conditions.	**Copermittees** Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board generally agreed with the need for a longer assessment term (once per permit term rather than annually) to provide meaningful analysis of the annual pollutant load and flow calculations from MS4 outfalls during dry weather and the need to modify the requirements to calculate jurisdictional loads during wet weather to the added area-based jurisdictional computational approach. The San Diego Water Board generally modified the Tentative Order where there was agreement with the comments. The San Diego Water Board, however, disagrees with the requests regarding MS4 outfall assessments for flood control districts, assessment requirements related to critical receiving water beneficial uses, and the suggestion that pollutant loads only be calculated for priority pollutants. The San Diego Water Board agrees with the comments provided by the Los Penasquitos Lagoon Foundation and required increased public participation and formation of a Water Quality Improvement Plan Consultation Panel in Provision F.1.a.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E-1	PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
	COMMENT: *Align the Jurisdictional Runoff Management Program requirements with the Water Quality Improvement Plan requirements.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting the requirements in Provision E be allowed to be modified based on what is proposed in the Water Quality Improvement Plans. The Copermittees assert that the requirements of Provision E are a "one size fits all" set of requirements, and the requirements of the Water Quality Improvement Plan become "additive" rather than "complimentary." Several Copermittees submitted separate comment letters supporting the concept by requesting the San Diego Water Board align the development and implementation of the Water Quality Improvement Plan better with the jurisdictional runoff management program requirements. The BIA Regulated Community Coalition also submitted comments supporting the concept. The Environmental Groups submitted comments expressing concern with the flexibility of the jurisdictional runoff management program requirements and requested that the Water Quality Improvement Plan include a detailed list of activities and what activities each Copermittee will implement within its jurisdiction. The Environmental Groups are concerned that without this specificity in the Water Quality Improvement Plans, and the flexibility that is provided in the jurisdictional runoff management program requirements would result in the burden of achieving water quality improvement within a watershed falling to only one or two Copermittees. The Environmental Groups would like to see a clearer commitment of what will be implemented by each Copermittee either in the Water Quality Improvement Plan or in the jurisdictional runoff management program documents for each Copermittee. The USEPA is also concerned with the flexibility that is provided by the requirements of Provision E. The USEPA prefers jurisdictional runoff management program requirements that include specific inspection frequencies.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** City of Dana Point City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees that the Water Quality Improvement Plans and jurisdictional runoff management program requirements should be better aligned and clearly present the water quality improvement strategies that each Copermittee will implement within its jurisdiction. The San Diego Water Board does not agree that the jurisdictional runoff management program requirements of Provision E should be allowed to be modified by the Water Quality Improvement Plan.	

E-1	PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
	The San Diego Water Board has revised Provision B.3.b in the revised Tentative Order (formerly Provision B.3.a in the Tentative Order) to require the Copermittees to specify which water quality improvement strategies each Copermittee will commit to implementing within its jurisdiction as part of its jurisdictional runoff management program requirements under Provisions E.2-E-7, and the optional water quality improvement strategies that will be implemented by the Copermittee within its jurisdiction when necessary to achieve the numeric goals. The optional water quality improvement strategies are to be implemented by the Copermittee as necessary to contribute toward achieving the numeric goals. Provision B.3.b in the revised Tentative Order also includes requirements for the Copermittees to identify optional Watershed Management Area strategies that the Copermittees will implement when necessary to achieve the numeric goals. Each Copermittee must specify BMPs, education programs, inspection frequencies, incentive and enforcement programs that will be implemented within its jurisdiction as part of its jurisdictional runoff management program requirements under Provisions E.2-E-7. Provisions E.2.e, E.3.g, E.4.f, E.5.e.(1), and E.7.c were removed in the revised Tentative Order, and the introductory paragraphs of Provisions E.2-E.7 were revised to state that each component must be implemented in accordance with the jurisdictional strategies identified in the Water Quality Improvement Plan. These revisions were made to better align the requirements of the Water Quality Improvement Plans and the jurisdictional runoff management programs, and provide an additional layer of transparency to the public for the strategies that the Copermittees will be committing to implement versus those strategies that will be implemented only when necessary to achieve the numeric goals. The San Diego Water Board has not modified the inspection frequency requirements in Provisions E.2-E.7. The inspection frequency requirements provide a sufficient level of guidance and flexibility for allowing the Copermittees to develop appropriate inspection frequencies that will be committed to in the Water Quality Improvement Plans, and a minimum level of effort that is expected for areas associated with the highest priority water quality conditions. The inspection frequencies that the Copermittees commit to implementing as part of the Water Quality Improvement Plans will be utilized by the San Diego Water Board during its audits of the Copermittees' programs to determine compliance with the requirements of the Tentative Order.	

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E-2	PROVISION E: JURISDICTIONAL RUNOFF MANAGEMENT PROGRAMS	
	COMMENT: *Allow San Diego County to use the Watershed Urban Runoff Management Plan (WURMP) to guide its jurisdictional runoff management program for the Santa Margarita River Watershed Management Area until the Riverside County Copermittees are covered under the Tentative Order.* The County of San Diego and the San Diego County Copermittees requested that the requirement to develop a Water Quality Improvement Plan and implementation of the requirements of Provision E for the Santa Margarita River Watershed Management Area be postponed until the Riverside County Copermittees become covered under the Tentative Order.	**Copermittees** County of San Diego San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request. The second introductory paragraph of Provision E states, "*Until the Copermittee has updated its jurisdictional runoff management program document with the requirements of Provision E, the Copermittee must continue implementing its current jurisdictional runoff management program*." The County of San Diego will continue to implement the jurisdictional runoff management program requirements of Order No. R9-2007-0001 until the Riverside County Copermittees are notified of coverage under the Order and a Water Quality Improvement Plan is developed pursuant to the requirements of this Order. The County of San Diego may use its WURMP for the Santa Margarita River Watershed to guide its jurisdictional runoff management program until the Water Quality Improvement Plan is developed and accepted. Please also see the response to comment B1-1.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E1-1	PROVISION E.1: Legal Authority Establishment and Enforcement	
	COMMENT: *Specify that the legal authority established by the Copermittees only applies to the Copermittees' jurisdictions.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting that the requirements of Provision E.1 be modified to specify that the legal authority established by the Copermittees only apply "to the extent allowable by law" and only applies to discharges within their jurisdiction. The Julian Community Planning Group also commented that there are jurisdictions that a Copermittee has no authority to require compliance.	**Community Planning Groups** Julian Community Planning Group **Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that it is necessary to specify that the legal authority established by the Copermittees is only applicable to their jurisdictions. The requirements of Provision E.1 are consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The legal authority that each Copermittee is required to establish for its jurisdiction is logically only expected to apply to its jurisdiction. Provision E.1.a.(2) is consistent with 40CFR122.26(d)(2)(i)(A), which requires the Copermittee to "*Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity*." 40CFR122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x)) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not. Even if there are industrial and construction sites regulated by the Statewide Industrial or Construction General Permits, those sites are still subject to the Copermittees ordinances and the Copermittee must have the legal authority to control discharges from those sites. Provisions E.1.a.(4) is consistent with 40CFR122.26(d)(2)(i)(D), which requires the Copermittee to "*Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system*." The federal regulations require the Copermittees to enter into interagency agreements to control pollutants from one Copermittee's jurisdiction to another Copermittee's jurisdiction. Provision E.1.a.(4) does not require anything outside of the federal requirements.	

E1-1	PROVISION E.1: Legal Authority Establishment and Enforcement	
	Provision E.1.a.(5) is consistent with the requirements in the Order Nos. R9-2007-0001, R9-2009-0002, and R9-2010-0016. The Copermittees should be working with other entities outside of their jurisdiction to reduce or eliminate pollutants being discharged into their jurisdictions and MS4s, especially if those are significant sources of pollutants. The "where possible" qualifier in the requirement gives the Copermittees some flexibility in working with other entities, but Provision E.1.a.(5) does not require the Copermittees to impose their legal authority upon entities outside their jurisdictions. Provision E.1.a.(10) is consistent with 40CFR122.26(d)(2)(i)(F), which requires the Copermittee to "*Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer*." The San Diego Water Board did not make revisions to the requirements of Provision E.1 requested by the Copermittees.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E1-2	PROVISION E.1: Legal Authority Establishment and Enforcement	
	COMMENT: *Requests for "clarifications" for legal authority requirements.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting several "clarification" to requirements of Provision E.1.a to be "consistent" with the requirements under 40CFR122.26(d)(2)(i)(A)-(F).	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that the legal authority requirements under Provision E.1.a are not consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F). The requirements of Provision E.1.a are consistent with the requirements under 40CFR122.26(d)(2)(i)(A)-(F) and do not go beyond those requirements. The requirements under 40CFR122.26(d)(2)(i)(A)-(F) apply to both non-storm water discharges *to* the MS4 and pollutants in storm water discharges *from* the MS4. Provision E.1.a.(1) is consistent with 40CFR122.26(d)(2)(i)(B), which requires the Copermittee to "[*operate pursuant to legal authority established…which authorizes or enables the applicant at a minimum to*…] *Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer*." The requirement under 40CFR122.26(d)(2)(i)(B) does not include the term "*effectively* prohibit" only "prohibit" illicit discharges to the MS4. Provision E.1.a.(2) is consistent with 40CFR122.26(d)(2)(i)(A), which requires the Copermittee to "[*operate pursuant to legal authority established…which authorizes or enables the applicant at a minimum to*…] *Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity*." The requirement under 40CFR122.26(d)(2)(i)(A) does not make a distinction between industrial activity (which includes construction activity according to 40 CFR 122.26(b)(14)(x)) that is regulated by an NPDES permit, such as the Statewide Industrial and Construction General Permits, and those that are not. Provision E.1.a.(3) is consistent with 40CFR122.26(d)(2)(i)(C), which requires the Copermittee to ""[*operate pursuant to legal authority established…which authorizes or enables the applicant at a minimum to*…] *Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water*."	

E1-2	PROVISION E.1: Legal Authority Establishment and Enforcement	
	Provisions E.1.a.(6)-(9) are consistent with 40CFR122.26(d)(2)(i)(E), which requires the Copermittee to "[*operate pursuant to legal authority established…which authorizes or enables the applicant at a minimum to*…] *Require compliance with conditions in ordinances, permits, contracts or orders*." Provisions E.1.a.(6)-(9) provide more specificity about what "compliance with conditions in ordinances, permits, contracts or orders" includes. Provision E.1.a.(10) is consistent with 40CFR122.26(d)(2)(i)(F), which requires the Copermittee to ""[*operate pursuant to legal authority established…which authorizes or enables the applicant at a minimum to*…] *Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer*." The San Diego Water Board did not make revisions to the requirements of Provision E.1.a requested by the Copermittees.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E2-1	PROVISION E.2: Illicit Discharge Detection and Elimination	
	COMMENT: *Non-storm water discharges must be addressed because of the impacts dry weather flows have on receiving waters.* The Los Penasquitos Lagoon Foundation and the South Laguna Civic Association each submitted comments expressing concerns about the impacts on receiving water due to dry weather flows. The Los Penasquitos Lagoon Foundation noted that dry weather discharges can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats. The South Laguna Civic Association noted that elevated creek flows originating from over-irrigation result in the discharge of several pollutants to protected creek, estuary and coastal receiving waters. The Los Penasquitos Lagoon Foundation requested that the Tentative Order provide mechanisms to allow the Copermittees to address dry weather flows regardless of whether or not constituents of concern are present in the flows. The South Laguna Civic Association advocated for effective enforcement measures by the San Diego Water Board to reduce discharges generated by over-irrigation.	**Environmental Organizations** Los Penasquitos Lagoon Foundation South Laguna Civic Association
	RESPONSE: The San Diego Water Board agrees that non-storm water discharges must be addressed. The approach to regulating non-storm water discharges in the Tentative Order has been modified compared to earlier permits. The Tentative Order focuses on "effectively prohibiting" or preventing and eliminating all non-NPDES-permitted non-storm water discharges to the MS4. The Tentative Order also requires the Copermittees to prohibit non-storm discharges associated with over-irrigation to the MS4. These two changes are expected to result in more actions implemented by the Copermittees to "effectively prohibit" non-storm water discharges to the MS4s and thereby non-storm water and pollutants from the MS4s to receiving waters. The San Diego Water Board agrees that the San Diego Water Board must enforce permit requirements more effectively. By issuing the Tentative Order, the San Diego Water Board expects to be able to reallocate its resources to better enforce permit requirements instead of developing permits and permit requirements. However, the San Diego Water Board also expects the public to provide data, information and evidence that will allow the San Diego Water Board to enforce the requirements of the Tentative Order.	

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E2-2	PROVISION E.2: Illicit Discharge Detection and Elimination	
	COMMENT: *Requests for "clarifications" of illicit discharge detection and elimination requirements.* The Riverside County and San Diego County Copermittees, the Industrial Environmental Association, the BIA Regulated Community Coalition, and the Los Penasquitos Lagoon Foundation each submitted comment letters recommending minor revisions to the language under Provision E.2 to "clarify" the requirements, or to be consistent the comments regarding non-storm water discharges (see comment Gnl-13).	**Building Industry / Industry** Industrial Environmental Association BIA Regulated Community Coalition **Copermittees** Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board reviewed and considered the requests for minor revisions to "clarify" the requirements under Provision E.2. Where the San Diego Water Board determined a revision requested by a commenter was appropriate and necessary to clarify a requirement, clarify a linkage to another requirement, or make it consistent with other revisions made in the Tentative Order, the San Diego Water Board made a revision under Provision E.2. In many cases, the requested revision was not appropriate, not necessary, or both. In such cases, the San Diego Water Board did not revise the language as requested. Please see Provision E.2 in the revised Tentative Order to see where revisions were made. Please also see the responses to the comments that follow, associated with Provision E.2, for revisions that were made for specific parts under Provision E.2.	

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E2-3	PROVISION E.2: Illicit Discharge Detection and Elimination	
	COMMENT: *Requests to more clearly define the responsibility of each Copermittee to address sources non-storm water discharges originating outside of a Copermittee's jurisdiction or control.* The Riverside County and San Diego County Copermittees each submitted comments requesting modifications to the language under Provisions E.2.b and E.2.d to better define or more clearly define the responsibilities of each Copermittee to address sources of non-storm water discharges originating outside of a Copermittee's jurisdiction or control. The San Diego County Copermittees requested a minor revision to Provision E.2.b.(6) changing "must" to "shall." The San Diego County Copermittees also requested a minor revision to Provision E.2.d.(1)(d) to include a consideration for natural sources in its prioritization of investigations. The Riverside County Copermittees did not include the comments in their comment letter, but did include similar revisions in a track changes version of the Tentative Order provided with their comments. The Riverside County Copermittees requested additions to Provision E.2.d.(3) to specify that a Copermittee is no longer responsible for eliminating a non-storm water discharge to its jurisdiction if the source is in an upstream jurisdiction, and allowing the Copermittee to charge the San Diego Water Board for identifying non-storm water discharges subject to the regulatory authority of the San Diego Water Board.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the requests. Revision of Provision E.2.b.(6) to change "must" to "shall" is unnecessary. In either case, the San Diego Water Board would interpret the language as the Copermittee is required to implement Provision E.2.b.(6). Revision of Provision E.2.d.(1)(d) is unnecessary. Provisions E.2.d.(1)(a)-(e) are the criteria that the Copermittee must consider in its prioritization of follow-up investigations. Nothing in Provisions E.2.d.(1)(a)-(e) prohibit the Copermittee from considering natural sources as part of its prioritization of follow-up investigations. The recommended revisions to Provision E.2.d.(3) are not necessary or appropriate. Provision E.2.b.(6) already requires the Copermittee to coordinate with upstream Copermittees to prevent illicit discharges to the MS4 within its jurisdiction. In addition, Provision E.1.a.(4) requires the Copermittee to "*Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system*." The federal regulations require the Copermittees to enter into	

E2-3	PROVISION E.2: Illicit Discharge Detection and Elimination	
	interagency agreements to control pollutants from one Copermittee's jurisdiction to another Copermittee's jurisdiction. The request to allow a Copermittee to charge the San Diego Water Board for implementing an investigation of non-storm water discharges to its MS4 is inappropriate. Each Copermittee is required to effectively prohibit non-storm water discharges to their MS4s by enforcing its legal authority, unless a non-storm water discharge is authorized under an NPDES permit. If a non-storm water discharge originates from a source that is subject to the San Diego Water Board's authority and requires an NPDES permit, then the Copermittee is still responsible for identifying the source if it is resulting in a non-storm water discharge into and from the Copermittee's MS4. If the non-storm water discharge is not authorized under an NPDES permit, then it is an illicit discharge. The Copermittee must either eliminate the illicit discharge or require the discharger to obtain authorization from the San Diego Water Board under an NPDES permit. If a non-storm water discharge to the Copermittee's MS4 is an NPDES permitted discharge, then the Copermittee is responsible for demonstrating that the non-storm water discharge is not an illicit discharge by identifying the source as an NPDES permitted discharge. The Copermittee must provide the data and documentation to demonstrate that non-storm water discharges from its MS4 are authorized under separate NPDES requirements. Until the Copermittee demonstrates that a non-storm water discharge is an NPDES-permitted discharge, the Copermittee is responsible for the non-storm water discharge. The non-storm water source investigation and identification are part of the Copermittee's responsibility to demonstrate compliance with the requirements in the Tentative Order. The San Diego Water Board did not revise Provisions E.2.b or E.2.d.	

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E2a-1	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Request to allow the Copermittees to "encourage" instead of "require" air conditioning condensate non-storm water discharges be directed to landscaped areas or other impervious surfaces*. The City of National City, the San Diego County Copermittees, the San Diego Unified Port District, and the San Diego Port Tenants Association each submitted comments expressing concerns with requiring air conditioning condensate non-storm water discharges to be directed to landscaped areas or other permeable surfaces, if feasible. The City of National City, the San Diego County Copermittees, and the San Diego Unified Port District requested the language of Provision E.2.a.(4)(a) be revised to encourage instead of require air conditioning condensate non-storm water discharges be directed to landscaped areas or other permeable surfaces. The San Diego County Copermittees also requested the addition of "or to the sanitary sewer" at the end of the requirement. The City of National City opposed this addition. The San Diego Port Tenants Association requested that the requirement be limited to development or re-development projects.	**Copermittees** City of National City San Diego County Copermittees San Diego Unified Port District **Societies/Associations/Coalitions** San Diego Port Tenants Association
	RESPONSE: The San Diego Water Board agrees to revise the requirements to encourage instead of require air conditioning condensate non-storm water discharges be directed to landscaped areas or other permeable surfaces. The San Diego Water Board also agrees to add "to the sanitary sewer" as an additional option. The San Diego Water Board disagrees with limiting the requirement to development or re-development projects. Air conditioning condensate non-storm water discharges originate primarily from existing development, and the Clean Water Act requires the Copermittees to effectively prohibit non-storm water discharges to the MS4. Please see Provision E.2.a.(4)(a) in the revised Tentative Order to see the revisions.	

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E2a-2	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Requests for modifications to requirements of fire-fighting non-storm water discharges.* The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting to the requirement to encourage the implementation of BMPs for emergency firefighting discharges and/or the requirement to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges. The County of San Diego and San Diego County Fire Authority also objected to the requirement to encourage implementation of BMPs for emergency firefighting discharges. San Diego Gas and Electric, the Southern California Gas Company, and the San Diego Port Tenants Association also objected to the requirement to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges. The Orange County and Riverside County Copermittees recommended removing Provision E.2.a.(5)(b) and specifying that emergency firefighting non-storm water discharges do not require BMPs and are not prohibited. The San Diego County Fire Authority recommended maintaining the existing requirements in Order No. R9-2007-0001, which is supported by the County of San Diego. The San Diego County Copermittees recommended revising Provision E.2.a.(5)(a)(i) to require the Copermittees to address non-emergency firefighting discharges from building fire suppression systems as illicit discharges "unless BMPs are implemented to prevent the discharge of pollutants to the MS4." The Riverside County Copermittees, County of San Diego, San Diego County Fire Authority, San Diego Gas and Electric, Southern California Gas Company, and San Diego Port Tenants Association supported the recommendation. The Orange County Copermittees did not provide a similar comment, but recommended that other non-emergency firefighting discharges be addressed by a program developed and implemented by the Copermittee "in conjunction with the local Fire Authority/District."	**Building Industry / Industry** San Diego Gas and Electric Southern California Gas Company **Copermittees** County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego County Fire Authority **Societies/Associations/Coalitions** San Diego Port Tenants Association
	RESPONSE: The San Diego Water Board has review and considered the recommendations from the commenters. The San Diego Water Board disagrees that the language in Provision E.2.a.(5)(b) requires the implementation of BMPs for emergency fire fighting discharges, or prohibits emergency fire fighting discharges to the MS4. Provision E.2.a.(5)(b) only requires the Copermittees to "encourage" the implementation of BMPs. Provision E.2.a.(5)(b) is a recommendation for the Copermittees to implement, not a requirement for compliance.	

E2a-2	PROVISION E.2.a: Non-Storm Water Discharges	
	The San Diego Water Board agrees to the recommended revision to Provision E.2.a.(5)(a)(i). The San Diego Water Board does not agree that the recommended revision to Provision E.2.a.(5)(a)(ii) is necessary. The Copermittees would have to develop and implement the program to address non-emergency fire fighting discharges in conjunction or coordination with the local fire authority or fire district. Please see Provision E.2.a.(5) in the revised Tentative Order to see the revisions.	

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E2a-3	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Clarify that non-storm water discharges authorized by a separate NPDES permit are authorized to be discharged to the MS4.* The San Diego Port Tenants Association, San Diego Gas and Electric, and the Southern California Gas Company each submitted comments requesting language in the Tentative Order to specify that non-storm water discharges authorized by separate NPDES permits are authorized to discharge to the MS4.	**Building Industry / Industry** San Diego Gas and Electric Southern California Gas Company **Societies/Associations/Coalitions** San Diego Port Tenants Association
	RESPONSE: The San Diego Water Board disagrees that revision to the language in the Tentative Order are necessary or appropriate. Provision A.1.b has been revised to refer to Provision E.2, which is the illicit discharge detection and elimination program requirements that must be implemented by each Copermittee within its jurisdiction to effectively prohibit non-storm water discharges to its MS4. Provision A.1.b also specifies that the Copermittees are required to effectively prohibit non-storm water discharges to the MS4 *unless* such discharges are authorized by a separate NPDES permit. The San Diego Water Board did not revise the Tentative Order to include additional language.	

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E2a-4	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Objections to addressing non-storm water discharges related to extraction of groundwater as illicit discharges.* The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting to the requirements to address non-storm water discharges related to extraction of groundwater as illicit discharges if they are not identified as sources of pollutants. The City of National City also submitted a comment with a similar objection. The Copermittees also objected to requiring non-storm water discharges related to extraction of groundwater to be enrolled under the General Groundwater Extraction NPDES Permits issued by the San Diego Water Board. The Copermittees recommended several revisions to Provisions E.2.a.(1) and E.2.a.(3) to modify, remove, and/or reorganize the requirements pertaining to non-storm water discharges related to groundwater extraction.	**Copermittees** City of National City Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the recommendations. The Clean Water Act requires NPDES permit for MS4s to effectively prohibit non-storm water discharges to the MS4. As explained in the Fact Sheet, the Phase I Final Rule clarifies that non-storm water discharges through an MS4 are not authorized under the CWA (55 FR 47995): "*Today's rule defines the term "illicit discharge" to describe any discharge through a municipal separate storm sewer system that is not composed entirely of storm water and that is not covered by an NPDES permit. Such illicit discharges are not authorized under the Clean Water Act. Section 402(p(3)(B) requires that permits for discharges from municipal separate storm sewers require the municipality to "effectively prohibit" non-storm water discharges from the municipal separate storm sewer…Ultimately, such non-storm water discharges through a municipal separate storm sewer must either be removed from the system or become subject to an NPDES permit*." Thus, all non-storm water discharges that do not have authorization under an NPDES permit must ultimately be removed (i.e. prevented or eliminated) from the MS4 or become subject to an NPDES permit. The requirements under Provisions E.2.a.(1) and E.2.a.(3) are consistent with the Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. The non-storm water categories listed under Provision E.2.a.(1) can be authorized by an NPDES permit because they are extracting groundwater for the purpose of dewatering, and the San Diego Water Board has two NPDES permits that can authorize these types of non-storm water discharges. These are not "conditionally exempt"	

E2a-4	PROVISION E.2.a: Non-Storm Water Discharges	
	non-storm water discharges as the Copermittees have asserted. If there are non-storm water discharges that result from groundwater extraction for dewatering and do not have authorization under an NPDES permit, the discharge is an illicit discharge. The non-storm water categories listed under Provision E.2.a.(3) generally are expected to be discharged from natural, uncontrollable, or unanticipated sources. Non-storm water discharges from foundation drains and footing drains designed to be above the groundwater table are not generally expected to occur. If they do occur, the Copermittee is expected to implement its illicit discharge detection and elimination program to determine if the discharge is transient or persistent, a source of pollutants or not, and whether the discharge must be eliminated in accordance with its priorities. In general, the requirements under Provision E.2 are focused on the ultimate removal of unauthorized non-storm water discharges to the MS4 to "effectively prohibit" non-storm water discharges to the MS4, as required by the Clean Water Act. The San Diego Water Board is not requiring the Copermittee to enforce any NPDES permits issued by the San Diego Water Board or State Water Board. The Copermittees are only required to enforce their legal authority to prohibit illicit discharges to their MS4s established pursuant to Provision E.1.a.(1). The San Diego Water Board did not revise Provisions E.2.a.(1) or E.2.a.(3).	

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E2a-5	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Request to allow the Copermittees to focus on elimination of "non-storm water discharges that are a source of pollutants" not "non-storm water discharges."* The Orange County and Riverside County Copermittees each requested that the requirements under Provision E.2.a be revised to allow the Copermittees to focus on eliminating non-storm water discharges that are a source of pollutants and not require the elimination of all non-storm water discharges. In contrast, the Los Penasquitos Lagoon Foundation requested that the requirements under Provision E.2 provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows.	**Copermittees** Orange County Copermittees Riverside County Copermittees **Environmental Organizations** Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board disagrees with the Copermittees' request. Provision E.2 does provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. However, the Copermittees are required to prioritize the non-storm water discharges that they will address, and eliminate the highest priority non-storm water discharges first. Please see the response to comment E2a-4.	

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E2a-6	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Request to allow the Copermittees to encourage the control of residential car washing non-storm water discharges through public education.* The San Diego County Copermittees submitted a comment requesting the requirements of Provision E.2.a.(4)(b) be revised to allow the Copermittees to encourage the control of residential car washing non-storm water discharges through public education.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board reviewed and considered the requested revisions. The San Diego Water Board did not revise Provision E.2.a.(4)(b) as requested, but did make revisions to provide the flexibility to encourage the control of residential car washing non-storm water discharges through public education.	

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E2a-7	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT*: Request for modification to requirements for swimming pool non-storm water discharges.* The San Diego County Copermittees requested a minor modification to Provision E.2.a.(4)(c) to add the phrase "should be managed as to:" for the non-storm water discharge requirements related to dechlorinated swimming pool discharges.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board reviewed and considered the requested revision. The revision to Provision E.2.a.(4)(c) does not provide any additional clarify and is not necessary. The San Diego Water Board did not revise Provision E.2.a.(4)(c) as requested.	

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E2a-8	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Objections to requiring the prohibition of over-irrigation non-storm water discharges.* The Riverside County Copermittees and the County of San Diego each submitted comments objecting to eliminating the non-storm water discharge categories associated with over-irrigation, which results in requiring the Copermittees to prohibit over-irrigation non-storm water discharges to the Copermittees' MS4s. The Copermittees requested that the non-storm water discharge categories associated with over-irrigation be put back into Provision E.2.a. In contrast, the Los Penasquitos Lagoon Foundation and the South Laguna Civic Association each submitted comments expressing concerns about the impacts on receiving water due to dry weather flows associated with over-irrigation. The Los Penasquitos Lagoon Foundation noted that dry weather discharges can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats. The South Laguna Civic Association noted that elevated creek flows originating from over-irrigation result in the discharge of several pollutants to protected creek, estuary and coastal receiving waters.	**Copermittees** County of San Diego Riverside County Copermittees **Environmental Organizations** Los Penasquitos Lagoon Foundation South Laguna Civic Association
	RESPONSE: The San Diego Water Board disagrees with the Copermittees' request. The Riverside County Copermittees assert that the Copermittees must identify the categories that are sources of pollutants that should be prohibited, not the San Diego Water Board. The San Diego Water Board disagrees. This is the responsibility of both the San Diego Water Board and/or the discharger. Either the San Diego Water Board or the discharger may identify categories that should be prohibited. The Phase I Rule (55 FR 48037) specifies that "*the Director [i.e. San Diego Water Board] may include permit conditions that either require municipalities to prohibit or otherwise control any of these types of discharges where appropriate*." In this case, the San Diego Water Board has identified non-storm water runoff from landscape irrigation, irrigation water, and lawn watering (collectively, "over-irrigation") as a significant source of pollutants discharging to the MS4. The Fact Sheet cites a number of documents, from the state and all three counties of the San Diego Region, to justify the removal of these categories from the list of categories of non-storm water discharges into the MS4 not required to be prohibited. The San Diego Water Board maintains that the documentation cited in the Fact Sheet supports that removal of these categories. However, the comments from the Los Penasquitos Lagoon Foundation and the South Laguna Civic Association also support this conclusion. In addition, the removal of the non-storm water discharge categories associated with over-irrigation has already	

E2a-8	PROVISION E.2.a: Non-Storm Water Discharges	
	been adopted in the Orange County and Riverside County MS4 Permits (Order Nos. R9-2009-0002 and R9-2016-0016). The Riverside County Copermittees are already subject to the requirement to prohibit non-storm water discharge categories associated with over-irrigation, so the removal of these categories in the Tentative Order is consistent with their current requirements. Furthermore, the removal of the non-storm water discharge categories associated with over-irrigation is consistent with what is already required to be implemented by the Copermittees. The prohibition is consistent with the Water Conservation in Landscaping Act (AB1881), which required cities and counties to adopt landscape water conservation ordinances prohibiting runoff from inefficient landscape irrigation by January 1, 2010. The cities and counties were required to adopt ordinances that prohibit runoff from "the target landscape" to "adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures." The Copermittees should have already adopted these ordinances and are required to enforce these ordinances to prohibit runoff associated with over-irrigation. The San Diego Water Board did not revise Provision E.2.a to include the non-storm water discharge categories associated with over-irrigation.	

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E2a-9	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Objection to requirement to reduce or eliminate non-storm water discharges whether or not a non-storm water discharge has been identified as an illicit discharge.* The Orange County, Riverside County, and San Diego County Copermittees each submitted comments objecting the requirement under Provision E.2.a.(7) to reduce or eliminate non-storm water discharges whether or not a non-storm water discharge has been identified as an illicit discharge. The San Diego County Copermittees recommended removing the phrase "whether or not the non-storm water discharge has been identified as an illicit discharge" and the Orange County and Riverside County Copermittees recommended removing Provision E.2.a.(7). In contrast, the Los Penasquitos Lagoon Foundation requested that the requirements under Provision E.2 provide the Copermittees a mechanism to address illicit discharges regardless of whether or not constituents of concern are present within the flows. The Los Penasquitos Lagoon Foundation noted that dry weather freshwater flows themselves can create serious impacts to the beneficial uses of receiving waters that support salt marsh habitats, especially when those flows have been changed from ephemeral to perennial.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Los Penasquitos Lagoon Foundation
	RESPONSE: The San Diego Water Board disagrees with the request to remove Provision E.2.a.(7), but agrees to modify the language. Provision E.2.a.(7) is consistent with Clean Water Act, the Code of Federal Regulations and the clarification in the Phase I Final Rule for non-storm water discharges. Please see response to comment E2a-4. The San Diego Water Board has revised Provision E.2.a.(7). Please see the revisions in the revised Tentative Order.	

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E2a-10	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Request for modifications to the requirements for water line flushing and water main breaks non-storm water discharges.* The Metropolitan Water District of Southern California submitted a request to modify Provision E.2.a.(2) to specify that non-storm water discharges from water purveyors and community water systems are authorized discharges and not illicit discharge if enrolled or regulated under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003).	**Other Entities** Metropolitan Water District of Southern California
	RESPONSE: The San Diego Water Board disagrees with the request. Provision E.2.a.(2) is specific to the requirement for the Copermittees to identify whether or not a non-storm water discharge resulting from water line flushing or water main breaks are illicit discharges. These are two non-storm water discharge categories specifically identified in the Code of Federal Regulations that the Copermittees are required to address as illicit discharges if they are identified as a source of pollutants. The introductory paragraph to Provision E.2.a already specifies that non-storm water discharges authorized by a separate NPDES permit is not required to be addressed as an illicit discharge. Provision E.2.a.(2) further specifies that water line flushing and water main breaks covered under NPDES Permit No. CAG 679001 (Order No. R9-2010-0003) are not illicit discharges. The San Diego Water Board did not revise Provision E.2.a.(2).	

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E2a-11	PROVISION E.2.a: Non-Storm Water Discharges	
	COMMENT: *Request to allow the Copermittees to designate BMPs to be implemented if a category of non-storm water discharges is found to be a source of pollutants instead of requiring a prohibition of the category of non-storm water discharges.* San Diego Gas and Electric and the Southern California Gas Company each submitted comments requesting Provision E.2.a.(6) be modified to provide an alternative that would allow the Copermittees to designate BMPs to be implemented if a category of non-storm water discharges is found to be source of pollutants, instead of requiring a prohibition of the category of non-storm water discharges.	**Building Industry / Industry** San Diego Gas and Electric Southern California Gas Company
	RESPONSE: The San Diego Water Board reviewed and considered the requested revision. The San Diego Water Board has revised Provision E.2.a.(6) to allow the Copermittees to propose controls to be implemented if a category of non-storm water discharges is found to be a source of pollutants. Please see Provision E.2.a.(6) in the revised Tentative Order.	

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E3-1	PROVISION E.3: Development Planning	
	COMMENT: *Requests for "clarifications" for development planning requirements.* The Copermittees and others have submitted numerous recommendations for revisions to provide "clarity," improve readability, or correct the language in Provision E.3 of the Tentative Order.	**Building Industry / Industry** Building Industry Association of Southern California San Diego Green Building Council **Copermittees** City of Chula Vista Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Engineering/Design Consultants** Contech Engineered Solutions
	RESPONSE: The San Diego Water Board has reviewed and considered all the recommendations submitted by the commenters. In cases where the San Diego Water Board agreed that the recommendations would improve readability and were consistent with the intent of language or requirement, the recommendations were incorporated. In instances where the San Diego Water Board disagreed with the recommendations, the language in the Tentative Order was not changed.	

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E3-2	PROVISION E.3: Development Planning	
	COMMENT: *Requests for revisions to allow the construction of BMPs in waters of the state.* The San Diego County Copermittees and the BIA Regulated Community Coalition have requested that Provision E.3.a.(1)(b) be revised to allow the implementation of structural BMPs within waters of the state, since the definition of waters of the state is broad and could be interpreted to prohibit storm drain inserts and other common BMPs. The requested revision that "BMPs must not be constructed within a waters of the U.S. unless authorized by the San Diego Water Board Executive Officer" is consistent with the San Diego Water Board's 401 Certification Program and would protect natural receiving waters from construction and the use of such waters to transport pollutants.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** City of Chula Vista San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with this comment and has modified the language in the Tentative Order accordingly.	

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E3-3	PROVISION E.3: Development Planning	
	COMMENT: *Requests for revisions to Priority Development Project inventory requirements.* The San Diego County Copermittees have requested that the Tentative Order be revised such that updates to Priority Development Project databases occur "regularly" instead of "at least annually." Additionally, the City of Chula Vista requested the start date for Priority Development Project inventory begin December 2002 instead of January 2002, to reflect the start date for the San Diego County Copermittees' regulatory oversight process pursuant to Order No. 2001-01.	**Copermittees** City of Chula Vista San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that the frequency of updates to project inventories should be less frequent than on an annual basis. However, the San Diego Water Board agrees with the request that the start date be changed for San Diego County Copermittees and has revised the language in the Tentative Order appropriately.	

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E3b-1	PROVISION E.3.b: Priority Development Projects	
	COMMENT: *Requests for revisions to development planning requirements to include different requirements for transportation projects.* The San Diego County and Orange County Copermittees, the Riverside County Transportation Department, and others commented that transportation projects should be exempt from the requirement to implement pollutant control and hydromodification management BMPs set forth in the Tentative Order. Commenters contend that transportation projects should be allotted special consideration because, unlike other types of projects, they must also consider various design constraints having to do with limited right-of-way, utilities, street trees, fire truck access, and general public safety. Commenters recommended that transportation projects be held to USEPA Green Streets guidance as the design requirement.	**Building Industry / Industry** San Diego Green Building Council **Copermittees** City of Dana Point City of Imperial Beach Orange County Copermittees Riverside County Transportation Department
	RESPONSE: The San Diego Water Board generally agrees with the commenters regarding the unique constraints associated with existing roadways. The Tentative Order has been revised to provide an exemption from the Priority Development Project designation for projects where retrofitting of existing paved alleys, streets, or roads are designed and constructed in accordance with USEPA Green Street guidance. However, this exemption is only allowed for existing road and not new ones. This is because new roads are not yet spatially constrained and should be able to incorporate the pollutant control and hydromodification management BMPs during the planning stages. The Tentative Order also allows the Copermittees to incorporate alternative compliance options during the planning stages of the new road projects. The San Diego Water Board maintains that controlling pollutants and managing flows coming from roads is critical because roads are significant sources of pollutants and add significant new impervious surfaces. Commenters should also note that routine maintenance activities associated with transportation projects such as maintaining original line and grade, or repairing potholes, is not considered a Priority Development Project and is not subject to any structural BMP requirements.	

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E3b-2	PROVISION E.3.b: Priority Development Projects	
	COMMENT: *Request for a clear definition of "directly discharges to" an Environmentally Sensitive Area (ESA).* The San Diego County Copermittees and the City of Imperial Beach have requested that Provision B.3.b.(1) be revised to clearly define "directly discharges to" an ESA. The Copermittees are concerned that language in the Tentative Order is confusing and can be misinterpreted.	**Copermittees** City of Imperial Beach San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the comment. The San Diego Water Board revised the language in Provision B.3.b.(1) to more clearly define "directly discharges to."	

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E3b-3	PROVISION E.3.b: Priority Development Projects	
	COMMENT: *Requests for modifications to the types of projects defined as Priority Development Projects and subject to the storm water pollutant control and hydromodification management structural BMP requirements.* The San Diego County, Orange County, and Riverside County Copermittees, several individual Copermittees, members of the Building Industry, Industry, Clean Water Now, and Engineering/Design Consultants submitted comments regarding the types of projects defined as Priority Development Projects. Clean Water Now expressed concern with the types of projects that are considered Priority Development Projects. The Copermittees, Building Industry, and Engineering/Design Consultants provided recommendations for the types of projects that should be defined as Priority Development Projects and therefore subject to the storm water pollutant control and hydromodification management structural BMP requirements, and the types of projects that should be exempt from those requirements. The Copermittees made several comments on this topic, which are summarized below: • Single family residences should be exempt because the requirements are complex and difficult for the regular homeowner to understand, and that the potential for pollutant generation is considerably less than an industrial or commercial site; • Driveways should not be included as Priority Development Projects because, unlike roads, driveways experience low daily trips. The Copermittees suggest implementing a lower performance standard for BMPs implemented on driveways than other Priority Development Projects; • The Tentative Order should include qualifiers for parking lots that would trigger Priority Development Project status only if they were uncovered; • Maintenance access roads should be exempt; • The Tentative Order should allow exemptions for parking lots and other projects that are constructed with permeable surfaces; • The Tentative Order should allow exemptions for flood control and emergency projects; • The exemptions allowed for LEED certified single family residences is inappropriate because the program encompasses other environmental considerations, and are outside the scope of storm water permitting; • Triggers for Priority Development status should be simultaneously based on soil type and square footage of impervious surface; • The Tentative Order should allow exemptions for "Watershed Protection Projects" that are undertaken to rehabilitate or prevent environmental, social, and economic damage to the watershed;	**Building Industry / Industry** American Society of Landscape Architects San Diego Green Building Council San Diego Gas and Electric Company Southern California Gas Company **Copermittees** City of Chula Vista City of Imperial Beach City of Poway Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Clean Water Now **Engineering/Design Consultants** Contech Engineered Solutions Project Design Consultants

E3b-3	PROVISION E.3.b: Priority Development Projects	
	• The hillside development category should be removed because it is not needed. Some Engineering/Design Consultants suggested that Priority Development Projects be exempt if they are designed and constructed with specific materials or a voluntary certification program. San Diego Gas and Electric and the Southern California Gas Company commented that linear underground/overhead (utility) projects should be exempt from Priority Development Project status due to the nature of their construction.	
	RESPONSE: The San Diego Water Board generally disagrees with the requests to remove some project categories from Provision E.3.b, or to exempt certain types of projects from the requirement to implement storm water pollutant control and hydromodification management BMPs. Such BMPs are needed to protect water quality. The list of project categories in Provision E.3.b represents projects that result in the creation of significant areas of impervious surface and/or are pollutant generating in nature, which in turn contributes to pollutants in storm water discharges and altered flow regimes that cause accelerated erosion of channel bed and banks, and consequently degraded stream conditions. With the exception of driveways, the Priority Development Project categories have not changed substantially in San Diego Water MS4 permits. Provision E.3.b of the Tentative Order is consistent with the Fourth Term MS4 permits adopted by the San Diego Water Board for Orange County and Riverside County. Driveways were added as to the Priority Development Project categories because, although they experience much less traffic than roads, they still generate pollutants and create significant impervious surfaces that can impact downstream receiving waters, and must be mitigated. Similarly, even covered parking lots cause impacts for which mitigation is needed because rooftops also add to the impervious surface footprint. Research shows that even incremental increases in impervious surface, as low as 3-5 percent of the watershed area in the semi-arid climate of southern California, can result in degradation of receiving streams (Stein, E. and Zaleski, S., 2005. Technical Report 475, Managing Runoff to Protect Natural Streams: The Latest Development on Investigation and Management of Hydromodification in California. December 30, 2005.). Creation of impervious surface is a concern to the San Diego Water Board and construction with pervious materials that allow infiltration and other natural hydrologic processes are preferred. There is no need to exempt parking lots and other projects constructed with pervious materials from Priority Development Project status because they are not considered Priority Development Projects in the first place. Similarly, maintenance access roads as well as the majority of linear utility projects are not Priority Development Projects because they do not necessarily result in the placement of impervious surfaces above the threshold square footages	

E3b-3	PROVISION E.3.b: Priority Development Projects	
	associated with Priority Development Projects. Priority Development Project status is based on both the type of project being built and associated pollutants anticipated to be generated, and a threshold for the creation or replacement of impervious surface. Soil type comes into play in terms of meeting the retention requirement, which is discussed in the response to comment E3c1-1. The San Diego Water Board disagrees with the recommendation to define Priority Development Projects by soil type because this is accounted for in the size and type of BMPs as dictated by the retention requirement. The San Diego Water Board disagrees that hillside development projects should be exempt. These projects are susceptible to causing accelerated erosion and therefore must implement structural BMPs. The San Diego Water Board further disagrees that there should be exemptions for emergency projects or flood control projects. Provision E.3 describes requirements that pertain to development planning. Emergency situations, by definition, are not planning exercises and therefore do not involve the design and construction of a building or structure. The San Diego Water Board believes that it may be suitable to relax the structural BMP standards for, or exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, environmentally friendly practices may be appropriate for implementation in flood control projects, but a variety of options would not be evaluated if the Tentative Order provided a blanket exemption. The San Diego Water Board disagrees that an exemption from the Priority Development Project structural BMP requirements should be provided for all single family residences. The definition of Priority Development Projects in the Tentative Order already excludes a majority of single family residences that may be developed or redeveloped. New single family residences must create 10,000 square feet or more of impervious surface, or 5,000 square feet or more of impervious surface as a Hillside Development, or 2,500 square feet or more of impervious surface if discharging directly to an Environmental Sensitive Area to be defined as a Priority Development Project. Redevelopment single family residence projects must create or replace 5,000 square feet or more of impervious surface, or 2,500 square feet or more of impervious surface if discharging directly to an Environmental Sensitive Area to be defined as a Priority Development Project. Single family residences that are defined as Priority Development Projects can have a significant impact on receiving water quality and it is appropriate for these projects to implement the Priority Development Project structural BMP requirements. The San Diego Water Board removed language pertaining to the option for single family residences to be designed and constructed with LEED certification to qualify as exempt from Priority Development Project status.	

E3b-3	PROVISION E.3.b: Priority Development Projects	
	This is because several commenters stated that including this requirements was outside the scope of water quality regulation, and that the LEED program was too specific of a certification requirement. To avoid any inconsistency regarding equivalent certification programs and for more streamlined requirements, this option, and hence the exemption allowed for single family residences, was removed. Single family residences large enough to trigger the size thresholds associated with Priority Development Projects are a source of pollutants and altered flow regimes, and therefore must be required to implement structural BMPs. The Copermittees must inspect such BMPs as part of their oversight programs to ensure that homeowners are properly maintaining the BMPs and the BMPs continue to operate as designed in order for the Copermittees to meet the MEP standard of the Clean Water Act. Finally, the San Diego Water Board disagrees that there should be an exemption for "Watershed Protection Projects." The commenters should note that Priority Development Projects are not only defined by square footage of impervious surface, but also the type of project being constructed. The types of projects described in the comment, such as erosion mitigation, restoration of rivers and ecosystems, or groundwater recharge, do not need to be explicitly provided exemptions because they would not be considered Priority Development Projects in the first place if they do not create or replace impervious surface in exceedance of the thresholds in the Tentative Order. The San Diego Water Board has also revised the Tentative Order to allow the Copermittees to provide exemptions for all types of projects. The Copermittees have the ability to exempt projects from meeting the hydromodification management requirements in areas where they have deemed it appropriate to do so. However, in order to utilize this option, Copermittees must first perform the optional Watershed Management Area Analysis described in Provision B.3.b.(4). Please see the response to Comment E3c-2 for further discussion of this option.	

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E3b-4	PROVISION E.3.b: Priority Development Projects	
	COMMENT: *Redevelopment Priority Development Projects that were subject to previous structural BMP requirements should not be subject to new structural BMP requirements*. The San Diego County, Orange County, and Riverside County Copermittees each submitted comments requesting that language be added to the Tentative Order that would specify structural BMP requirements are not applicable to Priority Development Projects (or portions thereof) if the project already has implemented structural BMPs pursuant to requirements of prior MS4 permits.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees in concept with the Copermittees' request. Although some projects may already have structural BMPs onsite, the performance requirements of those BMPs do not necessarily meet the requirements of the Tentative Order. Order No. R9-2007-0001 does not have the numerical storm water pollutant control retention performance standard, therefore redevelopment sites that were subject to Order No. R9-2007-0001 must update their BMPs during the design phase. In some cases, redevelopment projects will already have BMPs that meet the storm water pollutant control and hydromodification management BMP requirements. In these instances, the requirements of the Tentative Order are met and there is no need to change the language.	

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E3c-1	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	COMMENT: *The Tentative Order ignores regional comprehensive plans developed by municipalities and SANDAG.* The Jamul Dulzura Community Planning Group and Julian Community Planning Group assert that the requirements in the Tentative Order are contradictory to plans developed by SANDAG and subsequently included in General Plans that include sound principles such as encouraging redevelopment. The Tentative Order's requirements amount to punishing or dis-incentivizing urban infill projects.	**Community Planning Groups** Jamul Dulzura Community Planning Group Julian Community Planning Group
	RESPONSE: The San Diego Water Board strongly disagrees that the requirements in the Tentative Order are contradictory to principles advocated in regional planning documents. In fact, the Tentative Order is heavily based on planning at the watershed scale, as represented in the Water Quality Improvement Plan requirements. The Tentative Orders increases flexibility for the Copermittees to address urban infill and redevelopment projects by not mandating only on-site BMPs. Redevelopment projects will be required to implement structural BMP requirements that are needed to protect downstream water quality. However, if a Copermittee finds that implementation of the required BMPs fully onsite will not result in meaningful improvements in either pollutant control or hydromodification management, then that Copermittee has the option to allow compliance elsewhere in the watershed where more substantial improvements can take place. There are no additional requirements for redevelopment projects versus new projects, therefore redevelopment projects are not being penalized, as suggested by the commenters. Furthermore, the Tentative Order has been revised to include an exemption from hydromodification management BMP requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additionally, more exemptions could be included on a watershed-specific basis if the Copermittees in the Watershed Management Area elect to perform the optional Watershed Management Area Analysis as described in Provision B.3.b.(4). Please see the response to Comment E3c-2 for further discussion of these options.	

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E3c-2	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	COMMENT: *Request for requirements that allow development of watershed-specific structural BMP performance standards in Water Quality Improvement Plans.* The Orange County and San Diego County Copermittees assert that the Tentative Order requires a "one-size-fits-all" approach and request that the Tentative Order allows for watershed-specific performance requirements for structural BMPs. Members of the Building Industry, the City of Imperial Beach, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities requested or expressed support for a similar concept. The Environmental Groups support including alternative compliance options that provide "off-ramps" for the baseline "one size fits all" structural BMP performance requirements.	**Building Industry / Industry** American Society of Landscape Architects **Copermittees** City of Imperial Beach Orange County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups **Engineering/Design Consultants** Latitude 33 Planning and Engineering Project Design Consultants **Societies/Associations/Coalitions** BIOCOM **Other Entities** Carol Crossman Gable PR Hughes Marino Marston+Marston Nuffer, Smith, and Tucker San Diego Regional Chamber of Commerce Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants Transition IT
	RESPONSE: The San Diego Water Board disagrees that the Tentative Order requires a "one-size-fits-all" approach for the implementation of structural BMPs. For the Priority Development Project structural BMP performance requirements, site specific conditions must be taken into account upon selecting appropriate BMPs. Provision E.3.c.(1)(a), which describes requirements for storm water pollutant control, the Tentative Order states that: "*Each Priority Development Project must be required to implement LID BMPs that are designed to retain (i.e. intercept, store, infiltrate, evaporate, and evapostranspire) onsite the volume of storm water runoff produced from a 24-hour 85th percentile storm event (design capture volume).*" While each Priority Development Project must retain the volume of storm water runoff produced from the 24-hour 85th percentile storm, the actual volume retained will vary based on site specific factors, namely soil type and associated infiltration rates. The requirement to retain the volume of water associated with this size storm is appropriate for the reasons stated in the response to comment E3c1-1.	

E3c-2	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	Similarly, Provision E.3.c.(2)(a), which describes requirements for hydromodification management, states that: "*Post-project runoff flow rates and durations must not exceed pre-development runoff flow rates and durations by more than 10 percent (for the range of flows that result in increased potential for erosion, or degraded instream habitat conditions downstream of Priority Development Projects).*" This requirement involves implementing BMPs for "the range of flows that result in increased potential for erosion,…" which is necessarily a site-specific requirement. The range of flows that cause downstream erosion from one Priority Development Project may be different than the range of flows that cause erosion from another Priority Development Project located in a different area in the watershed. Therefore, very different BMPs might be required from the two sites. The San Diego Water Board agrees that greater improvements to water quality in the watersheds may be realized if Priority Development Projects were allowed to implement some requirements offsite, as opposed to strictly onsite. For this reason, the Tentative Order allows for "alternative compliance" in instances where the Copermittee determines that offsite measures will have a greater overall water quality benefit for the Watershed Management Area than if the Priority Development Project were to implement structural BMPs onsite. Consequently, watershed-specific structural BMP requirements are present in the Tentative Order in the form of allowable compliance offsite. The "alternative compliance program" has been substantially re-written for simplicity, and also to better align this program with the planning efforts of the Copermittees in the Water Quality Improvement Plans. The alternative compliance program, which is described in Provision E.3.c.(3), is an option for Priority Development Projects where the Copermittee has participated in the development of a Watershed Management Area Analysis as part of the Water Quality Improvement Plan (described in Provision B.3.b.(4)). Such an approach is consistent with the latest findings in hydromodification management by the scientific community. In the Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, authors state: "*An effective [hydromodification] management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed.*" Consistent with the ideas brought forth by the SCCWRP report, in the Watershed Management Area Analysis of Provision B.3.b.(4), which is optional, the Copermittees will develop watershed maps that include as much detail	

E3c-2	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	about factors that affect the hydrology of the watersheds as is available. Such factors included identification of areas suitable for infiltration, coarse sediment supply areas, and locating stream channel structures and constrictions. Once these factors are mapped and studied, the Copermittees can identify areas in the watersheds where "candidate projects" may be implemented that are expected to improve water quality in the watershed by providing more opportunity for infiltration, slowing down storm water flows, or attenuation of pollutants naturally via healthy stream habitat. These projects may be in the form of retrofitting existing development, rehabilitating degraded stream segments, identifying regional BMPs, purchasing land to preserve valuable floodplain functions, and any other projects that the Copermittees identify. Under the alternative compliance program, Priority Development Projects may be allowed to fund, partially fund, or implement a candidate project, in lieu of implementing structural BMPs onsite, if they enter into a voluntary agreement with the Copermittee permitting this arrangement. If compliance involves funding or implementing a project that is outside the jurisdiction of the Copermittee, then that Copermittee may enter into an inter-agency agreement with the appropriate jurisdiction(s). In response to several comments, the Tentative Order has been revised to include an exemption from hydromodification management BMP requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Provision B.2.b.(4) provides an optional Watershed Management Area Analysis that may allow the Copermittees to identify additional areas within the watershed where it is appropriate to exempt Priority Development Projects from implementing hydromodification management BMPs. Exemptions other than the ones specified in the Tentative Order, then, would be applicable on a watershed basis, and would require supporting rationale. In summary, the Tentative Order includes requirements for site-specific structural BMP requirements and exemptions. In order for them to be realized, the Copermittees must perform up-front analysis to support both the alternative compliance program and watershed-specific hydromodification management BMP exemptions. The San Diego Water Board believes that this approach will allow for meaningful improvement to water quality in the watersheds, as well as the efficient use of resources for innovative projects, as opposed to requiring structural BMPs to be fully implemented on all sites.	

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E3c-3	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	COMMENT: *Request for modifications to Priority Development Project structural BMP infiltration and groundwater protection pre-treatment requirements.* The San Diego County Copermittees and the City of National City commented that pre-treatment for infiltration BMPs on areas of industrial or light industrial activity should only be required if significant pollutant levels are present or if source control BMPs will not provide pre-treatment. Contech Engineer Solutions expressed concern that without clear and specific pre-treatment standards for infiltration BMPs, the Copermittees will accept pre-treatment systems that will require significant maintenance to ensure proper operation. Contech Engineer Solutions recommended very specific design standards for pre-treatment systems.	**Copermittees** City of National City San Diego County Copermittees **Engineering/Design Consultants** Contech Engineered Solutions
	RESPONSE: The San Diego Water Board agrees with the Copermittees comments. The San Diego Water Board conceptually agrees with Contech Engineered Solutions, but disagrees that including such specific design standards are necessary. The San Diego Water Board has revised Provision E.3.c.(5)(a)(vi) to allow infiltration BMPs on industrial or light industrial areas if source control BMPs will not expose groundwater to activities that are a high threat. The San Diego Water Board did not revise Provision E.3.c.(5)(a)(i). The Copermittees are required to inspect BMPs at Priority Development Projects to confirm they continue to operate as designed. If structural BMPs on Priority Development Projects are not properly maintained, the Copermittees must enforce its ordinances to achieve compliance with its ordinances and the requirements of the Tentative Order.	

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E3c-4	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	COMMENT: *General concerns associated with the development planning structural BMP performance requirements.* Comments from members of the Building Industry, Community Planning Groups, the Copermittees, Environmental Organizations, State Government, Societies/Associations/Coalitions, and Other Entities expressed various concerns about the development planning structural BMP performance requirements for Priority Development Projects. Several commenters expressed concerns with the potential costs associated with enforcing and implementing the changing requirements for development projects, or the uncertainty of the impacts of those new requirements. The South Laguna Civic Association expressed concern that the current development planning requirements are already resulting in the degradation and destruction of creeks, wetlands, and coastal habitats. David Akers, P.E., expressed concern with current practices and supports requirements that will result in sustainable development. The City of Chula Vista questioned what should be done water collected in rain barrels and other retention facilities if there is a lack of demand during the rainy season.	**Building Industry / Industry** Associated General Contractors of America **Community Planning Groups** Julian Community Planning Group Ramona Community Planning Group **Copermittees** City of Chula Vista County of San Diego Orange County Copermittees **Environmental Organizations** Clean Water Now South Laguna Civic Association **Engineering/Design Consultants** David J. Akers, P.E. **State/Federal Government** Senator Mark Wyland **Societies/Associations/Coalitions** San Diego Association of Realtors South County Economic Development Council **Other Entities** Carol Crossman Continental Maritime of San Diego Nuffer, Smith, and Tucker Sheppard, Mullin, Richter & Hampton LLP Southern Cross Property Consultants
	RESPONSE: The San Diego Water Board understands the concerns that have been expressed by the commenters. Most of the requirements in the Tentative Order are not new to the San Diego Region. The Tentative Order incorporates many existing requirements from the MS4 permits in Orange and Riverside Counties. However, the Tentative Order also provides the Copermittees with more flexibility to use their limited resources in the most effective and efficient manner to protect the quality of the San Diego Region's receiving waters. The commenters generally are concerned with the costs of implementing the development planning structural BMP performance requirements, but do not consider the costs of not addressing impacts that have been caused by existing development, and may be caused by future development. The San Diego Water Board has significantly modified the structure and focus of the requirements in the Tentative Order to allow the	

E3c-4	PROVISION E.3.c: Priority Development Project Structural BMP Performance Requirements	
	Copermittees to more efficiently and cost effectively utilize their resources, which is expected to result in the realization of significant cost savings that could not be realized in the existing MS4 permits. The development planning structural BMP performance requirements have also evolved significantly since 2001 because of the degradation and destruction of creeks, wetlands, and coastal habitats that have been observed as developed areas have expanded. Thus, the Tentative Order not only includes development planning requirements to protect against impacts to receiving waters that may be caused by future development, but also includes requirements that begin to address impacts that are being caused by existing development. The Tentative Order will allow the Copermittees to address existing development and new develop with a watershed-scale approach that is expected to lead to more sustainable configurations of the watersheds in the San Diego Region over the long term. The question posed regarding the use of retained storm water if there is a lack of demand is not new. The municipalities and several agencies in the San Diego Region have also posed questions about what can be done to address the sustainable water supply concerns that are being expressed as the population grows and demand for water increases. There may be ways to potentially link the two issues to create solutions to address the problems. The Tentative Order was developed to provide the flexibility that will allow the Copermittees to work with other agencies to perhaps identify solutions with mutual benefits.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E3c1-1	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements	
	COMMENT: *Objections with storm water pollutant control retention BMP performance requirements for Priority Development Projects.* The San Diego County, Orange County, and Riverside County Copermittees and Engineering/Design Consultants contend that the storm water pollutant control retention requirement is infeasible for many Priority Development Projects due to poor soil types and other factors. The Industrial Environmental Association asserts that the Tentative Order does not provide sufficient detail for consistency among Copermittees in evaluating conditions for technical infeasibility. The Copermittees have requested that the term "runoff" be included in the description of "design capture volume." Other commenters stated that the retention standard will result in runoff "starved" receiving waters. Commenters also stated that the requirement to increase bioretention by 25 percent is arbitrary and without basis. Conversely, Natural Resources Defense Council argues that retention of the 85th percentile storm event is an appropriate performance standard and should be required at all sites, regardless of the specific site conditions. David Aker, P.E., also supports the requirement to retain storm water and contends that it is essential for sustainable development.	**Building Industry / Industry** BIA Regulated Community Coalition Building Industry Association of Southern California, Inc. Industrial Environmental Association Otay Land Company Otay Ranch New Homes San Diego Green Building Council **Copermittees** City of Chula Vista City of Vista County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District **Environmental Organizations** Natural Resources Defense Council **Engineering/Design Consultants** Contech Engineered Solutions David J. Akers, P.E. **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board disagrees with the Copermittees that the retention standard, as written in the Tentative Order, is inappropriate. The San Diego Water Board has recognized that the retention of the 85th percentile storm event is MEP, and already incorporated the performance standard in both the Orange County and Riverside County MS4 permits. Other MS4 permits in southern California (e.g., Ventura County, Los Angeles County) incorporate similar performance standards, and it is supported by USEPA. Commenters should note that under the Alternative Compliance Program described in Provision E.3.c.(3), Priority Development Projects will have the option to perform mitigation offsite "*if the Copermittee determines that the offsite project will have a greater overall water quality benefit for the Watershed Management Area than implementing BMPs onsite*." Theoretically, a Priority Development Project could make the case that retention of the design capture storm is not feasible, or that doing so would result in an unnatural water balance, therefore	

E3c1-1	PROVISION E.3.c.(1): Storm Water Pollutant Control BMP Requirements	
	offsite compliance is preferred. This option is only available to the Priority Development Project if the Copermittee elects to offer it. The San Diego Water Board disagrees that the Tentative Order should provide detail on what constitutes infeasibility because the Copermittees have the experience to make these determinations, and are free to develop consistency standards if the need arises. Language regarding the application of a site specific retention standard was removed because several commenters argued, and the San Diego Water Board agreed, that the analyses could be subjective and introduce uncertainty for the Copermittees in terms of determining compliance. Moreover, comparing the volume of runoff produced from an undeveloped site to that of a Priority Development Project would not be comparing equivalent pollutant levels, because the pollutants expected to be generated from a Priority Development Project would not have been present in runoff from undeveloped land. For simplicity, the language pertaining to site specific retention standards was removed. The word "runoff" was added to the description of "design capture volume" per the Copermittees' requests. Similarly, the language pertaining to biofiltration LID BMPs was removed because the Alternative Compliance Program was restructured to better coincide with the Copermittee's planning efforts in the Water Quality Improvement Plan.	

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E3c2-1	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *Allow San Diego Copermittees to continue implementation of current San Diego Hydromodification Management Plan, as approved under Resolution No. R9-2010-0066.* The San Diego County Copermittees and several other commenters have requested that the *Hydromodification Management Plan for San Diego County* (HMP), which was approved by the San Diego Water Board in 2010 under Resolution No. R9-2010-0066, be memorialized in the Tentative Order as the standard for hydromodification management.	**Building Industry / Industry** Building Industry Association of Southern California, Inc. Otay Land Company Otay Ranch New Homes **Community Planning Groups** Jamul Dulzura Community Planning Group Pala Pauma Valley Community Sponsor Group **Copermittees** City of Chula Vista City of Del Mar City of Poway City of San Diego County of San Diego County of San Diego Office of County Counsel San Diego County Copermittees **Societies/Associations/Coalitions** East Otay Mesa Property Owners Association Otay Mesa Property Owners Association **Other Entities** National Enterprises Inc.
	RESPONSE: The San Diego Water Board disagrees with commenters that it is appropriate to reference the San Diego County HMP in the Tentative Order. The San Diego HMP does not include standards that are currently included in the Fourth Term MS4 permits for Orange and Riverside Counties. However, commenters should note that the requirements in the Tentative Order allow the San Diego Copermittees to use the information and analysis that was used to develop the San Diego HMP. In addition, the San Diego HMP will remain in effect until the Water Quality Improvement Plans are accepted by the San Diego Water Board. The San Diego Water Board is aware that the San Diego County Copermittees spent over $1 million to develop the HMP. This investment is not lost because the Tentative Order allows the Copermittees to build upon the	

E3c2-1	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	findings in the HMP; thus, the information developed is not irrelevant. For example, the San Diego HMP used an analysis to determine the range of flows for which Priority Development Projects must implement hydromodification management BMPs. This analysis includes evaluation of site specific conditions, including the level of susceptibility of the downstream receiving water to erosion. Further, the analysis includes a mechanism for Priority Development Projects to determine appropriately sized BMPs, depending on the condition of the downstream receiving water. This analysis is the crux of the San Diego HMP, and the Tentative Order allows its continued use. There are two important changes in the Tentative Order from Order No. R9-2007-0001 that the San Diego County HMP must make adjustments for. Firstly, the Tentative Order includes a requirement that Priority Development Projects use the "predevelopment" condition for evaluating the baseline hydrology for a specific site. The San Diego HMP, as written, can still be used because this requirement only affects the input variables used in the analysis. The San Diego Water Board is requiring the use of the pre-development condition for the reasons discussed in the Response to Comment E3c2-2. Secondly, in response to several comments, the Tentative Order has been revised to include an exemption from hydromodification management requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additional exemptions may be allowed on a watershed-basis only if the Copermittees perform a watershed-specific analysis, as part of the Water Quality Improvement Plan that justifies inclusion of exemptions. Much of this work has already been done by the San Diego County Copermittees in the HMP, as the HMP contains many exemptions above and beyond those described in Order No. R9-2007-0001. Again, the investment made in the HMP is not lost; the Copermittees must develop the Watershed Management Area Analysis described in Provision B.3.b.(4) of the Tentative Order and include the exemptions and rationale therein. Finally, the San Diego County Copermittees were notified before completion of the HMP that requirements pertaining to hydromodification management would likely change. As part of the development of the HMP, the Copermittees submitted a first draft on May 1, 2009. In a comment letter dated June 29, 2009, the San Diego Water Board stated that: "*Although the Permit (R9-2007-0001) does not specifically interpret "pre-project" conditions to reference pre-development (naturally occurring) conditions, the Copermittees are not restricted from implementing this more conservative standard. Tentative Order No. R9-2009-0002 (the draft Orange County Municipal Permit) dated June 18, 2009 contains this more restrictive language. The San Diego*	

E3c2-1	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	Copermittees should be aware that the next iteration of the Permit may contain similar language. Additionally, the exceptions for hydromodification management measures included in the Permit (provision D.1.g.(3) for discharges into hardened channels will also likely be eliminated." Although this quote referred to text in the draft Orange County MS4 Permit, the requirements for using the pre-development baseline hydrology for hydromodification management were eventually included in the final versions of the MS4 permits for both Orange and Riverside Counties. Therefore the San Diego County Copermittees were well aware of the evolving requirements before their HMP was finalized.	

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E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *Objections with requiring pre-development versus pre-project hydrology for hydromodification management BMP performance standards.* Comments submitted by Copermittees, Building Industry, Community Planning Groups, Engineering/Design Consultants, Societies/Associations/Coalitions, and Other Entities objected to the use of pre-development hydrology as a baseline for hydrograph matching (and therefore, BMP design) in the case of redevelopment projects, and that the pre-project design standard is the appropriate standard. Commenters argue that including the pre-development standard would be tantamount to requiring a Priority Development Project to mitigate beyond its impacts.	**Building Industry / Industry** San Diego Green Building Council **Community Planning Groups** Julian Community Planning Group Pala Pauma Valley Community Sponsor Group **Copermittees** City of National City City of Poway City of San Diego City of San Diego City Attorney County of San Diego County of San Diego Office of County Counsel Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District **Engineering/Design Consultants** Project Design Consultants **Societies/Associations/Coalitions** East Otay Mesa Property Owners Association Otay Mesa Property Owners Association **Other Entities** National Enterprises Inc.
	RESPONSE: The San Diego Water Board disagrees with the commenters that pre-project hydrology should be used as the baseline hydrology for redevelopment projects. The "pre-development" language in the Tentative Order has not been removed, but the qualifier "naturally occurring" has been removed from the text because some commenters stated that it caused confusion rather than providing clarity. The definition for "pre-development runoff condition" has been revised in Attachment C and discussion pertaining to this definition and how the San Diego Water Board expects Copermittees to interpret this phrase has been added to the Fact Sheet. Fundamentally, the San Diego Water Board believes that using a hydrology baseline that approximates that of an undeveloped, natural watershed is the only way to facilitate the return of more natural hydrological conditions	

E3c2-2	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	to already built-out watersheds. Using the pre-project hydrology as a baseline for redevelopment projects results in propagating the unnatural hydrology of urbanized areas, which is largely made up of impervious surfaces. Flows from impervious surfaces are highly erosive and consequently have detrimental effects on receiving waters in the San Diego Region. Furthermore, propagating the urbanized flow regime does not support conditions for restoring degraded or channelized stream segments, and would forever sentence such streams to the degraded state. Rehabilitating or restoring degraded stream segments is a critical component of the Tentative Order and is expected to be incorporated into Copermittee's strategies for improving water quality in the watersheds. Finally, the predevelopment standard is not requiring Priority Development Projects to mitigate beyond its impacts because the project would be perpetuating impacts that originated upon initial land alteration (i.e., the project would continue to cause accelerated erosion). Commenters have stated that it is impracticable to require hydromodification management BMPs to mimic the "pre-Columbian" hydrology because it would be impossible to know the historical conditions with any certainty. However, estimating the conditions of historical conditions is not the intent of this requirement. Rather, using the characteristics of a more natural hydrological condition than that of an urbanized setting is the intent. In terms of using a pre-development condition for the baseline hydrology, a Priority Development Project has a number of options for estimating this condition when it is not known. For example, a Priority Development Project may consult soil maps, such as those published by the National Resources Conservation Service (NRCS). These readily available maps show the soil types in a given area, regardless of whether or not the land has been developed. This information, along with information regarding existing grade, constitute sufficient data needed to approximate the pre-development condition and intent of the Tentative Order. Another option is for Priority Development Projects to use characteristics of a nearby open space area as an equivalent baseline. Or, a Priority Development Project may be able to research the geotechnical report associated with a structure upon its development. In any case, the San Diego Water Board asserts that the pre-development hydrology of the area in question can be roughly estimated. However, using the hydrology of a more natural condition, even if not precisely known, will provide significant benefit to receiving waters over using the hydrology associated with pervious (developed) surfaces. Therefore in order to support the basic objectives of the Clean Water Act, which are to *restore* and maintain the chemical, *physical*, and biological integrity of the nation's waters [emphasis added], the most appropriate standard to use for hydromodification management is the standard associated with the pre-development runoff condition.	

E3c2-3	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *Include exemptions from the implementation of hydromodification management BMPs where there is no threat of erosion to downstream receiving waters or there are special circumstances.* The Copermittees, Building Industry, Engineering/Design Consultants, and others have commented that the Tentative Order should restore exemptions for the implementation of hydromodification management BMPs where there is no threat of erosion to downstream receiving waters, such as concrete-lined or otherwise hardened channels. Commenters also argue that exemptions should be allowed for emergency projects or flood control projects.	**Building Industry / Industry** BIA Regulated Community Coalition Building Industry Association of Southern California **Copermittees** City of Chula Vista City of Dana Point City of Del Mar City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District **Engineering/Design Consultants** Contech Engineered Solutions Project Design Consultants **Societies/Associations/Coalitions** East Otay Mesa Property Owners Association Otay Mesa Property Owners Association South County Economic Development Council **Other Entities** National Enterprises Inc.
	RESPONSE: The San Diego Water Board disagrees conceptually that blanket exemptions from hydromodification management BMP requirements should be granted to all redevelopment projects that discharge to hardened channels. Although the San Diego Water Board has not been advocating for the implementation of expensive BMPs to protect stream reaches that are not susceptible to erosion, the idea was to use the resources obtained from these low-threat Priority Development Projects on separate projects located elsewhere in the watershed, where protection from hydromodification is critical. In the most recent findings regarding hydromodification management, found in Southern California Coastal Water Research Project (SCCWRP) Technical Report No. 667, authors state: "*The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies…*"	

E3c2-3	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	SCCWRP Technical Report No. 667 further states that: "*An effective management program will likely include combinations of on-site measures (e.g., low-impact development techniques, flow-control basins), in-stream measures (e.g., stream habitat restoration), floodplain and riparian zone actions, and off-site measures. Off-site measures may include compensatory mitigation measures at upstream locations that are designed to help restore and manage flow and sediment yield in the watershed* [Emphasis added]." The Tentative Order released on October 31, 2012 was written to incorporate these important watershed-based concepts. Nevertheless, several commenters voiced concern over the elimination of exemptions to hardened channels and other non-susceptible receiving waters. After careful consideration, the San Diego Water Board revised the Tentative Order to accommodate the re-introduction of exemptions. Provision E.3.c.(2) has been revised to include an exemption from hydromodification management requirements for Priority Development Projects that discharge to conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean. Additional exemptions may be allowed; however, they would occur on a watershed-specific basis, and must be defined and defended by the Copermittees. Under the newly created Provision B.3.b.(4), the Copermittees have been provided the option to perform a Watershed Management Area Analysis for the purpose of 1) characterizing the watersheds, 2) identifying alternative compliance projects that Priority Development Projects may use in lieu of implementing structural BMPs onsite, and 3) identifying areas within the watershed where it is appropriate to exempt Priority Development Projects from implementing hydromodification management BMPs. Exemptions, then, would be applicable on a watershed-specific basis, and would require supporting rationale. One reason why the San Diego Water Board has reservations regarding the idea of blanket exemptions is that allowing them without some sort of analysis is short-sighted. SCCWRP Technical Report 667 discusses the importance of watershed-based planning. The report states: "*There is usually also an exemption for projects discharging to hardened channels or waterbodies; however these exemptions may not be supportive of future stream restoration possibilities*…" Although the San Diego Water Board understands that hardened channels may sometimes provide essential flood control, there are situations where stream rehabilitation can take place, and concrete segments can be removed. For this reason, if the Copermittees choose to perform the Watershed Management Area Analysis,	

E3c2-3	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	they may be able to differentiate between hardened stream segments where the concrete will likely never be removed, and other stream segments where there is a possibility for future rehabilitation. Nevertheless, an exemption for concrete-lined channels has been added to the Tentative Order. Finally, the Copermittees commented that there should be exemptions allowed for emergency projects or flood control projects. The San Diego Water Board disagrees with the Copermittees in either case. Provision E.3 describes requirements that pertain to development planning. Emergency situations, by definition, are not planning exercises and therefore do not involve the design, approval, and construction of a building or structure. The San Diego Water Board believes that it may be appropriate to relax the structural BMP standards for, or altogether exempt flood control projects, but not before projects are evaluated on a case-by-case basis. In many instances, environmentally friendly practices may be appropriate for implementation in flood control projects, but a variety of options would not be evaluated by the project proponent if the Tentative Order allowed a blanket exemption.	

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E3c2-4	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *Objections with requirements to compensate for sediment supply*. The Copermittees, Building Industry, and Engineering/Design Consultants have commented that management of sediment supply is a complicated and challenging issue, and more direction regarding the Tentative Order's intent should be provided. Commenters have also stated that it is inappropriate to require analysis of sediment supply on a site-by-site basis, and that it is better addressed at the regional level.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** City of Chula Vista County of San Diego San Diego County Copermittees **Engineering/Design Consultants** Contech Engineered Solutions Project Design Consultants
	RESPONSE: The San Diego Water Board agrees with the commenters that addressing the sediment supply issue when a Priority Development Project is under review is complicated and challenging. The intent of the Tentative Order is to protect the coarse sediment supply and ensure that Priority Development Projects will not impact the supply. Therefore, language pertaining to "compensating for" sediment supply has been removed. Instead, where a Copermittee is aware of areas where coarse sediment is naturally discharged to downstream receiving waters, then the San Diego Water Board expects the Copermittee to ensure the protection of this natural process by conditioning the Priority Development Project to either avoid the area, or implement measures that would allow the natural hydrologic process to continue. Please see Provision E.3.c.(2)(b) in the revised Tentative Order for the revisions.	

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E3c2-5	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *Monitoring and assessment program requirements will not provide information necessary to re-define the range of flows causing erosion.* The City of Chula Vista commented that water quality monitoring as described in Provision D of the Tentative Order will not provide the necessary information to re-define the range of flows thought to cause erosion to receiving waters.	**Copermittees** City of Chula Vista
	RESPONSE: The San Diego Water Board disagrees that the monitoring and assessment program requirements cannot provide information necessary to re-evaluate or re-define the range of flows causing erosion. The water quality monitoring described in Provision D.1.a.(2) represents the minimum level of monitoring needed to comply with the Tentative Order. If the Copermittees elect to re-evaluate the range of flows that are thought to cause erosion to downstream receiving waters, as defined in the San Diego County HMP, then they may design a monitoring program that will provide the necessary information to do so.	

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E3c2-6	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *The low-flow thresholds included in the San Diego County HMP need to be revised.* Project Design Consultants submitted comments suggesting that the schedule for development of the San Diego County HMP was extremely rushed, and technical expertise was ignored. The HMP should be revised and included in the Tentative Order.	**Engineering/Design Consultants** Project Design Consultants
	RESPONSE: The San Diego Water Board does not object to revising the low-flow thresholds included in the San Diego County HMP, provided that revisions are based on data acquired by the Copermittees. However, the process for updating this design standard in the HMP will occur on an ad-hoc basis and need not be referenced in the Tentative Order.	

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E3c2-7	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *The hydromodification management BMP performance standards should allow the use of the erosion potential (Ep) method and in-stream metrics for compliance.* The Building Industry Association of Southern California requests that the performance standards for hydromodification management allow the use of the Ep method. Requiring project-by-project flow duration control may not be as effective as a regionally-coordinated approach that combines upland control with in-stream remedies.	**Building Industry / Industry** Building Industry Association of Southern California
	RESPONSE: The San Diego Water Board considered the request and found that changes are not necessary. Although the language in Provision E.3.c.(2) does not specifically reference the concept of erosion potential, the Copermittees are not prohibited from using such an approach. Provision E.3.c.(2)(a) requires the Copermittees to require implementation of BMPs to ensure that post-project runoff flow rates and durations do not exceed pre-development runoff flow rates and durations by more than 10 percent (for the range of flows that are deemed to cause erosion). However, Provision E.3.c.(2)(c) allows a Priority Development Project to utilize the alternative compliance program in lieu of complying with the requirement to implement structural BMPs onsite. Priority Development Projects are allowed to comply with the hydromodification management requirements by funding, partially funding, or implementing an offsite project, such as stream rehabilitation (which can include stream stabilization). The San Diego Water Board agrees that a regionally-coordinated approach that includes in-stream remedies is more effective than requiring flow duration control BMPs on every Priority Development Project, and for this reason has written the Tentative Order to allow these metrics. However, ultimately, administration of the Alternative Compliance Program is at the discretion of the Copermittees. If the Copermittees find that administering the Alternative Compliance Program is too difficult, costly, or is not in a Copermittee's best interest, than they are not obligated to do so.	

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E3c2-8	PROVISION E.3.c.(2): Hydromodification Management BMP Requirements	
	COMMENT: *There is insufficient data to suggest a need to change the hydromodification management requirements.* The City of Mission Viejo, Orange County and San Diego County Copermittees have commented that there is no need to include new requirements for hydromodification management, as no new data has emerged suggesting a need for change and the Copermittees have only begun to implement their current HMPs.	**Copermittees** City of Mission Viejo Orange County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that there have been any fundamental changes to the hydromodification management requirements from those included in the Fourth Term storm water permits. The basic premise, which is requiring hydromodification management for erosive flows as defined by the Copermittees, has not changed. The San Diego County Copermittees spent considerable funds and effort to define the range of flows that cause erosive effects, and the Tentative Order does not trump those efforts. The San Diego Water Board disagrees with the notion that no new data has emerged regarding hydromodification management. Several commenters have referenced Southern California Coastal Water Research Project's latest findings in *Hydromodification Assessment and Management in California* (Technical Report 667). SCCWRP Technical Report 667 clearly states that: "*An effective management program will likely include combinations of on-site measures…in-stream measures…and offsite measures….*" Further, SCCWRP Technical Report 667 states that: "*The exemption of many small projects from hydromodification controls can result in cumulative impacts to downstream waterbodies.*" The requirements in the Tentative Order are consistent with the findings in this report and MS4 permits in Orange and Riverside Counties. The San Diego Water Board agrees with the underlying premise advocated in this report, which is that effective hydromodification programs begin with watershed-scale analysis and planning. Although the Copermittees have just recently begun implanting their HMPs, the changes needed to incorporate the requirements of the Tentative Order will not undermine the mechanics of the HMPs and therefore will not require substantial revisions. The incorporation of the pre-development baseline standards and inclusion of only qualified exemptions, resulting from thorough watershed analyses, is essential for protecting receiving streams from erosion caused by altered flow regimes.	

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E3c3-1	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	COMMENT: *Objections to the onsite LID biofiltration treatment control BMP performance standards*. The San Diego County, Orange County, and Riverside County Copermittees and Engineering/Design Consultants have commented that there is no need to include a 1.5 times multiplier on biofiltration LID BMPs, and that doing so is technically unjustified.	**Building Industry / Industry** Building Industry Association of Southern California **Copermittees** City of Vista Orange County Copermittees Riverside County Copermittees **Engineering/Design Consultants** Contech Engineered Solutions Project Design Consultants
	RESPONSE: Provision E.3.c.(3) describing the Alternative Compliance Program has been substantially revised so that it coincides better with the watershed planning efforts of the Copermittees in the Water Quality Improvement Plans. As a result, the requirements related to LID biofiltration BMPs has been removed.	

E3c3-2	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	COMMENT: *Modify requirements and process to implement alternative compliance options*. The San Diego County, Orange County, and Riverside County Copermittees, Engineering/Design Consultants, and Environmental Organizations have expressed concern with the process associated with the Alternative Compliance Program to Onsite Structural BMP Implementation. The Copermittees assert that this program should be administered by the San Diego Water Board, that more time than 4 years should be granted for alternative compliance project completion, and that the administrative costs would be prohibitive. The Environmental Organizations suggest that language be added to the Tentative Order to clearly indicate that the Copermittees are responsible for ensuring that alternative compliance projects are completed within the 4 year timeframe, and also expressed concerns as to whether the alternative compliance project would provide equal water quality benefits as implementing structural BMPs onsite. Engineering/Design Consultants submitted recommendations regarding how administration of the Alternative Compliance Program would work.	**Building Industry / Industry** American Society of Landscape Architects BIA Regulated Community Coalition Building Industry Association of Southern California San Diego Green Building Council **Copermittees** City of Imperial Beach County of San Diego Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups Natural Resources Defense Council **Engineering/Design Consultants** Project Design Consultants
	RESPONSE: The San Diego Water Board disagrees with the Copermittees that the Alternative Compliance Program should be administered by the San Diego Water Board and not by the Copermittees. The Alternative Compliance Program is provided as an option to the Copermittees. The Copermittees are not required to implement the Alternative Compliance Program. If, however, the Copermittees do implement the Alternative Compliance Program, it is expected to coincide with the Copermittees' watershed planning efforts and assist the Copermittees in reaching their goals of reducing pollutants in storm water runoff leaving their MS4s. This is because the alternative compliance projects consist of projects such as retrofitting existing development, where pollutant treatment can be an added benefit where no treatment currently exists; or stream rehabilitation, where natural attenuation of pollutants can occur as an ancillary benefit to improved stream habitat. Other example projects are regional BMPs that receive runoff from multiple areas, or the preservation or purchase of critical floodplain land. The Tentative Order establishes requirements for the Copermittees and not the San Diego Water Board. Therefore, it would inappropriate for the San Diego Water Board administer this program, but could assist in its implementation by streamlining permits for stream rehabilitation and restoration... The San Diego Water Board understands that the initial costs for administering this program could be significant; however, there are fiscal benefits in that Priority Development Projects could provide the funding for projects that are expected to improve water quality, thereby negating the need for Copermittees to expend their resources on BMPs to accomplish the	

E3c3-2	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	same thing. Finally, the Copermittees are not required to administer this program and can elect to administer BMPs strictly onsite. Provision E.3.c.(3) has been substantially revised for simplicity and to better coincide with the Copermittees' planning efforts, and all references to LEED certification have been removed. The San Diego Water Board further disagrees that more than 4 years should be granted for alternative compliance project completion. First of all, pollutants from the Priority Development Project are being discharged without treatment and there is not necessarily any equivalent treatment until the alternative compliance project is constructed (although temporal mitigation is required when there is a lag between the two projects). Second of all, the Tentative Order explicitly allows more time for projects where the Executive Officer approves additional time. The San Diego Water Board disagrees with the recommendation that the Tentative Order specify that the Copermittees are responsible for ensuring that the alternative compliance projects are completed within the 4 year time frame. The Tentative Order is issued to the San Diego County, Orange County, and Riverside County Copermittees; therefore all of these entities are responsible for complying with the requirements, and further discussion would be redundant. Finally, the San Diego Water Board agrees that the alternative compliance program presents some uncertainty regarding "greater water quality benefit" expected to come from these projects versus implementation of structural BMPs onsite. If the Copermittees elect to implement an Alternative Compliance Program, they are required to develop a list of potential candidate projects that can be implemented with the Watershed Management Area. The candidate projects will be included in the Water Quality Improvement Plans, which will be reviewed by the public and the San Diego Water Board before implementation takes place. The water quality benefits that can be achieved by implementing those candidate projects will likely be made evident during the public participation process in the development of the Water Quality Improvement Plans.	

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E3c3-3	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	COMMENT: *Request for modifications to the alternative compliance water quality credit system option*. The Orange County Copermittees have requested that language pertaining to the water quality credit system be revised to remove the no-net impact limitations because certain projects may offer significant environmental benefits that are not necessarily related to water quality. The BIA Regulated Community Coalition recommended that any water quality credit system exercised by the Copermittees be included in the Water Quality Improvement Plans and be approved by the San Diego Water Board and not by its Executive Officer.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** Orange County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the Orange County Copermittees that the no-net impact language should be removed from the Tentative Order. The optional credit system described in Provision E.3.c.(3)(d) is based on meeting the structural BMP performance standards as they pertain to protecting and improving water quality. A credit system that would allow other environmental benefits cannot necessarily ensure that water quality would be protected to the MEP standard, for which the performance standards are structured to achieve. The San Diego Water Board disagrees that a water quality credit system requires approval from San Diego Water Board instead of the Executive Officer because the provisions for such a credit system are clearly outlined in the Tentative Order. The Executive Officer will be able to determine whether or not the Copermittee has met the requirements as dictated in the Tentative Order. However, the public may request that any action taken by the Executive Officer be considered by the San Diego Water Board at any time.	

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E3c3-4	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	COMMENT: *Define a list of preferred or "best-in-class" BMPs and include specific guidance regarding evaluation of treatment systems in the Tentative Order.* The San Diego Green Building Council commented that the Tentative Order should clearly define the best-in-class BMPs and require the creation of a system to catalogue the implementation strategies used by the various Copermittees, and that the database should include the measured water quality impacts from each site. Such information can be used as a resource for future projects and development. Contech Engineered Solutions recommended that the Tentative Order include specific guidance regarding evaluation of proprietary treatment systems, and that the Copermittees need to conduct a performance and feasibility assessment of such systems.	**Building Industry / Industry** San Diego Green Building Council **Engineering/Design Consultants** Contech Engineered Solutions
	RESPONSE: The San Diego Water Board disagrees with this comments because 1) the San Diego Water Board cannot dictate the manner of compliance with any requirements or regulation for any of the programs it administers, and 2) a "best-in-class" BMP cannot be concretely defined because the MEP standard is dynamic (see Appendix C for the definition of MEP). The Copermittees may choose to share information regarding BMP performance and evaluation of proprietary treatment systems via the Regional Clearinghouse or other mechanism. The Copermittees have the experience and expertise to define what are the appropriate BMPs.	

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E3c3-5	PROVISION E.3.c.(3): Alternative Compliance to Onsite Structural BMP Performance Requirements	
	COMMENT: *Mitigation should not be required if flow-thru biofiltration LID BMPs are used.* The Building Industry Association of Southern California submitted comments stating that the Tentative Order should not require mitigation for the portion of the design storm volume that is not retained onsite if this volume is treated by biofiltration LID BMPs prior to discharge. This requirement penalizes and dis-incentivizes the use of these BMPs.	**Building Industry / Industry** Building Industry Association of Southern California
	RESPONSE: The San Diego Water Board has included the requirement that mitigation is necessary for the portion of the design storm volume that is not retained onsite because, although this remaining volume of storm water would be treated, the MEP standard as represented by the structural BMP performance requirements would not have been met. The requirement for mitigation is not limited to the use of biofiltration BMPs; mitigation is required no matter what type of flow-thru treatment BMP is utilized by the Priority Development Project. Therefore the San Diego Water Board disagrees that this requirement is penalizing the Priority Development Project for the use of biofiltration LID BMPs, as suggested by the commenter. Retention of the 85th percentile storm is clearly the MEP standard for storm water pollutant control, as represented by the Tentative Order and recently adopted MS4 permits in the San Diego Region, other areas of southern California, and elsewhere in the United States. Retention of anything less than the design storm volume must be mitigated because the MEP standard has not been met.	

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E4-1	PROVISION E.4: Construction Management	
	COMMENT: *Requests for "clarifications" for construction management requirements.* The San Diego County and Riverside County Copermittees submitted requests for specific modifications to the language of Provision E.4 attempting to increase clarity to what is required of the Copermittees and what the Copermittees are to require of private party construction sites within their jurisdiction. The USEPA provided general comments on the need for the construction requirements to include enough specificity to determine compliance with the Tentative Order.	**Copermittees** Riverside County Copermittees San Diego County Copermittees **State and Federal Government** USEPA
	RESPONSE: The San Diego Water Board generally agreed with the specific language modifications requested by the Copermittees and in many instances adjusted the language of Provision E.4 as requested. Specific changes were made to Provision E.4 to: 1) Remove the requirement for the Copermittees to verify a project applicant has obtained coverage under permits, other than the State Water Board's General Construction Storm Water Permit, 2) Use the term 'pollution control plan' consistently; 3) Require the Copermittees to conduct inspections and require BMPs at inventoried construction sites (based on the priority set in Provision E.4.b.2) to 'confirm' rather than 'ensure' the controls at the site reduce the discharge of pollutants in storm water from the site to the MEP; and 4) Require the Copermittees to conduct inspections and require BMPs at inventoried construction sites (based on the priority set in Provision E.4.b.2) that effectively prohibits non-storm water discharges from the site from entering the MS4. Modifications were also made to the opening paragraph of Provision E.4 requiring each Copermittee to implement a construction management program in accordance with the strategies in the Water Quality Improvement Plan described pursuant to Provision B.3.b.(1). Additionally, the San Diego Water Board made adjustments to Provision E.4 requirements setting minimum inspection frequencies equivalent to the amount required to confirm compliance with the Clean Water Act. Provision E.4.d(1)(a) specifically requires the Copermittees to conduct inspections at all inventoried sites, including high threat to water quality sites, at an frequency appropriate to confirm the site reduces the discharge of pollutants in storm water from the construction site to the MEP, and effectively prohibits non-storm water	

E4-1	PROVISION E.4: Construction Management	
	discharges from entering the MS4. The San Diego Water Board supports the adaptive management approach in the Tentative Order and has structured the construction inspections to focus on those sites that represent a high priority to maintaining or protecting downstream surface water quality.	

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E4-2	PROVISION E.4: Construction Management	
	COMMENT: *Requests for modifications to construction site inventory, tracking, recordkeeping requirements.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting changes to the construction management requirements that specific construction sites to be inventoried would include only those sites that involve any ground disturbance or soil disturbing activities, include a process for confirming adequate BMP implementation on inventoried sites, specify project 'completion' date not "anticipated completion" date; and 'weather condition during inspection' not 'approximate amount of rainfall since last inspection' on inspection forms, and require construction inventories to be updated quarterly not monthly. The Riverside County Copermittees provided recommended revisions to the construction requirements.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agreed with most of the changes requested by the commenters and modified Provision E.4 accordingly. However, the request to remove the requirement to include 'approximate amount of rainfall since last inspection' on the inspection forms, and the suggestion to include a process for confirming adequate construction BMP implementation for non-inventoried construction site were not incorporated into the revised Tentative Order. The San Diego Water Board is interested in site conditions after a significant rain event(s) therefore documenting the approximate amount of rainfall since the last inspection is required rather than the weather conditions during the inspection. A process for confirming adequate construction BMP implementation for non-inventoried sites can be developed and included in the jurisdictional program, but is not a requirement of the Tentative Order. The San Diego Water Board reviewed all of the recommended revisions provided by the Riverside County Copermittees. See Provision E.4 for those requested revisions that were incorporated into the Tentative Order.	

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E4-3	PROVISION E.4: Construction Management	
	COMMENT: *Request to only require verification of coverage under Construction General Permit, not "applicable permits."* The Copermittees commented that the requirement to verify permits other than the State Water Board's Construction General Permit is unnecessary because applicable permits are included as attachments to a construction projects SWPPP, and redundant with other environmental regulations.	**Copermittees** City of Chula Vista Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the commenters. The San Diego Water Board modified the language in Provision E.4.a to require verification that the project applicant has obtained coverage under the Construction General Permit, only.	

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E5-1	PROVISION E.5: Existing Development Management	
	COMMENT: *Concerns with inspections by volunteers.* The San Diego County Copermittees expressed concern with exposure to significant liability should a volunteer be injured in the course of an unauthorized inspection, or if private property is damaged during that inspection, or other unforeseen legal issues that result from volunteer groups conducting inspections of inventoried existing developments sites. Similar concerns were expressed by the Industrial Environmental Association and the San Diego Port Tenants Association.	**Building Industry / Industry** Industrial Environmental Association **Copermittees** San Diego County Copermittees **Societies/Associations/Coalitions** San Diego Port Tenants Association
	RESPONSE: The San Diego Water Board understands the position presented by the commenters and agrees that changes to the language in Provision E.5.c are necessary. Provision E.5.c was modified to restrict the use of Copermittee-trained volunteer monitoring or patrol programs to visual inspections of those inventoried facilities or areas that are publicly accessible. Additionally, the San Diego Water Board incorporated the Industrial Environmental Association's suggested change to the language of Provision E.5.c.(2). The ability of the Copermittee to use volunteer monitoring or patrol programs was included in the Tentative Order to give the Copermittees additional resources to accomplish the inspection requirements of Provision E.5.c. The Copermittees retain sole discretion on using volunteer monitoring or patrol programs to augment their inspection programs. The Copermittees also retain sole discretion to stipulate conditions (insurance, training, etc.) for which a volunteer monitoring or patrol program must comply in order assist them with inspections.	

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E5-2	PROVISION E.5: Existing Development Management	
	COMMENT: *Requests for modifications to existing development inventory and tracking requirements.* The San Diego County Copermittees and City of Santee each requested removal of 'mobile home parks' from the list of residential areas that should be included in its existing development inventory, citing the Mobile Home Park Act preempts a municipality's ability to regulate within the mobile home park. The Copermittees further requested modification to the language of Provision E.5.a to replace the phrase 'may discharge pollutants' with 'has the reasonable potential to discharge pollutants," claiming that the term 'may' is too broad and limits the Copermittees' ability to focus on those sites in their inventories identified as jurisdictional and watershed priorities. A specific comment was submitted by the City of Chula Vista asking that the Tentative Order allow use of more than one data management system to track the required information.	**Copermittees** City of Chula Vista City of Santee San Diego County Copermittees
	RESPONSE: The San Diego Water Board understands that a city does not have full access to regulate mobile home parks pursuant to the Mobile Home Park Act, but disagrees that the Copermittees do not have the legal authority to regulate discharges from and require BMPs at mobile home parks to their MS4s. The requirements of the Tentative Order are that each Copermittee maintain an inventory of its existing development that may discharge a pollutant load to and from the MS4. If a Copermittee has mobile home parks in its jurisdiction it must be included in its inventory so that the mobile home park gets considered in the Water Quality Improvement Plan priorities and strategies to address sources of pollutants. The comments included a description of what a city is allowed to regulate via its police powers, at mobile home parks. This list included access 'streets and roads' and parking. These are areas where potentially BMPs could be located if, through the Water Quality Improvement Plan process, it was determined that pollutants discharged from mobile home parks were a high priority water quality condition. Additionally, other scenarios could exist where discharges from mobile home parks are not considered a high priority, and inspections would occur much less often. Therefore, mobile home parks must remain within a Copermittee's existing development inventories, but can be dealt with according to the priorities, schedules and goals of the Water Quality Improvement Plan. Therefore, no change to the Tentative Order was made. The San Diego Water Board disagrees with the comment that the term 'may' should be replaced with 'reasonable potential.' The term 'may' is used to indicate possibility or probability that a pollutant load is discharged from an inventoried existing development facility or area. The term reasonable potential can imply the need to conduct a reasonable potential analysis, which is a far more involved process than a Copermittee making the determination that a facility possibly or probably discharges a pollutant load into its MS4. Nothing in	

E5-2	PROVISION E.5: Existing Development Management	
	the Tentative Order prevents a Copermittee from conducting a more robust analysis of the potential for pollutant loads to be discharged from its inventoried existing facilities or areas. Therefore, no change to the Tentative Order was made. The use of a GIS database to track inventoried facilities is only "highly recommended" in the Tentative Order, it is not explicitly required. Therefore a Copermittee can use one or more than one data management system to track the required information.	

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E5-3	PROVISION E.5: Existing Development Management	
	COMMENT: *Requests for modifications to existing development BMP implementation and maintenance requirements.* The Riverside County and San Diego County Copermittees submitted comments requesting a modification to the language of Provision E.5.b to specify each Copermittee only be required to designate a minimum set of BMPs for all inventoried existing development with the reasonable potential to discharge pollutant loads to their MS4. Commenters further suggest clarifying language for the required use of pollutant prevention methods (i.e. designated BMPs) in Provision E.5.b. A specific comment was made by the City of Chula Vista to removed 'freeways' from list of existing facilities the Copermittees are required to properly operate and maintain BMPs. The City of Chula Vista notes that freeways are under the jurisdiction of Caltrans, not a city.	**Copermittees** City of Chula Vista Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the commenters request to modify the language of Provision E.5.b to specify each Copermittee only be required to designate a minimum set of BMPs for all inventoried existing development with the reasonable potential to discharge pollutant loads to their MS4. Provision E.5.b states that each Copermittee must designate a minimum set of BMPs required for all inventoried existing development, including special event venues. Any existing development that gets inventoried has been identified as a facility that may generate pollutant loads to and from the MS4 under Provision E.5.a. Therefore, if a facility is on the inventory, a Copermittee has already made the determination that the existing development possibly or probably generates a pollutant load. Therefore, no change to the Tentative Order was made. The San Diego Water Board agrees with the requests to clarify the language in Provisions E.5.b.(1)(b) and (d) to specify when a Copermittee must require implementation of BMPs at inventoried existing development not owned by the Copermittee, and when a Copermittee must implement BMPs on their own municipal facilities. The San Diego Water Board also agrees with the City of Chula Vista's request to remove 'freeways' from the list of existing facilities the Copermittees are required to properly operate and maintain BMPs.	

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E5-4	PROVISION E.5: Existing Development Management	
	COMMENT: *Requests for modifications to existing development inspection requirements.* The County of San Diego commented on the need for an exemption from the minimum annual inspection requirement of 20 percent for inventoried linear municipal facilities. Riverside County Copermittees requested the requirement to inspect at least 20 percent of its existing development inventory be deleted. The Tentative Order requires each inventoried existing development be inspected once every five years. Both San Diego County and Riverside County Copermittees commented on this minimum. San Diego County Copermittees want it changed to once per permit term, conversely Riverside County Copermittees support existing language of once per five years. The USEPA does not support relaxation to inspection frequencies because it weakens enforceability and the ability to determine compliance. The San Diego County Copermittees requested clarifying language be added to what must be included in a visual inspection of existing development.	**Copermittees** County of San Diego Riverside County Copermittees San Diego County Copermittees **State and Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees with the County of San Diego's comment concerning the need for exempting linear municipal facilities from the existing development annual inspection requirements due to the number of inspections required if such facilities are considered when calculating 20 percent of the existing development inventory. To address their comments, the language in Provision E.5.c.(1)(a)(iv) includes a footnote, which excludes linear municipal facilities (i.e. MS4 linear channels, sanitary sewer collections systems, streets, roads, and highways). MS4 inlets and basins are not mentioned in this footnote and are still required to be considered when determining 20 percent of inventoried development for the purposes of annual inspections. The San Diego Water Board expects MS4 inlets and basins to be inspected in order to confirm that BMPs are being implemented and maintained to reduce the discharge of pollutants in storm water from the MS4 to the MEP. Comments provided by the USEPA support leaving MS4 inlets and basins in the existing development inventory to strengthen permit enforceability and compliance determinations. The San Diego Water Board kept the existing development minimum inspection requirement of once every five years. This requirement is consistent with comments received by USEPA to include minimum requirements to strengthen permit enforceability and compliance determinations.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E5-5	PROVISION E.5: Existing Development Management	
	COMMENT: *Requests to limit existing development requirements to existing development with "reasonable potential" to discharge pollutants.* The San Diego County Copermittees requested the existing development requirements be limited to those existing facilities and areas of development with "reasonable potential" to discharge pollutants.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that replacing the term 'may' with the phrase 'reasonable potential' in Provisions E.5.a-c will give a Copermittee more flexibility to focus on jurisdictional and watershed priorities. The Water Quality Improvement Plan will establish the priority water quality conditions within a Watershed Management Area to which a Copermittee will customize its jurisdictional program (i.e. inspection location and frequencies, pollutant reduction efforts (BMP implementation), retrofit opportunities, etc.). The term 'may' is used to indicate possibility or probability that a pollutant load is discharged from an inventoried existing development facility or area. The term 'reasonable potential' can imply the need to conduct a reasonable potential analysis, which is a far more involved process than a Copermittee making the determination that a facility or developed area possibly or probably discharges a pollutant load into its MS4. Nothing in the Tentative Order prevents a Copermittee from conducting a more robust analysis of the potential for existing development to discharge pollutant loads to and from the MS4. Therefore, no change to the Tentative Order was made.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E5-6	PROVISION E.5: Existing Development Management	
	COMMENT: *Request to allow the Copermittees to reallocate resources required for monitoring for retrofit and/or rehabilitation projects.* The San Diego County Copermittees requested an addition to the requirements of Provision E.5.e to allow the Copermittees to reallocate resources required for monitoring for retrofit and/or rehabilitation projects.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request and no change to the Tentative Order was made. Temporarily suspending the monitoring requirements of Provision D to fund a retrofit and/or rehabilitation process is inappropriate. The monitoring requirements in Provision D are the minimum necessary for the Copermittees to demonstrate that the water quality improvement strategies being implemented as part of the Water Quality Improvement Plan are making progress toward achieving the numeric goals.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E5e2-1	PROVISION E.5.e.(2): Retrofitting Areas of Existing Development	
	COMMENT: *Retrofit existing development to improve water quality.* The San Diego Green Building Council and South Laguna Civic Association support retrofitting areas of existing development as a means to achieve mandated water quality objectives.	**Building Industry / Industry** San Diego Green Building Council **Environmental Organizations** South Laguna Civic Association
	RESPONSE: The San Diego Water Board agrees with the commenters and has developed requirements to encourage retrofitting to achieve reductions in pollutants discharged from MS4s and improved water quality conditions in the receiving waters.	

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E5e2-2	PROVISION E.5.e.(2): Retrofitting Areas of Existing Development	
	COMMENT: *Requests to remove or modify retrofitting of existing development requirements.* The Riverside County Copermittees generally requested the removal of the retrofit and stream/channel/habitat rehabilitation project requirements. However, the Riverside County Copermittees also submitted requests for specific retrofit language changes.	**Copermittees** Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the requests to remove or modify the retrofitting of existing development requirements. The San Diego Water Board reviewed the requested language changes and did not make any of the revisions recommended as they were not necessary or changed the intent of the requirement. The requirements in the Tentative Order do not require any Copermittee to implement or require the implementation of a retrofitting project. The Tentative Order requires each Copermittee to describe a program that identifies those areas (public, private, or both) as good candidates for retrofitting. In areas where retrofitting projects within certain areas of existing development cannot be implemented by the Copermittee because of ownership (i.e. private property) or permitting, the Copermittee must develop strategies to facilitate the implementation of retrofitting projects if and when the opportunities become available. The San Diego Water Board did not remove or modify the requirements of Provision E.5.e.(2), but the requirements are now under Provision E.5.e.(1) in the revised Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E5e3-1	PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development	
	COMMENT: *Rehabilitate receiving waters to improve water quality.* The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for rehabilitating high value coastal receiving waters to improve water quality.	**Environmental Organizations** Laguna Bluebelt Coalition South Laguna Civic Association
	RESPONSE: The San Diego Water Board agrees with the commenters that rehabilitation of coastal wetlands and estuaries are important to the improvement of water quality within the San Diego Region.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E5e3-2	PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development	
	COMMENT: *Create map to identify creeks and coastal receiving waters impacted by discharges from storm drains and candidate areas for restoration.* The Laguna Bluebelt Coalition and South Laguna Civic Association expressed support for the creation of maps to show water quality impacted areas of all creeks and coastal receiving waters within the region. The commenters also supported identifying degraded land elements, offending storm drain outlets and candidate areas for re-forestation and estuarine/coastal restoration.	**Environmental Organizations** Laguna Bluebelt Coalition South Laguna Civic Association
	RESPONSE: The San Diego Water Board agrees that maps identifying candidate areas for restoration would be useful. The Copermittees have been provided an opportunity to create maps to assist in their efforts to comply with the requirements of the Tentative Order. Specifically, the Copermittees will have the option to generate a map and list of candidate projects, including stream, channel and habitat rehabilitation projects, which could potentially be used as alternative compliance options for Priority Development Projects, to be implemented in lieu of onsite structural BMP performance requirements. The optional Watershed Management Area Analysis is provided in Provision B.3.b.(4).	

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E5e3-3	PROVISION E.5.e.(3): Stream, Channel and/or Habitat Rehabilitation in Areas of Existing Development	
	COMMENT: *Request for modifications to existing development stream, channel and/or habitat rehabilitation requirements.* The Orange County Copermittees requested a modification to the requirements of Provision E.5.e.(3) to allow a Copermittee to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction. The Orange County Copermittees also requested the removal of Provision E.5.e.(3)(a) requiring each Copermittee to identify streams, channels, and/or habitats in areas of existing development as candidates for rehabilitation.	**Copermittees** Orange County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the requests. The requirements of Provision E.5.e.(3) are to be implemented by each Copermittee within its jurisdiction. Allowing a Copermittee to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction is not appropriate for this requirement. The Copermittee will, however, be able to identify stream, channel, and/or habitat rehabilitation projects downstream of its jurisdiction as potential alternative compliance options for Priority Development Projects if the Copermittees in the Watershed Management Area perform the optional Watershed Management Area Analysis and include it in the Water Quality Improvement Plan. The removal of Provision E.5.e.(3)(a) is not appropriate because without this requirement, the subsequent requirements could not be implemented by the Copermittee. The San Diego Water Board did not modify the requirements of Provision E.5.e.(3), but the requirements are now under Provision E.5.e.(2) in the revised Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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E6-1	PROVISION E.6: Enforcement Response Plans	
	COMMENT: *Specify criminal penalties are limited to intentional or criminally negligent acts.* The Riverside County and San Diego County Copermittees each submitted comments requesting Provision E.6.b.(5) be modified to specify criminal penalties are limited to intentional or criminally negligent acts.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that the revision is necessary. Provision E.6.b requires each Copermittee to list the enforcement response approaches that the Copermittee will implement within its jurisdiction to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order. The Copermittee may specify in its Enforcement Response Plan that criminal penalties are limited to intentional or criminally negligent acts. The San Diego Water Board did not revise Provision E.6.b.(5).	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

E6-2	PROVISION E.6: Enforcement Response Plans	
	COMMENT: *Notification to San Diego Water Board for "escalated" enforcement should be consistent with Construction General Permit.* The Riverside County and San Diego County Copermittees each submitted comments requesting Provision E.6.e.(1) be modified to be consistent with the notification requirements of the Construction General Permit.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request. Provision E.6.e.(1) has been revised as requested.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

E6-3	PROVISION E.6: Enforcement Response Plans	
	COMMENT: *Revise the term "escalated enforcement" to "progressive enforcement."* The Orange County and Riverside County Copermittees each submitted comments requesting Provision E.6.d be modified to be "Progressive Enforcement" instead of "Escalated Enforcement" because the term is more appropriate.	**Copermittees** Orange County Copermittees Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request. The Copermittees are expected to implement "progressive enforcement" in all cases of enforcement. For enforcement issues that are associated with the highest priority water quality conditions identified by the Copermittees in the Watershed Management Area, the Copermittees are expected to implement the enforcement more swiftly, meaning escalating its enforcement measures and resources to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order as soon as possible. The term "escalated enforcement" correctly reflects this added level of urgency and focus to compel compliance. The San Diego Water Board did not revise Provision E.6.d.	

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March 27, 2013

E6-4	PROVISION E.6: Enforcement Response Plans	
	COMMENT: *Allow the Copermittees to utilize existing guidelines and procedures for enforcement.* The Orange County and Riverside County Copermittees each submitted comments requesting the introductory paragraph of Provision E.6 be modified to specify that a Copermittee may utilize and implement established, equivalent guidelines and procedures for enforcement.	**Copermittees** Orange County Copermittees Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request. The Copermittees are allowed to utilize and implement their existing procedures if they meet the requirements of Provision E.6. Provision E.6, however, requires each Copermittee to develop an Enforcement Response Plan, included as part of its jurisdictional runoff management program document, which the San Diego Water Board and the public may utilize to determine if the Copermittee is indeed implementing its enforcement program according to its procedures. The Enforcement Response Plan is expected to be a tool the Copermittee can refer to when issuing enforcement actions to compel compliance with its statutes, ordinances, permits, contracts, order, or similar means, and the requirements of the Order. The Enforcement Response Plan is also expected to result in more consistent enforcement and enforcement actions by the Copermittee within its jurisdiction. The San Diego Water Board did not revise the introductory paragraph to Provision E.6.	

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E7a-1	PROVISION E.7.a: Public Education	
	COMMENT: *Requests for modifications to public education requirements.* The Orange County, Riverside County and San Diego County Copermittees each submitted comments requesting the requirements in Provision E.7.a be modified to allow the Copermittees to focus their public education efforts on the highest priority water quality conditions, and remove or reduce the emphasis in the language that focuses on pesticides, herbicides and fertilizers.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the requested modifications. The public education requirements under Provision E.7.a provide the Copermittees the flexibility to focus their public education efforts on the highest priority water quality conditions, while being consistent with federal regulations. Provision E.7.a.(1) is consistent with 40CFR122.26(d)(2)(iv)(A)(6), which requires each Copermittee to provide "*A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include…educational activities…*" Provision E.7.a.(1) has been expanded to include "*other pollutants of concern…as determined and prioritized by the Copermittee(s) by jurisdiction and/or watershed to address the highest priority water quality conditions…*" To be consistent with 40CFR122.26(d)(2)(iv)(A)(6), however, each Copermittee must have a program of educational activities to reduce pollutants associated with pesticides, herbicides and fertilizers to the MEP. The San Diego Water Board did not modify Provision E.7.a.	

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E8-1	PROVISION E.8: Fiscal Analysis	
	COMMENT: *Request to remove requirement to secure resources to meet requirements of the Tentative Order.* The Riverside County Copermittees requested that Provision E.8.a, requiring each Copermittee to secure the resources necessary to meet all the requirements of the Order, be removed. The Riverside County Copermittees assert this requirement exceeds the requirements of the Clean Water Act.	**Copermittees** Riverside County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request. The Copermittees are responsible for securing the resources necessary to meet the requirements of the Tentative Order. Without securing the resources necessary to meet all requirements of the Tentative Order, the Copermittee would be unable to meet the requirements of the Tentative Order. Additionally, CWA section 402(p)(3)(B)(iii) requires that NPDES permits for storm water discharges from MS4s to "*require controls to reduce the discharge of pollutants* [in storm water] *to the maximum extent practicable* [MEP], *including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants*." The requirement for each Copermittee to secure the resources necessary to meet all the requirements of the Order is considered "*such other provisions as the Administrator or the State determines appropriate for the control of such pollutants*." The San Diego Water Board did not remove the requirement.	

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F1-1	PROVISION F.1: Water Quality Improvement Plans	
	COMMENT: *Requests for modifications to Water Quality Improvement Plan development process and schedule.* Comments from the Building Industry and the Copermittees requested modifications to the schedules for developing and updating the Water Quality Improvement Plans. Generally, the requests were for more time because of several different factors. The San Diego County Copermittees also requested several modifications to the content of the submittal required for each element of the Water Quality Improvement Plan. Comments from the Environmental Groups and USEPA were primarily concerned with the public participation process during the development of the Water Quality Improvement Plans. The concern was that the requirements of the Tentative Order did not allow for enough public participation, and they requested that additional opportunities be provided during the Water Quality Improvement Plan development and updates. The Environmental Groups also requested that the Water Quality Improvement Plans be required to be developed consecutively instead of concurrently.	**Building Industry / Industry** BIA Regulated Community Coalition **Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees San Diego Unified Port District **Environmental Organizations** Environmental Groups **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees with the request to provide additional time to develop the Water Quality Improvement Plans, but disagrees with requiring the Water Quality Improvement Plans to be developed consecutively instead of concurrently. The San Diego Water Board also agrees with including additional opportunities for public participation during the Water Quality Improvement Plan development and update processes. The San Diego Water Board has modified the requirements of Provision F.1 to provide the Copermittees up to 24 months, instead of 18 months, to develop the Water Quality Improvement Plans. The schedules for developing and submitting the elements of the Water Quality Improvement Plan have also been modified to provide additional time, and additional flexibility to stagger the development of the Water Quality Improvement Plans to provide the public sufficient opportunity to provide data, information and recommendations. Please also see the response to comment B-3.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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F3b-1	PROVISION F.3.b: Annual Reports	
	COMMENT: *Recommendations for modifications to Annual Report requirements.* Several commenters provided recommendations for modifications to the Annual Report requirements to clarify the requirements, include different requirements, or remove requirements. Ecolayers and the San Diego County Copermittees are concerned with the requirements related to uploading data to the California Environmental Data Exchange Network (CEDEN). Uploading data to CEDEN is not necessary according to Ecolayers. The Copermittees would like to limit the data uploads only to data generated by the Copermittees and not third parties. The Orange County, Riverside County, and San Diego County Copermittees all expressed concern about the transitional reporting period between the time the Tentative Order becomes effective and the date that the first Water Quality Improvement Plan Annual Reports are required. The Orange County Copermittees also expressed concern with the use of the Jurisdictional Runoff Management Program Annual Report Form (Form) in Attachment D to the Tentative Order. The Orange County Copermittees requested continuing the use of the current jurisdictional runoff management program annual reporting format instead of the Form. The Environmental Groups also expressed concern with the Form. The Environmental Groups are concerned that the Form would not adequately reflect the activities that each Copermittee was implementing within its jurisdiction and allow the public to understand how the Copermittees were implementing effective water quality improvement strategies.	**Copermittees** Orange County Copermittees Riverside County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups **Other Entities** Ecolayers
	RESPONSE: The San Diego Water Board agrees that modifying the Annual Report requirements is necessary to clarify transitional reporting requirements and Water Quality Improvement Plan reporting requirements. The San Diego Water Board does not agree that uploading data to CEDEN is unnecessary. Finally, the San Diego Water Board disagrees with replacing the Form with the current jurisdictional runoff management program annual reporting format. The San Diego Water Board has revised the Annual Report requirements under Provision F.3.b to include (1) Transitional Jurisdictional Runoff Management Program Annual Reports, (2) Transitional Monitoring and Assessment Program Annual Reports, and (3) Water Quality Improvement Plan Annual Reports. The Transitional Jurisdictional Runoff Management Program Annual Reports and Transitional Monitoring and	

F3b-1	PROVISION F.3.b: Annual Reports	
	Assessment Program Annual Reports will be submitted by the Copermittees until the first Water Quality Improvement Plan Annual Reports are required. The Form is required for each Copermittee within each Watershed Management Area during the transitional reporting permit. Each Copermittee has the option to continue utilizing the current jurisdictional runoff management program annual reporting format in addition to the Form until the Water Quality Improvement Plan Annual Reports are required. The Form will continue to be required as part of the Water Quality Improvement Plan Annual Reports, but they are expected to be included as an appendix or attachment to the report. The San Diego Water Board will review the Forms to ensure that the Copermittees have certified that they are implementing their jurisdictional runoff management programs in compliance with the requirements. The San Diego Water Board will also utilize the Forms during audits of the Copermittees' jurisdictional runoff management programs and their records. The Water Quality Improvement Plan Annual Reports will provide the information that the Environmental Groups are interested in seeing as part of the annual reporting requirements. Provision F.3.b.(3)(d) requires each Copermittee to report the water quality improvement strategies that were implemented and/or no longer implemented by each of the Copermittees during the reporting period and previous reporting periods, and are planned to be implemented during the next reporting period. Finally, the San Diego Water Board has not removed the requirements to upload data to CEDEN, but has limited the data that is required to be uploaded to CEDEN to just data generated by the Copermittees.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

F3c-1	PROVISION F.3.c: Regional Monitoring and Assessment Report	
	COMMENT: *Requests for modifications to Regional Monitoring and Assessment Report requirements.* The Riverside County and San Diego County Copermittees each submitted requests for modifications to the Regional Monitoring and Assessment Report requirements. The Riverside County Copermittees recommended aligning the requirements with the Integrated Assessment of the Water Quality Improvement Plans. The San Diego County Copermittees recommended removing the requirement for the Regional Monitoring and Assessment Report as it appears to be duplicative with the Integrated Assessment of the Water Quality Improvement Plans. The San Diego County Copermittees also requested, if the Regional Monitoring and Assessment Report requirements remain, that data uploaded to the Regional Clearinghouse be limited only to data generated by the Copermittees and not third parties.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the requests to modify the Regional Monitoring and Assessment Report requirements. The San Diego Water Board agrees with limiting the data uploaded to the Regional Clearinghouse only to data generated by the Copermittees. The Regional Monitoring and Assessment Report is for the entire San Diego Region, not specific to each Watershed Management Area. The Regional Monitoring and Assessment Report may utilize the findings from the Integrated Assessments of the Water Quality Improvement Plans, but the Regional Monitoring and Assessment Report is intended to provide a "snapshot" of the conditions of the entire San Diego Region. The San Diego Water Board did not remove Provision F.3.c from the requirements. The San Diego Water Board did, however, revise Provision F.3.c.(3) to limit the data that is required to be uploaded to the Regional Clearinghouse to just data generated by the Copermittees.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

F4-1	PROVISION F.4: Regional Clearinghouse	
	COMMENT: *Request to allow the Copermittees to utilize existing mechanisms and linkages as part of the Regional Clearinghouse.* The Orange County and San Diego County Copermittees each submitted comments requesting the requirements in Provision F.4 be modified to allow the Copermittees to utilize their existing web-based systems. The Orange County and San Diego County Copermittees requested that language be added to Provision F.4 that specifies a Copermittee may elect to develop and maintain clearinghouses provided by other Copermittees or agencies.	**Copermittees** Orange County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees that the Copermittees should be allowed to utilize their existing web-based systems. Provision F.4.a allows the Copermittees to link the Regional Clearinghouse "*to other internet-based data portals and databases where the original documents are stored*." The Regional Clearinghouse, however, must be a single website that is linked to the other web-based systems. Provision G.2.d requires the Principal Watershed Copermittees to coordinate and develop the Regional Clearinghouse. The San Diego Water Board has added a footnote to the opening paragraph of Provision F.4 as requested by the San Diego County Copermittees, which is consistent with the language requested by the Orange County Copermittees.	

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March 27, 2013

G-1	PROVISION G: PRINCIPAL WATERSHED COPERMITTEE RESPONSIBILITIES	
	COMMENT: *Request for "clarifications" of Copermittee responsibilities.* The San Diego County Copermittees requested that Provision G "clarifies" that all Copermittees have some responsibilities to implement the requirements of the permit, not just the Principal Watershed Copermittees. The San Diego County Copermittees also requested removal of the language recommending that an individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees to clarify that all Copermittees are responsible for implementing the requirements. The San Diego Water Board disagrees that it is necessary to remove the recommendation that an individual Copermittee should not be designated a Principal Watershed Copermittee for more than two Watershed Management Areas. Provision G states that an individual Copermittee "should not" be designated a Principal Watershed Copermittee for more than two Watershed Management Areas. "Should not" indicates that it is a recommendation, not a requirement. The recommendation has been included to express the San Diego Water Board's desire for, as well as encourage, more Copermittees to assume leadership positions in developing Water Quality Improvement Plans and coordinating water quality improvement strategies among Copermittees in a Watershed Management Area and in the San Diego Region. The recommendation is not a requirement. Removal of a recommendation is not necessary. The San Diego Water Board has added Provision G.3 to specify that the Principal Watershed Copermittees are not responsible for ensuring that the other Copermittees in the Watershed Management Area are in compliance with the requirements, and that each Copermittee is responsible for implementing the requirements of the Tentative Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

H-1	PROVISION H: MODIFICATION OF PROGRAMS	
	COMMENT: *Request for an explicit re-opener provision in permit for TMDLs.* The Orange County and San Diego County Copermittees and several individual Copermittees requested an explicit re-opener provision be included in the Tentative Order for when TMDLs may be amended.	**Copermittees** City of Dana Point City of Imperial Beach City of Laguna Niguel City of Mission Viejo City of Poway City of Rancho Santa Margarita City of San Diego Orange County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request. The San Diego Water Board has revised Provision H.4 to explicitly state when the San Diego Water Board will re-open the Order for modifications. Provision H.4.c explicitly states that the San Diego Water Board will re-open the Order if any of the TMDLs in Attachment E are amended in the Basin Plan by the San Diego Water Board, and the amendment is approved by the State Water Board, Office of Administrative Law, and the USEPA.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

H-2	PROVISION H: MODIFICATION OF PROGRAMS	
	COMMENT: *Request to include language that the permit may be amended outside of the Water Quality Improvement Plan process.* The San Diego County Copermittees have requested the San Diego Water Board include language in Provision H.3 that explicitly states the Tentative Order may be modified outside of the Water Quality Improvement Plan development and implementation process. The San Diego County Copermittees indicated that there may be frequent modifications to the permit requirements based on the Water Quality Improvement Plan development and implementation process.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request. The Tentative Order has been structured to allow the iterative and adaptive management process to occur within the Water Quality Improvement Plan development and implementation process. The San Diego Water Board does not anticipate any need to modify the Order's requirements as a result of the implementation of the Water Quality Improvement Plans. In the event that the Order's requirements do need to be modified, the language currently in Provision H.3 is adequate for this purpose. Thus, the San Diego Water Board did not revise Provision H.3 as requested by the San Diego County Copermittees.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttA-1	ATTACHMENT A: Discharge Prohibitions and Special Protections	
	COMMENT: *Requests for modifications to Areas of Special Biological Significance (ASBS) Special Protections requirements.* San Diego Gas and Electric and Southern California Gas Company requested modifications to Provision I.A.1.e.(2)(ii) of the Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges (Special Protections) in Attachment A to the Order. San Diego Gas and Electric and Southern California Gas Company requested Provision I.A.1.e.(2)(ii) be revised to include a reference to Finding 32 of the Order to be consistent with their comments regarding authorized non-storm water discharges to MS4s that discharge to ASBS (see comment Fnd-14).	**Building Industry / Industry** San Diego Gas and Electric Southern California Gas Company
	RESPONSE: The San Diego Water Board disagrees with the request. The Special Protections in Attachment A to the Tentative Order were adopted under Resolution No. 2012-0012 by the State Water Board, and are provided verbatim as a reference. Revising the provisions of the Special Protections, which are part of a resolution issued by the State Water Board, is not appropriate or necessary. The San Diego Water Board did not revise the Special Protections in Attachment A.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttB-1	ATTACHMENT B: Standard Permit Provisions and General Provisions	
	COMMENT: *Requests for modifications to Standard Permit Provisions.* The Riverside County and San Diego County Copermittees each submitted comments requesting Standard Permit Provision 1.m be removed from the Standard Permit Provisions in Attachment B. The Copermittees are concerned that the bypass provisions of Standard Permit Provision 1.m would require the Copermittees to notify the San Diego Water Board whenever there is an anticipated or unanticipated bypass of storm water treatment BMPs.	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request. The Standard Permit Provisions in Attachment B are required to be included in all NPDES permits. Thus, it is inappropriate to remove any of the Standard Permit Provisions. Standard Permit Provision 1.m(1)(a) defines a bypass as the intentional diversion of waste streams from any portion of a treatment facility. As most storm water treatment BMPs are not expected to be attended and expected to operate without oversight, there are unlikely to be "intentional" diversions of waste streams. If, however, one or more Copermittees operate a storm water treatment control BMP that requires an "intentional" diversion of the waste stream, the San Diego Water Board expects the Copermittee(s) to comply with the requirements of Standard Permit Provision 1.m. The San Diego Water Board did not revise the Standard Permit Provisions in Attachment B.	

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AttB-2	ATTACHMENT B (Standard Permit Provisions and General Provisions)	
	COMMENT: *Requests for "clarifications" to the General Provisions.* The Riverside County and San Diego County Copermittees each submitted comments requesting "clarifications" to the General Provisions in Attachment B. The Copermittees requested that General Provision 2.h include language that specifies the Copermittees are not responsible for pollutants in its MS4 discharges originating from an NPDES-permitted non-storm water discharge. The Copermittees also requested that recordkeeping requirements of General Provision 2.i.(2) be deleted or revised to be consistent with Standard Permit Provision 1.j.(2).	**Copermittees** Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the requests. Discharges to the Copermittees' MS4s authorized by a separate NPDES permit do not have to be prohibited, as specified in the requirements of Provisions A.1.b and E.2. The Copermittees, however, are responsible for identifying the sources of the discharges from its MS4 if it causes or contributes to exceedances of water quality standards in receiving waters. Please see the response to comment E2-3. The recordkeeping requirements of General Provision 2.i.(2) are not inconsistent with Standard Permit Provision 1.j.(2). Standard Permit Provision 1.j.2 requires records to be kept for a minimum of 3 years unless the San Diego Water Board extends this period, consistent with the Code of Federal Regulations requirement. The San Diego Water Board has extended the recordkeeping requirements of Standard Permit Provision 1.j.(2) with General Provision 2.i.(2) to a period of 5 years. Thus, there is no conflict or inconsistency. The San Diego Water Board did not revise the General Provisions in Attachment B.	

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AttC-1	ATTACHMENT C: Acronyms, Abbreviations, and Definitions	
	COMMENT: *Requests for additional or modified definitions.* Several comments were submitted by the Copermittees and Building Industry / Industry requesting modifications to existing definitions and/or the addition of new definitions to Attachment C to the Tentative Order.	**Building Industry / Industry** BIA Regulated Community Coalition San Diego Gas and Electric Southern California Gas Company **Copermittees** City of Chula Vista Orange County Copermittees Riverside County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board reviewed and considered the requested modifications to existing definitions and additional definitions. Where the San Diego Water Board determined a modification to a definition requested by a commenter was appropriate and necessary to clarify a definition or make it consistent with other revisions made in the Tentative Order, the San Diego Water Board made a revision. Where the San Diego Water Board determined the addition of a definition requested by a commenter was appropriate and necessary, the San Diego Water Board added the definition. In several cases, the requested modification or addition was not appropriate, not necessary, or both. In such cases, the San Diego Water Board did not modify or add the definition as requested. Please see Attachment C in the revised Tentative Order to see the revisions that were made.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

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AttE-1	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	COMMENT: *Link compliance with TMDL requirements to development and implementation of Water Quality Improvement Plans.* The San Diego County Copermittees submitted comments requesting that the development and implementation of the Water Quality Improvement Plans be a compliance mechanism for the TMDL requirements of Attachment E. The San Diego Unified Port District submitted separate comments in support of the request. The Orange County Copermittees submitted comments requesting that Provision A.1 and A.2 include language that specifies that compliance with the discharge prohibitions and receiving water limitations will be achieved through implementing the requirements of Attachment E. Comments from Environmental Groups were not in support of allowing compliance with the TMDL requirements through a "reasonable assurance analysis" included in the Water Quality Improvement Plan.	**Copermittees** City of San Diego Orange County Copermittees San Diego County Copermittees San Diego Unified Port District **Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board agrees with the comments from the Copermittees. The San Diego Water Board disagrees with the comments from the Environmental Groups. The San Diego Water Board acknowledges that monitoring all MS4 outfalls or all receiving waters at all times to demonstrate compliance with the final WQBELs is difficult, likely to be cost prohibitive, and likely to be infeasible. Thus, the San Diego Water Board has included an option to the Compliance Determination requirements allowing the utilization of the Water Quality Improvement Plan to demonstrate compliance with the interim and final TMDL requirements. The compliance determination option provides the Copermittees a mechanism through an analysis to demonstrate that there is "reasonable assurance" that the interim and final numeric WQBELs are being achieved through the implementation of BMPs. Because the Water Quality Improvement Plans will undergo a public participation and review process, the San Diego Water Board is confident that a Water Quality Improvement Plan that includes such an analysis will allow the Copermittees to demonstrate that the final TMDL requirements are being achieved and will be acceptable to the public and the San Diego Water Board. For the interim TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance by implementing a Water Quality Improvement Plan that has been accepted by the San Diego Water Board, with a "reasonable assurance" that the implementation of the BMPs will achieve the interim TMDL WQBELs within the interim compliance dates. The Copermittees will be provided considerable flexibility for	

AttE-1	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	demonstrating compliance with achieving the interim WQBELs. For the final TMDL compliance determination requirements, the Copermittees are allowed to demonstrate compliance with the final WQBELs by implementing a Water Quality Improvement Plan that includes an analysis to demonstrate that the implementation of the BMPs required by the TMDL achieves compliance with one or more of the final numeric WQBELs. The Water Quality Improvement Plan must include monitoring and assessments to confirm that the Water Quality Improvement Plan is achieving the final TMDL requirement. The San Diego Water Board must accept and continue to accept the Water Quality Improvement Plan and analysis, and the Copermittees must continue to implement the BMPs and demonstrate through the analysis that the final numeric WQBELs are being achieved.	

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AttE-2	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	COMMENT: *Requests for including TMDL requirements consistent with the TMDLs as developed or "as originally intended."* Several Copermittees submitted comments that the TMDLs have not been incorporated "as originally written and intended" or somehow inconsistent with the TMDLs as they were developed. The Orange County Copermittees specifically referred to the Baby Beach Bacteria TMDLs and the Beaches and Creeks Bacteria TMDLs, noting examples that they identified as "inconsistent" with the TMDLs in the Basin Plan. A comment from Clean Water Now seemed to imply that there was some inconsistencies present in the TMDL requirements "in light of recent legal renderings" though no specific legal interpretations or decisions were provided. The USEPA noted that the Beaches and Creeks Bacteria TMDLs included additional WLAs and compliance endpoints that were not included in Attachment E.	**Copermittees** City of Dana Point City of Imperial Beach City of Laguna Hills City of Lake Forest City of Mission Viejo City of Rancho Santa Margarita City of San Juan Capistrano Orange County Copermittees San Diego Unified Port District **Environmental Organizations** Clean Water Now **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board disagrees that the TMDL requirements in Attachment E are inconsistent with the TMDLs as developed or "as originally intended." The comments from the Copermittees and USEPA noted that several aspects of the TMDLs as they are in the Basin Plan are not included in the Tentative Order. The omission of those aspects of the TMDLs, however, does not mean that the TMDL requirements in Attachment E are inconsistent with the TMDLs as developed or "as originally intended." The TMDLs as developed are all intended to restore the water quality standards in receiving waters impaired by specific pollutants. The WLAs and LAs as developed are all intended to ensure that discharges from point and nonpoint sources to receiving waters will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDL requirements in Attachment E are consistent with the intent of the TMDLs, and the WLAs for MS4s. In other words, the TMDL requirements in Attachment E are intended to ensure that discharges from the Responsible Copermittees' MS4s will not cause or contribute, and will continue to not cause or contribute to exceedances of water quality standards in receiving waters. According to each TMDL, when all point sources and nonpoint sources achieve their WLAs and LAs, including the WLAs for MS4s, the water quality standards in receiving waters will be restored. The San Diego Water Board included TMDL requirements in Attachment E that are entirely consistent with the requirements of the TMDLs as adopted and incorporated into the Basin Plan. The implementation plans of the	

AttE-2	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	TMDLs in the Basin Plan are essentially "instructions" for the San Diego Water Board to incorporate the requirements into the regulatory mechanisms that will implement the requirements of the TMDL to attain the water quality standards that are being impaired by a pollutant in a water body. In each case, the "instructions" provide the permit writer considerable flexibility in how to express the WLAs as WQBELs in the permit, but not as much flexibility in the compliance schedules for achieving the WLAs. Nonetheless, the San Diego Water Board has revised the TMDL requirements in Attachment E to include some of the additional aspects of the TMDLs as developed and included in the Basin Plan. Please see the following responses to comments pertaining to Attachment E.	

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AttE-3	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	COMMENT: *Objections with how the Water Quality Based Effluent Limitations are included or expressed in the Tentative Order.* The Orange County and San Diego County Copermittees each submitted comments that objected to how the WQBELs for the TMDLs in Attachment E are included or expressed. The San Diego County Copermittees object to including receiving water limitations as a component of the WQBELs, and requested a clearer linkage between receiving water limitations and effluent limitations. The Orange County Copermittees had a similar objection. The San Diego County Copermittees also requested that the WQBELs expressed as effluent limitations specify that the concentration-based effluent limitations be applied on a watershed basis and not outfall by outfall. The Orange County Copermittees questioned the feasibility of the numeric WQBELs, and asserted that compliance with WQBELs should be based on implementation of BMPs. The Orange County Copermittees assert that a Reasonable Potential Analysis (RPA) is required before including WQBELs into the permit. The Orange County Copermittees also assert that the WQBELs for the Baby Beach Bacteria TMDLs and Beaches and Creeks Bacteria TMDLs are not consistent with the assumptions and requirements of the WLAs. In contrast, the USEPA generally supported the San Diego Water Board's approach for incorporating the TMDL requirements into the Tentative Order.	**Copermittees** Orange County Copermittees San Diego County Copermittees **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board has included WQBELs that are consistent with the requirements and assumptions of the TMDLs. WQBELs can be expressed as (1) conditions in receiving waters that are to be attained to restore or protect water quality standards in receiving waters, (2) conditions in discharges that will not cause or contribute to exceedances of water quality standards in receiving waters, (3) BMPs that will ensure discharges will not cause or contribute to exceedances of water quality standards in receiving waters, or (4) a combination of one or more of (1)-(3). The San Diego Water Board has incorporated (1)-(3) under the WQBEL requirements for each of the TMDLs in Attachment E. In most cases, if the WQBEL expressed as a receiving water limitation is achieved, the discharges from the MS4s are assumed to be in compliance with the TMDL requirements. If not, then the	

AttE-3	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	Copermittees must demonstrate that discharges from the MS4s are not causing or contributing to the exceedances in the receiving waters by achieving the WQBELs expressed as effluent limitations. In every case, the Copermittees are required to implement BMPs to ensure that discharges from their MS4s do not cause or contribute to exceedances of water quality standards in receiving waters. Because there are TMDLs in the Basin Plan that have identified the MS4s as causing or contributing to exceedances of water quality standards, an RPA is not necessary to establish WQBELs. RPAs are only necessary if the San Diego Water Board decides to develop and incorporate WQBELs into an NPDES permit absent a TMDL. The WQBELs are also consistent with the assumptions and requirements of the WLAs. In each case, the WLAs are calculated based on numeric targets that are assumed to be able to restore or protect water quality standards in receiving waters and/or ensure discharges from the Responsible Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The numeric targets are required to be based on water quality objectives in the Basin Plan. Discharges from the MS4s are required to achieve the numeric targets for their discharges to protect water quality standards in receiving waters to meet the WLAs. The WQBELs for the TMDLs in Attachment E are consistent with the numeric targets, and thus consistent with the underlying assumptions and requirements of the numeric targets that are the basis of the WLAs. For the Baby Beach Bacteria TMDLs and Beaches and Creeks Bacteria TMDLs, the San Diego Water Board has not revised the concentration-based WQBELs, but has included WQBELs expressed as load-based effluent limitations. The Copermittees may utilize the load-based effluent limitations to demonstrate that the BMPs they are implementing are achieving their effluent limitations and not causing or contributing to exceedances of water quality standards in receiving waters. Please see the response to comment AttE-1.	

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AttE-4	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	COMMENT: *Recommendation to reorganize the Specific Provisions for the TMDLs.* The San Diego County Copermittees recommended reorganizing the Specific Provisions of the TMDLs in Attachment E. To clearly outline the interim and final requirements and schedules, the San Diego County Copermittees recommended organizing the compliance dates, WQBELs, and compliance determination by final TMDL requirements and interim TMDL requirements.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the recommendation. The San Diego Water Board reorganized the Specific Provisions for the TMDLs in Attachment E as recommended.	

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AttE-5	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	COMMENT: *The San Diego Water Board does not have the authority to establish TMDLs for non-pollutants (surrogates).* The BIA Regulated Community Coalition requested that that San Diego Water Board revise the TMDLs to conform with a U.S. District Court for the Eastern District of Virginia decision that TMDLs could not be established to regulate non-pollutants as surrogates for pollutants.	**Building Industry / Industry** BIA Regulated Community Coalition
	RESPONSE: The San Diego Water Board disagrees that the TMDLs need to be revised. The TMDLs in Attachment E are all based on reducing pollutant loads in MS4 discharges to ensure the Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters. The TMDLs in Attachment E do not establish any requirements to regulate non-pollutants as surrogates for pollutants.	

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AttE6-1	ATTACHMENT E: Specific Provisions for Total Maximum Daily Loads	
	COMMENT: *Recommendation to add a provision to address TMDLs approved during the term of the Tentative Order.* The USEPA recommended adding a provision to the requirements of the Tentative Order to address TMDLs approved during the term of the permit to expedite implementation of the TMDLs by the Copermittees.	**State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees with the recommendation. The San Diego Water Board has revised Provision F.2.c to include a requirement for the Copermittees to initiate an update to the applicable Water Quality Improvement Plans to incorporate the requirements of any TMDL Basin Plan amendments, applicable to the Copermittees, approved by the Office of Administrative Law and USEPA within the term of the Tentative Order.	

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AttE1-1	ATTACHMENT E 1: Chollas Creek Diazinon TMDL	
	COMMENT: *Request to revise WQBELs for Chollas Creek Diazinon TMDL based on recalculated criteria.* The San Diego County Copermittees assert that the Chollas Creek Diazinon TMDL is based on erroneous numeric targets due to an error discovered in the criteria used to develop the TMDL. The San Diego County Copermittees requested that the WQBELs for the Chollas Creek Diazinon TMDL be revised based on recalculated criteria, or remove the TMDL until the WQBELs can be "corrected."	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request. The Chollas Creek Diazinon TMDL was incorporated into the Basin Plan in September 2003. Until the Basin Plan is revised to include the "corrected" criteria as part of the numeric targets, the San Diego Water Board is required to include the TMDL requirements in the Tentative Order consistent with the requirements of the TMDL in the Basin Plan. The criteria utilized in the development of the Chollas Creek Diazinon TMDL are more protective than the "corrected" criteria cited by the commenter. Implementation of the Chollas Creek Diazinon TMDL with the WQBELs consistent with the numeric targets in the TMDL in the Basin Plan is protective of the water quality standards in receiving waters. According to the commenter, the "corrected" criteria were discovered in 2004. The commenter has had almost 9 years to approach the San Diego Water Board to request a revision to the TMDL in the Basin Plan. If the commenter would like to revise the numeric targets of the TMDL in the Basin Plan, the commenter must approach the TMDL and Basin Planning staff of the San Diego Water Board to request the change. Requesting the change through the MS4 permit development process is not the appropriate forum. The WQBELs for the Chollas Creek Diazinon TMDL were not revised.	

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AttE2-1	ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
	COMMENT: *Request to include San Diego Unified Port District as MS4 operator in SIYB Dissolved Copper TMDL.* The City of San Diego requested that the San Diego Unified Port District be listed as a Responsible Copermittee under the dissolved copper TMDL for Shelter Island Yacht Basin.	**Copermittees** City of San Diego
	RESPONSE: The San Diego Water Board disagrees that the San Diego Unified Port District should be listed as a Responsible Copermittee under the Shelter Island Yacht Basin dissolved copper TMDL. The Shelter Island Yacht Basin dissolved copper TMDL adopted under Resolution No. R9-2005-0019 only listed the City of San Diego as an owner or operator of an MS4 that discharges to Shelter Island Yacht Basin. The TMDL provides a wasteload allocation (WLA) of 30 kg/yr for MS4 discharges by the City of San Diego only. This means that if the San Diego Unified Port District does in fact have MS4 discharges to Shelter Island Yacht Basin, the TMDL currently has assigned MS4 discharges from the San Diego Unified Port District a WLA of 0 kg/yr. Any discharge of dissolved copper from MS4s owned or operated by the San Diego Unified Port District to Shelter Island Yacht Basin would be in violation of its WLA and WQBELs expressed as effluent limitations.	

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AttE2-2	ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
	COMMENT: *Request to revise WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL to include Water Effects Ratio.* The San Diego County Copermittees noted that the Water Effects Ratio (WER) term was incorporated into the Chollas Creek Dissolved Metals TMDLs and requested that the WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL include the WER term.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request. The San Diego Water Board has included a WER multiplier to the WQBELs expressed as receiving water limitations for the Shelter Island Yacht Basin Dissolved Copper TMDL. The WER is assumed to be 1.0 unless there is a site-specific and chemical-specific WER. The WER must be incorporated into the Basin Plan before it can be utilized in the calculation for the WQBELs expressed as receiving water limitations. The footnote includes this clarification. The San Diego Water Board also revised the footnotes for the WER term in the Chollas Creek Dissolved Metals TMDLs to clarify that the WER is assumed to be 1.0 unless a site-specific and chemical-specific WER is provided in the Basin Plan.	

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AttE2-3	ATTACHMENT E 2: Shelter Island Yacht Basin Dissolved Copper TMDLs	
	COMMENT: *Revise Shelter Island Yacht Basin Dissolved Copper TMDL requirements to allow for BMP-based compliance.* The San Diego County Copermittees requested that the Shelter Island Yacht Basin Dissolved Copper TMDL requirements be revised to allow for BMP-based compliance.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request to include a BMP-based compliance determination option. Please see the response to comment AttE-1.	

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AttE3-1	ATTACHMENT E 3: Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs	
	COMMENT: *Request to remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from the Tentative Order.* The County of San Diego and San Diego County Copermittees requested the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs be removed from Attachment E to the Tentative Order. The Copermittees noted that the TMDL, as it is incorporated in the Basin Plan, only identified a wasteload allocation (WLA) for Caltrans. The TMDL only assigns load allocation (LAs) for land uses to the County of San Diego. The Copermittees assert that only requirements for WLAs can be incorporated into an NPDES permit. The San Diego County Copermittees also requested, if the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs are not removed from Attachment E, that one of the compliance determination options allow the Responsible Copermittee to demonstrate compliance by "using its legal authority to reduce nutrient discharges from the land uses identified…to the maximum extent practicable."	**Copermittees** County of San Diego San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees with the request to remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from Attachment E. The San Diego Water Board also disagrees with allowing compliance by only achieving MEP. The Basin Plan states in the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs, "*In the event that a nonpoint source becomes a permitted discharge, the portion of the load allocation that is associated with the source can become a wasteload allocation*" (page 7-17 of the Basin Plan). The Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs include several LAs that have been assigned to land uses that fall within the jurisdiction of the County of San Diego and discharge non-storm water and storm water to and from its MS4. Because these "nonpoint sources" are discharges subject to the requirements of an NPDES permit, they are permitted discharges. Thus they are effectively and appropriately considered WLAs that must be incorporated into the Tentative Order. The San Diego Water Board has revised and reorganized the format of the TMDL requirements in Attachment E, as requested by the Copermittees (see response to comment AttE-4). The reformatting and reorganization also resulted in the removal of the WLA term from the TMDL requirements. The introductory paragraph has been revised to specify that the TMDLs in Attachment E incorporate provisions that implement the LAs and WLAs applicable to discharges regulated under the Tentative Order.	

AttE3-1	ATTACHMENT E 3: Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs	
	The request by the Copermittees to include a compliance determination option of allowing compliance only by achieving MEP is not appropriate for a TMDL. TMDLs require the achievement of WQBELs when technology-based effluent limitations (TBELs) cannot achieve the attainment of water quality standards in receiving waters. The MEP standard is a TBEL. The Responsible Copermittee must achieve the WQBELs to either restore or protect water quality standards in receiving waters, or ensure discharges from the MS4 do not cause or contribute to exceedances of water quality standards in receiving waters. The San Diego Water Board did not remove the Rainbow Creek Total Nitrogen and Total Phosphorus TMDLs from Attachment E. The San Diego Water Board did not include a compliance determination option that allows compliance only by achieving MEP.	

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AttE4-1	ATTACHMENT E 4: Chollas Creek Dissolved Copper, Lead, and Zinc TMDLs	
	COMMENT: *Request to revise the Chollas Creek Dissolved Copper, Lead, and Zinc TMDL requirements to allow for BMP-based compliance.* The San Diego County Copermittees requested that the Chollas Creek Dissolved Copper, Lead, and Zinc TMDL requirements be revised to allow for BMP-based compliance.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request to include a BMP-based compliance determination option. Please see the response to comment AttE-1.	

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AttE5-1	ATTACHMENT E 5: Baby Beach and Shelter Island Shoreline Park Bacteria TMDLs	
	COMMENT: *Request to revise the WQBELs of the Baby Beach and Shelter Island Shoreline Park Bacteria TMDL requirements to allow for load-based compliance.* The Orange County and San Diego County Copermittees, Environmental Groups, and the USEPA each commented that the bacteria TMDLs included load-based WLAs, expressed as mass loads, percent load reductions, or both, and recommended including load-based WQBELs. The Orange County and San Diego County Copermittees requested the WQBELs include load-based effluent limitations and allow compliance to be demonstrated with load-based effluent limitations instead of concentration-based effluent limitations. The Environmental Groups did not support allowing compliance determination solely through mass-loading numbers.	**Copermittees** Orange County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees with the request to include requirements that allow for load-based compliance with the Baby Beach and Shelter Island Shoreline Park Bacteria TMDLs. Please see the responses to comment AttE-1 and AttE-3.	

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AttE6-1	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	COMMENT: *Water bodies no longer listed on the 303(d) List should not be required to implement or comply with the requirements of the Beaches and Creeks Bacteria TMDLs.* The Orange County and San Diego County Copermittees and the Cities of Carlsbad, Del Mar and Encinitas submitted comments noting that the Beaches and Creeks Bacteria TMDLs included language that beach segments that were delisted from the 303(d) list are not subject to further action and not required to submit Bacteria Load Reduction Plans (BLRPs) or Comprehensive Load Reduction Plans (CLRPs) as long as monitoring continues to support compliance with REC-1 water quality standards. The Copermittees requested that the Beaches and Creeks Bacteria TMDLs be modified so the beach segments that are not included on the 303(d) list are not required to implement or comply with the Beaches and Creek Bacteria TMDLs requirements.	**Copermittees** City of Carlsbad City of Del Mar City of Encinitas Orange County Copermittees San Diego County Copermittees
	RESPONSE: The San Diego Water Board disagrees that beach segments that are not on the 303(d) List should not be required to implement or comply with the Beaches and Creek Bacteria TMDLs requirements. The Beaches and Creeks Bacteria TMDLs have been incorporated into the Basin Plan and apply to all the water bodies listed in the TMDL. The Copermittees cite the following from the introduction to the Beaches and Creeks TMDLs: "*Specific beach segments from some of the Pacific Ocean shorelines listed in the above table have been delisted from the 2008 303(d) list that was approved by the San Diego Board on December 16, 2009, and therefore are not subject to any further action as long as monitoring data continues to support compliance with water quality standards*" (Basin Plan page 7-60). This does not mean that the TMDLs do not apply to these segments, only that the current BMPs are working and additional actions (i.e. additional BMPs) are not necessary at this time. Under the TMDL Compliance Schedule for the Beaches and Creeks Bacteria TMDLs, the Basin Plan states: "*The TMDLs that address the Pacific Ocean shorelines identified in the 2002 303(d) List are assumed to be applicable to all the beaches located on the shorelines of the hydrologic subareas (HSAs), hydrologic areas (HAs), and hydrologic units (HUs) listed above, or as listed individually in the 2008 and future 303(d) Lists*" (Basin Plan page 7-106). This means that the TMDLs apply to the entire Pacific Ocean Shorelines identified in the TMDL and is not only where there are beach segments that are listed on the 303(d) List. Thus, it does not matter if a particular segment has been delisted, the TMDLs still apply to the entire Pacific Ocean Shoreline identified in the TMDL.	

AttE6-1	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	The TMDL Compliance Schedule also states, "*In some cases, receiving water limitations are already being met, resulting in the delisting of those segments or areas from the 2006 and/or 2008 303(d) Lists. The protection of the REC-1 beneficial use of those delisted segments or areas, however, must also be maintained, and those segments or areas must remain off future iterations of the 303(d) List… If receiving water limitations are exceeded in the future in those locations, the BLRPs or CLRPs must include the implementation of a BMP program that will ensure that the TMDLs will be achieved by the end of the TMDL compliance schedules*." (Basin Plan page 7-106). The Basin Plan continues, "*For watersheds in Table 7-52 where there are no longer any impairments listed on the 2008 303(d) List, the Phase I MS4s and Caltrans are not required to submit a BLRP or CLRP within 18 months of the effective date of these TMDLs. If, however, any segment of a waterbody for the watershed (Pacific Ocean shoreline, creek, or mouth as shown in Table7-36) is re-listed on a future 303(d) List for any type of indicator bacteria, the Phase I MS4s and Caltrans will be required to submit a BLRP or CLRP within 6 months of the adoption of the 303(d) List by the San Diego Regional Board*" (page 7-107). This means that a BLRP or CLRP is not required by the Basin Plan to be submitted within 18 months of the effective date of the TMDLs, but it also does not mean that the San Diego Water Board cannot require a BLRP or CLRP to be submitted. The Beaches and Creeks Bacteria TMDLs were developed when it was unknown when the Orange County and San Diego County MS4 Permits would be renewed to incorporate the requirements of the TMDLs. At the time the TMDLs were adopted, the Orange County MS4 Permit had just been renewed in 2009, and the San Diego County MS4 Permit was unlikely to be renewed before 2012. The San Diego Water Board wanted the implementation of the TMDLs to begin with the submittal of BLRPs or CLRPs, before the Orange County and San Diego County MS4 permits were expected to be renewed. Thus, the TMDL included the 18 month period of time for the Copermittees to develop the BLRPs or CLRPs to be required by the San Diego Water Board through an appropriate regulatory mechanism. The regulatory mechanism to compel the submittal of the BLRPs or CLRPs from the Copermittees could have been in the form of an investigative order, enforcement action, or a modification to the existing MS4 permits. The San Diego Water Board removed the 18 month BLRP or CLRP submittal requirement only for the watersheds where there were no bacteria impairments on the 2008 303(d) List because there was not the same level of urgency to begin implementation of the TMDL requirements as for those watersheds where there continue to be bacteria impairments. The removal of the 18 month BLRP or CLRP submittal requirement did not mean that a BLRP or CLRP would not be required to be developed as part of the TMDL requirements in the MS4 permit.	

AttE6-1	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	The fact that the Beaches and Creeks Bacteria TMDLs are now part of the Basin Plan means that the TMDLs and the requirements of the TMDLs must be implemented through a regulatory mechanism to restore water quality standards in receiving waters and/or ensure discharges are not causing or contributing to exceedances of water quality standards in receiving waters. In this case, the Tentative Order is the regulatory mechanism that is implementing the requirements of the Beaches and Creeks Bacteria TMDLs to ensure that discharges from the Copermittees' MS4s will comply with the WLAs in the TMDL and not cause or contribute to exceedances of water quality standards in receiving waters. For segments or areas where there is no bacteria impairment identified on the 303(d) List, implementation of the Beaches and Creeks Bacteria TMDL requirements in the Tentative Order will ensure that discharges from the Copermittees' MS4s will continue to not cause or contribute to exceedances of water quality standards in receiving waters and remain off the 303(d) List. The Copermittees will be required to include the monitoring and assessments that are necessary to demonstrate that discharges from the Copermittees MS4s continue to not cause or contribute to exceedances of water quality standards in receiving waters and remain off the 303(d) List. The Copermittees will not be required to include additional BMPs in the Water Quality Improvement Plans if the existing BMPs are allowing the Copermittees to achieve the bacteria TMDL requirements. If, however, bacteria impairments result in the re-listing of any of these beach segments on the 303(d) List, the incorporation of the TMDL requirements in the Water Quality Improvement Plan will fulfill the CLRP requirements, and the Copermittees will be required to update the Water Quality Improvement Plan to ensure that discharges from the Copermittees' MS4s will not cause or contribute to exceedances of water quality standards in receiving waters by the final TMDL compliance date.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-2	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	COMMENT: *Estimated costs to implement Beaches and Creeks Bacteria TMDLs are very high, and TMDLs may not be attainable.* Several community planning groups, the County of San Diego and the San Diego Taxpayers Association expressed concerns with the estimated costs of implementing the Beaches and Creeks Bacteria TMDLs. There were also concerns expressed about the feasibility of attaining the TMDLs. The commenters generally objected to including the Beaches and Creeks Bacteria TMDLs in the Tentative Order until there was some certainty that the expenses associated with implementing the TMDLs will result in the achievement of the TMDLs.	**Community Planning Groups** Pala Pauma Valley Community Sponsor Group Jamul Dulzura Community Planning Group Ramona Community Planning Group Julian Community Planning Group **Copermittees** County of San Diego County of San Diego Office of County Counsel **Societies/Associations/Coalitions** San Diego Taxpayers Association
	RESPONSE: The San Diego Water Board understands the concerns with the potential costs of implementing the requirements of the TMDLs, as well as the concerns with the feasibility of attaining the TMDLs. The costs associated with achieving the requirements of the Beaches and Creeks Bacteria TMDLs were considered during Basin Plan amendment process. The Beaches and Creeks Bacteria TMDL Basin Plan amendment was made available for public review and comment on several occasions. The San Diego Water Board adopted the Beaches and Creeks Bacteria TMDLs after considering the potential costs. The State Water Board, Office of Administrative Law, and the USEPA also approved the Beaches and Creeks Bacteria TMDLs. At this time it is difficult to predict the actual costs of complying with the Beaches and Creeks Bacteria TMDL requirements. Even the estimates that have been provided by the County of San Diego and the City of San Diego in their Comprehensive Load Reduction Plans acknowledge there is significant uncertainty in their cost estimates. While the cost estimates do provide some idea of the magnitudes of the potential costs for implementing BMPs and programs to achieve the TMDLs, the cost estimates fail to include or consider the potential cost savings or cost benefits that may be achieved or realized by implementing the Beaches and Creeks Bacteria TMDLs. The Beaches and Creeks Bacteria TMDL requirements provide the Copermittees a compliance schedule of up to 20 years. The Copermittees have not truly begun implementing the requirements of the TMDLs and have only questioned and raised concerns over the potential costs and feasibility of attaining the TMDLs before developing any information to demonstrate the TMDLs cannot, in fact, be attained or that the costs exceed the benefits of implementing the TMDLs.	

AttE6-2	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	The San Diego Water Board is implementing the requirements of the federal Clean Water Act. The incorporation of the requirements of the Beaches and Creeks Bacteria TMDLs in the Tentative Order is required to implement the WLAs that have been assigned to the MS4s, which is supported by the USEPA. The San Diego Water Board has not removed the Beaches and Creeks Bacteria TMDLs from Attachment E to the Order.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-3	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	COMMENT: *Request to revise the WQBELs of the Beaches and Creeks Bacteria TMDL requirements to allow for load-based compliance.* The Orange County and San Diego County Copermittees, the City of Laguna Niguel, Environmental Groups, and the USEPA each commented that the bacteria TMDLs included load-based WLAs, expressed as mass loads, percent load reductions, or both, and recommended including load-based WQBELs. Several Copermittees submitted separate letters that supported the inclusion load-based WQBELs. The Orange County and San Diego County Copermittees requested the WQBELs include load-based effluent limitations and allow compliance to be demonstrated with load-based effluent limitations instead of concentration-based effluent limitations. The Environmental Groups did not support allowing compliance determination solely through mass-loading numbers.	**Copermittees** City of Dana Point City of Imperial Beach City of Laguna Niguel City of Mission Viejo City of Poway City of Rancho Santa Margarita City of San Diego Orange County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups **State/Federal Government** USEPA
	RESPONSE: The San Diego Water Board agrees with the request to include requirements that allow for load-based compliance with the Beaches and Creeks Bacteria TMDLs. Please see the responses to comment AttE-1 and AttE-3.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-4	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	COMMENT: *Request to revise the Beaches and Creeks Bacteria TMDL requirements to allow for BMP-based compliance.* The Orange County and San Diego County Copermittees requested that the Beaches and Creeks Bacteria TMDL requirements be revised to allow for BMP-based compliance. Several Copermittees submitted separate comments supporting the concept. Comments from Environmental Groups were not in support of allowing BMP-based compliance with the TMDL requirements through a "reasonable assurance analysis."	**Copermittees** City of Imperial Beach City of Poway City of San Diego Orange County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board agrees with the Copermittees' request. The San Diego Water Board disagrees with the Environmental Groups that BMP-based compliance option should not be provided. Please see the response to comment AttE-1.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-5	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	COMMENT: *Request to revise the Beaches and Creeks Bacteria TMDL requirements to allow for adjustment of interim TMDL compliance dates.* The Orange County and San Diego County Copermittees and the City of San Diego submitted comments noting that the Beaches and Creeks Bacteria TMDL included a provision that allows for the Copermittees to propose interim compliance dates if they develop a Comprehensive Load Reduction Plan, and requested the TMDL requirements be modified to allow for the interim TMDL compliance dates to be adjusted. The City of Imperial Beach supported the concept. The Environmental Groups requested that there be an assessment of progress toward achieving the interim goals within the term of the permit.	**Copermittees** City of Imperial Beach City of San Diego Orange County Copermittees San Diego County Copermittees **Environmental Organizations** Environmental Groups
	RESPONSE: The San Diego Water Board agrees with the Copermittees to allow for the interim TMDL compliance dates to be adjusted. The San Diego Water Board also agrees that there should be an assessment or progress toward achieving interim goals within the term of the permit. The Water Quality Improvement Plan is essentially the same as a CLRP. Including language allowing the Copermittees to adjust the interim TMDL compliance dates in the Water Quality Improvement Plan would not be inconsistent with the requirements of the Beaches and Creeks Bacteria TMDLs in the Basin Plan. Thus, the San Diego Water Board has included language in Specific Provision 6.c.(1) of the revised Tentative Order that allows the Copermittees to propose alternative interim TMDL compliance dates in the Water Quality Improvement Plan. The requirements of Provision B.3.a.(2)(b) in the revised Tentative Order also require the Copermittees to establish an interim goal that the Copermittees will work toward achieving within the term of the permit.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-6	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	COMMENT: *Requests to revise the WQBELs of the Beaches and Creeks Bacteria TMDLs requirements.* The City of Laguna Niguel submitted comments with information from a study being conducted by the Southern California Coastal Waters Research Project (SCCWRP) in cooperation with the Copermittees regarding bacteria loads that can be attributed to natural sources. The information provided by the City of Laguna Niguel was provided to support a request to include load-based WQBELs based on load reductions. The City of Laguna Niguel also requested that the load reductions be calculated using a baseline of 1996-2002 data instead of 2002-2011 data. The San Diego County Copermittees submitted comments noting that the total coliform water quality objectives only apply to ocean waters and should not be applied to creeks. The San Diego County Copermittees requested that the WQBELs expressed as receiving water limitations specify that the total coliform receiving water limitations only apply to beaches and not creeks.	**Copermittees** City of Laguna Niguel San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the requests from the City of Laguna Niguel and the San Diego County Copermittees. The San Diego Water Board has incorporated WQBELs expressed as load-based effluent limitations based on percent load reductions. Please see the response to comments AttE-1 and AttE-3. The San Diego Water Board revised the tables with the WQBELs expressed as receiving water limitations to be consistent with the tables in the Beaches and Creeks Bacteria TMDLs.	

RESPONSES TO COMMENTS RECEIVED ON TENTATIVE ORDER NO. R9-2013-0001

March 27, 2013

AttE6-7	ATTACHMENT E 6: Beaches and Creeks Bacteria TMDLs	
	COMMENT: *Request to revise the Beaches and Creeks Bacteria TMDLs monitoring and assessment requirements to be consistent with TMDL Basin Plan amendment.* The San Diego County Copermittees submitted comments requesting that the Beaches and Creeks Bacteria TMDLs monitoring and assessment requirements in the Order include the procedures to calculate wet weather exceedance frequencies as provided in the TMDL Basin Plan amendment.	**Copermittees** San Diego County Copermittees
	RESPONSE: The San Diego Water Board agrees with the request. Specific Provisions 6.d.(1)(c) and 6.d.(2)(c) have been modified to include the procedures for calculating the dry weather and wet weather exceedance frequencies for beaches and creeks.	

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ATTACHMENT
30

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

WEDNESDAY, APRIL 10, 2013

ITEM 8, VOLUME I

WATER QUALITY CONTROL BOARD

BOARD MEETING ROOM

9174 SKY PARK COURT

SAN DIEGO, CALIFORNIA

A P P E A R A N C E S

CHAIRPERSON:	Tomas Morales
VICE CHAIR:	Gary Strawn
BOARD MEMBERS:	Henry Abarbanel Eric Anderson Sharon Kalemkiarian
EXECUTIVE STAFF:	David Gibson, Executive Officer James Smith, Assistant Officer Chris Witte, Executive Assistant
STATE BOARD COUNSEL:	Catherine Hagan
STATE BOARD MEMBER LIAISON:	Frances Spivy-Weber
ALSO PRESENT:	Wayne Chiu Christina Arias Laurie Walsh

I N D E X

ITEM NO. 8

SPEAKERS

Roger Butow
Wayne Chiu
Doug Liden
Mary Anne Skorpanich
Todd Snyder
Mikhail Ogawa
Kris McFadden
Shawn Haggerty
Drew Kleis
Heather Stroud
Christine Sloan
Jo Ann Weber
Richard Boon
Ryan Baron
Scott Taylor
Nancy Palmer
Chris Haynes
Roger Butow
Christine Mailloux
Livia Borak

I N D E X (Continued)

Item No. 8

SPEAKERS

Julia Chunn-Heer

Matt O'Malley

Paloma Aguirre

Allison Prange

Alison Hindley

Lyle Beller

Sandra Moore

Jamie Ortiz

Harry Orgovan

Jim Peugh

SAN DIEGO, CALIFORNIA

WEDNESDAY, APRIL 10, 2013, 8:32 A.M.

Moving on, Item No. 8 -- let's see, I have a statement with respect to Item No. 8, which is what we're all here for. And bear with me, because it is somewhat lengthy.

This is the issuance of -- a hearing on the issuance of an NPDES permit waste discharge requirements, our MS4 Tentative Order No. R92013001. This is a time for a public hearing on Tentative Order R92013001, issuance of an NPDES permit and waste discharge requirement for discharging from the municipal separate storm sewer system draining the water sheds within the San Diego region.

The purpose of this hearing is for the Board to hear testimony and comments about the tentative order from staff, U.S. EPA, the co-permittees and their elected officials, environmental organizations, the building industry and other interested persons about the proposed permit and issues that concern them.

Now, before we go any further, I do have a couple of announcements. I want to let everyone know that for planning purposes, tomorrow, the Board will take an extended hearing (sic) beginning at approximately 12:30 to resume at 3:00. And the reason for that is, you know,

something that I must apologize for.
The Court of Appeal in our local venue here in San Diego has scheduled a hearing that I will be arguing in front of them. And the three justices make their scheduling decisions not far enough in advance to have worked around tomorrow's hearing.

So there will be a short break so that I can go and argue a matter in front of the Court of Appeal. And I will return as quickly as possible after that is heard.

We're expecting a large number of participants today, so we're going to hear from as many members of the public representing different affiliations and positions as possible, starting at 4:00 p.m. We'll continue until 7:00, if necessary. So that should give us plenty of time to deal with folks that show up. And if a lot of folks don't show up, we'll break well before 7:00.

But due to time constraints, we may not be able to hear everyone wishing to speak or may have to reduce the time allowed for interested persons. So I encourage any of you that are interested persons and have similar comments to choose a representative to speak on your -- your coordinated or joint behalf as much as possible. And unless we decide otherwise, based on a high volume, interested persons will have three minutes to speak. But we will allow extra time if you take us up on our request

that one person speak on behalf of a number of you.

In addition, to maximize public participation, the Board has prepared sign-up position sheets, and I think you guys probably saw those as you were coming in so, you know, if you have not and you would like to, you can sign up to support or oppose a tentative order and we will use that to help better understand your positions.

They will be part of the record for any decision in this matter. And remember that, for the most part, the written comment period for this tentative order is already closed. So don't use the position sheets or speaker cards to elaborate on what you do or do not like about the permit in written form.

This is just an opportunity for someone, generally, opposed or in favor of the tentative order to make their viewpoint known without needing to orally address us. Finally, if you have not already done -- finally, if you haven't already, people wishing to address us, do fill out the speaker cards and hand it to the Board's executive assistant. They help us in a number of ways. We organize them so that we're able to call you up, and they also allow us to estimate how much time is going to be necessary for the speakers. So please be sure to write your name legibly so we have an accurate record of the participants.

Now, a little bit of housekeeping. Yesterday board members received copies of a letter from the region's state legislative representatives requesting that the Board postpone action on the tentative order. We also received copies from congressional representatives in the region EPA concerning the tentative order.

The Board is allowing these letters, which are essentially policy statements, into the record. We're not accepting other late letters from parties and interested persons raising procedural objections and reiterating request for postponement, but will take up oral procedural objections on that in a few moments.

We've placed about 30 copies of the legislators' letters at the back of the room for anyone interested. And I do want to make it really clear that we appreciate the legislators' attention to the very important issues that we're tasked with resolving in this order.

We're going to proceed with the hearing today and tomorrow as outlined before and as I've just talked about. And I do, however, anticipate that at some point tomorrow, the Board will determine whether to go ahead and take action tomorrow or, instead, postpone action until May in order to hear more focused discussions on one or more discrete issues.

In the event that we do postpone the action for a

month, we'll narrowly and clearly define what topics we want to receive further attention. We're going to conduct this hearing as outlined in the revised hearing procedures that we issued on April third. And the revised procedures and order of proceedings set forth the order of speakers for this item and allocate blocks of time to board and staff parties to this proceeding. We set a time certain to hear from the public as interested persons and also for elected officials.

Because of the importance of the issues, the number of speakers and requests for time, we scheduled the hearing for two days. I expect we'll make a fair amount of progress today with the time we have. And since we're going to hear from interested persons from 4:00 to 7:00.

Now, we'll begin tomorrow morning at our normal time, 9:00, but we do have a time certain for elected officials at 9:15. And we will begin at 9:15, or if elected officials are here and wish to begin sooner and we have already convened a meeting slightly sooner.

Now, the revised hearing procedures identified the parties, in addition to all the co-permittees who are going to be participating in this proceeding. The Board allocated blocks of time in which the parties -- or identified groups of parties that must complete their presentations to the Board.

Now, within your blocks of time, the parties are to be permitted to restate procedural objections, make opening and closing statements and arguments, testify, submit evidence, cross-examine other party witnesses and offer rebuttal testimony.

Staff and counsel have received some requests for individual parties to have additional time to make individual presentations. As I mentioned, we received several late procedural objections and requests for postponement. Although the Board has already issued rulings on some of these objections, we will go ahead and take these up now.

I understand there is someone who is going to speak on behalf of the co-permittees on these recent procedural points.

JAMES O'DAY: Thank you, Mr. Chairman. James O'Day, with County Counsel for County of San Diego. And I also brought some backup if the Board will allow, Ryan Baron representing Orange County and David Burhead representing the Riverside County group.

I appreciate the opportunity to let us put these objections on the record. I know we have lawyers on this panel and you know that there are -- in a proceeding such as this, where the possibility exists for appeal, there are certain procedural niceties that we have to cover, as

lawyers, on behalf of our clients.

And I greatly appreciate your counsel's cooperating and actually responding to all my barrage of letters and e-mails recently. She's a true pro. And I also appreciate our executive officer and the staff in this whole process.

But we're here to move to this panel, and we'd like a ruling on that, that the hearing be postponed. We don't do this lightly, and we don't do it flippantly and we don't do it as a lawyering thing. I want to emphasize that.

Because I'm thinking back to a year ago in April, we started this process. And much to our amazement perhaps, or skeptics such as me, we were thrilled with the workshop process that your board engineered and staff and Executive Officer Gibson put a lot of time into.

And as you know, we had a series of workshops. They were focused, we had a facilitator, and we had plenty of time between those events to digest the specific portions of the permit and prepare for those events, focused on certain topics.

Your staff spent a lot of additional time meeting with various interested parties over and above what we probably would have or could have expected. They were courteous, they were engaged, they were professional. And

we appreciate that.

So we're not here looking to -- to damage what has been a truly collaborative effort throughout these past 12 months. However -- and here's the however -- we're really -- we're standing here wondering why. And we're wondering why, after having plenty of time to do all these other events and in between the workshops and giving everyone time to digest changes to the tentative order, why we have only eight business days from March 27th in order to digest what we feel -- and we'll talk about that in a moment -- are significant changes to the tentative order and revised tentative order. And we just don't have time to be properly prepared and engaged.

And we also think if this hearing were postponed for a short of time as to the May hearing, we would have the opportunity to understand some of the changes. Quite frankly, there are some changes made we just don't understand. And I know staff does not have time with preparing for this hearing, just as we don't have time to sit down and vet out and get a better understanding of what some of those changes mean and also to give feedback to staff as to why we think some of the changes might be good, why we think some of them not might not be so good.

And so we are compelled to make this motion. And we ask you to rule on that. And in the event that the

ruling is to go ahead and proceed with the hearing, which I think I'm hearing from the chair, we believe that's in violation of our procedural due process rights. It's done under protest. And we will be participating here today, but participating under protest as to the hearing, the hearing procedures and, perhaps, any eventual outcome of the hearing, because we just have not had time to do what we need to do to protect our interest and prepare.

And I'm going to continue a little bit. I've got a couple of statistics, because one of the comments made in response to the request for a postponement was these were really just kind of routine changes made in response to the comments, that they were natural outgrowths of those comments.

I -- one of our people at the County put together a little statistic -- set of statistics. Forty percent of the pages in the prior tentative order had significant changes to them. And by "significant," we mean at least 20 percent of the content on each page.

When you take the edits from the prior version of the tentative order to the current version of the tentative order and put them into one document, it would be over 24 pages of significant content.

The current permit, the permit that's under consideration today has 12 percent more content if you do

it based on a word search. Some interesting stats for you. But more importantly than that, there are significant changes.

As you know, it's -- there's been a feature added to the land development standards for a hundred percent wood removal. Many of the co-permittees -- and I'm sure you'll hear presentations on that today -- believe that it is infeasible.

We would have liked to have had the opportunity to vet that out and understand the reason why that was put in the permit. I don't think it was discussed to any degree prior to this change having been made. I could be wrong about that, I wasn't involved in every portion of that that but I believe that's the case, that it's a brand new feature and it's a significant new feature.

In addition, we have added the water quality improvement consultation panel concept. And there are some features of that, specifically with veto power, in our view, over certain proposals for the water quality improvement plans that have been added to the permit. That's a significant situation for us, and we would like the opportunity to vet that out with board staff. And we would like a better opportunity to understand why that feature was put in the permit.

And there are other -- if I sit and look at the

red line of the revised tentative, it's very red. And so we urge the Board to perhaps reconsider. I know there is a lot of people here today that have come from other places. But I think all the co-permittees and perhaps many or the parties would still welcome the time to have some interaction with staff and to be properly prepared and to get their questions answered in a meaningful way.

We have also raised some -- and I'll finish up soon. We've also raised some objections to the hearing procedures and we have -- we have passed out a written submittal on this. I don't want to go over it in great detail, but Title 23 of the California Code of Regulations 647 and following, discuss how these procedures work, as well as various provisions of the Administrative Procedure Act.

One of the things that we object to is placing unreasonable time limits on the permittees. I understand that the Board has added an hour for the three principal County co-permittees. That's a total of four hours. If you were to carve that up just in equal pieces, that's about 80 minutes for each group. There are 21 co-permittees, for instance, in the San Diego county co-permittee group alone.

I know not all those have asked for time, but some have asked for time. And we were left with the eight

days -- business days that we had to do what we needed to do to also try to negotiate among the parties how we were going to carve that time up. And that was not an easy process. And so we find that to be inequitable and find that to perhaps be a violation of those hearing procedures. We think we should be given more time.

There was a ruling made on limiting questioning. And there are government code provisions, 11465.30, 11425.10 and 11513 that give us the right to question regional board staff. The reason I'm raising this is because I think there was a provision in the revised hearing procedures that talked about staff not being a party.

In exchanges with your counsel, it appears that this objection may not need to be made if we can receive a confirmation that we would be permitted, if we elect, to question regional board staff. It sounds like that may be -- that the intent of the designation of them not a party was not intended to limit that right, but we would ask for confirmation of that.

And let me tell you who may question. I think we've been directed to funnel all of our questions into one party who will be the person doing the questioning. That raises some issues among the co-permittees about who's going to do that and people being able to protect their

individual clients' rights. And, as lawyers, that causes us some concern. We think that is improper.

So for all of those reasons, we're really -- we're asking that the hearing process be continued and asking that you make rulings on the following items; continuing the hearing to at least May, and once again, if the hearing is not going to be continued, we reserve all of our rights with regard to our objections to procedure and objections to the manner of proceeding in what we believe would be a violation of our procedural due process rights.

We ask for confirmation that the permittees have the ability to question regional board staff. I just mentioned that. We ask that you confirm that each permittee does not have to repeat issues raised by other parties or interested persons in order to exhaust administrative remedies.

We all have a concern that, for instance, if Orange County has made some particular comments or objections, that San Diego County also would join in. We don't want to spend the hours that it would take being totally redundant about all of that.

We -- our understanding of proper procedure would be that if any parties to the proceeding have raised issues or made comments or criticism that, on appeal, if there is an appeal, that we have the ability to pursue that right.

We would like a confirmation of that so that we don't have to demand even more time to have redundant repetitions of some of the comments and objections.

We would like you to consider, and we move for a ruling on having any rebuttal time not be considered part of the block of time that you have allocated for the co-permittees. We think that we, at best, are very constrained, and prejudicially constrained with amount of time given. But if we also are not able to have whatever rebuttal time we might need in addition to that time, we think that is unfair and violates our procedural due process rights.

We'd also ask you to allow the permittees separate time to ask questions of the regional board -- this is the same concept that that time would not count against our allocated time, whatever that may be. At this point, it's four hours.

We also -- one kind of final procedural objection. To the extent that the Board will eventually make findings, as you're required to do before the final determination and adoption of the permit, we would remind the Board that those findings cannot be supported by hearsay evidence. They have to be supported by non-hearsay evidence. And we'd like -- I don't think we have to keep bringing that objection up. We're bringing it up at the

beginning of the process, just to put that on the record.

And I -- my colleagues may have a couple of separate independent brief objections on behalf of their clients. So I will defer to them at this point. Once again, I thank for your consideration. We really do want to continue the collaborative process. It's worked fabulously up until this point, but something went awry, in our mind, on March 27th.

CHAIRMAN MORALES: Thank you.

MR. BURHAM: Good morning, Chairman Morales, members of the Board. My name is David Burham and we have the privilege of representing the Riverside County co-permittees today. I want to just join in the objections made by Mr. O'Day and I have further objection and, perhaps better stated, reservation of rights which is joined in by the Orange County co-permittees.

As noted in our written comments, we have -- Riverside County co-permittees have an objection to the adoption by this board of a regional permit covering permittees in three counties with multiple completely separate nonadjacent MS4 systems.

In addition, Riverside County co-permittees have not filed reported waste discharge and there is no active permit proceeding involving these co-permittees. We understand that a report of waste discharge will be

required under current permit which we believe opens up all issues, potentially, that would be covered by this permit.

As a result of -- I'm not going to go into these objections. I'm trying to save everyone's time here. From the start of these proceedings, the Riverside County co-permittees objected to the adoption of the regional permit. We participated in all proceedings, including the workshops, under that reservation of rights. That reservation, which we renew today, is that while we have participated in the permit development process and will testify today, that participation does not waive our objection to issuance of the regional permit and we continue to reserve the right to challenge that issuance if the Board so adopts.

One final issue -- and I want to first echo Jim's lauding of your client -- of your counsel, Miss Hagan, she's a great lawyer, provides great service. I just want to note that the California Administrative Procedure Act and California case law, most notably the Nightlife Partners case, does require that there be separate advice to the adjudicator and the agency in and adjudicative hearing.

And to the extent that counsel participates, basically, on both sides of that line, as counsel to staff and as counsel to the Board, we believe that that would be

a violation of the APA and also the principles elucidated in case law. So we object to that to the extent it is relevant today. I just wanted to put that on the record at this time.

Thank you very much.

RYAN BARON: Hi, I'm Ryan Baron on behalf of County of Orange. We join in the objections of San Diego and Riverside counties.

Thank you very much.

CHAIRMAN MORALES: All right. Here's what we're going to do with respect to all of these things. As I mentioned, we are going to proceed with the hearing. The decision as to whether we hear more and postpone the decision for a month will be made tomorrow.

It is my hope that given the collaborative process that we have all engaged in, and the information that's going to be exchanged in the next day or two, that any concerns about not understanding or feeling that you have not had time to properly look at the changes that were made to the last tentative order will be allayed.

MS. KALEMKIARIAN: May I just ask a question?

I should also make a disclosure. My disclosure is -- which I should have made first -- I'm a member of the Board of Environmental Health Coalition, and I noted there had been a letter submitted in support of that permit. I

did not participate in that letter and haven't participated in any conversations about the permit. But I wanted that to be on the record.

Now you probably need to ask me --

CHAIRMAN MORALES: Yeah. And for any other board members, we'll get to disclosures once we get through this process.

MS. KALEMKIARIAN: Then I can --

MS. HAGAN: You want to follow up when we do other disclosures?

MS. KALEMKIARIAN: That's fine. Doesn't matter to me.

Is it possible, if we do postpone -- not postpone the hearing today, but continue, basically, in May with more -- to receive more information, can we reopen the written comment period to receive comments on the changes or not?

MS. HAGAN: You have the right to reopen the comment period. That's -- the Board has complete discretion to do that. The timing would be the factor in that case, because the obligation -- both to allow the parties to formulate written comments, allow the staff to review them, there is an obligation with a federal permit like this to have responses to comments completed when the Board takes action.

So you would need to build in time to allow all of those things to occur.

MS. KALEMKIARIAN: And can the request for comment -- I took note of Chairman Morales saying well, maybe we would limit the focus of the testimony. Can that also be done with written comment?

MS. HAGAN: Yes.

CHAIRMAN MORALES: So going back to the rulings, I have stated that the decision on whether to postpone anything to May will be made tomorrow, depending on how today and tomorrow go.

Now, what I am going to request of the parties, since one of the concerns is that you all don't feel you may have enough time, is after you finish your presentations, if you feel that, for whatever reason, you have not had enough time to put your position forward, please let us know and state with specificity why and what it is that you might have wanted to talk about. Because you know I really don't like dealing in generalities, so give us specifics, folks. That will help you and it will help us.

Now, with respect to the questioning of staff, staff is not parties, and it was originally our intent not to allow questioning of staff. We are going to allow it to give you an opportunity to get better educated because we

feel it will help the process along, not because we feel necessarily that they are parties for whom -- of whom you have the right to ask questions.

So I will caution that you should probably keep your questions civil, directed, and with an eye towards getting the information you need, as opposed to simply getting a point onto the record. If I find that the questioning appears to be getting a little out of hand, I will cut it off. I don't believe that will be the case, but that is a prerogative that I'm going to retain.

Now, it isn't, as requested, necessary for each party to raise an issue in order to exhaust your administrative remedies. But I would -- so that is the ruling. But along with that, I'd ask that since you don't have to raise an issue in order to exhaust your administrative remedies, don't feel obligated to repeat issues that have already been raised either. So we'll be good with the information once, I think.

Now, we have already ruled on the amounts of time allotted to groups and parties. And we believe they're reasonable, given the extensive public process that has already occurred and the foundation of knowledge and information that you have and that's been shared.

So we're going to proceed with the time requirements that we have laid out. However, again, to

the extent you feel more time is necessary at end of your presentation, so state, and state with specificity as to why or how you feel you did not have enough time. You know, if you all are able to get it done, which, you know, I think you will, then -- I understand the lodging of objections, but it won't be an issue.

There, I guess, was a question whether, you know, questioning of other parties or staff on cross, for example, counts against your time. Yes, it does. I think we'll be fine. We have got, you know, two days to deal with this complicated issue, but it's not only two days that will be spent dealing with this issue.

We have had previous hearings, and I think once it's laid out how many public forums and meetings have been held for this whole process, we may all realize that, yeah, I think more than just about any other decision in the past collaborative process was in full force here.

So I think with that -- let me check my notes.

I noted that -- I noted the objection with respect to findings. And I also noted the objection by the counties of Riverside and San Diego with respect to the region-wide permit and its impact on them. I think that will be part of that presentation on both sides that we'll have more information about -- Riverside and Orange. Apologies. Not San Diego.

And there were couple of things said about our counsel, the praise of our counsel I'm in complete agreement with and, you know, uphold and. The objection is noted.

MS. HAGAN: May I respond to the objection briefly, just for the record? And, actually, before I do that, just on the issue of raising issues below to exhaust your administrative remedies, I agree that you don't need to specifically raise the issue. But if it's important to you to have the record clearly state that you agree with someone else's issue, you're free to indicate that you join in someone's comment without repeating the comment, as you probably know. But --

And then on the separation of functions issue, this is a permit proceeding, it's not a prosecutorial proceeding. The APA does require separation of functions of the investigative, prosecutorial and advocacy functions. I think it should be pretty clear in this case that the staff is here to advise you. They're not advocating a particular point of view. Likewise, counsel are not advocating a particular point of view and there's not been any investigation or prosecution of this permit proceeding, so we have not separated functions, but --

Similarly, I don't intend to do any cross-examination of parties or make objections. I think

you've already stated that you'll be paying attention to how the questioning occurs. So I don't perceive any problem. Although, it's fine to have their objection on the record, as you've noted.

MR. ANDERSON: Catherine, can I ask you clarify two last thing?

Could you address the significant changes, if you care to. And then I would also ask that you clarify a little bit upfront, if you can about the TMDL inclusion in the MS4. Some of the most significant objections have been in complying with the TMDL, including the storm water permit. And my understanding is we're hearing the storm water permit.

My question is how the storm water permit deliberations that we're going to undertake can change the existing TMDLs. Would we have to reopen the TMDLs and go back and do -- the bacteria team do it all over again if we didn't like some of the procedures -- some of the things included in the TMDL?

MS. HAGAN: Well, first, on the issue of significant changes -- I'm not speaking to any particular changes, but we have evaluated the changes that staff made to the permit. And, in my opinion, they do result from the responses -- or the comments that were made on the permit.

And so for that reason, I don't believe they

are -- individual comments are significant enough to warrant the need for -- a legal need for an additional notice and comment period.

MR. ANDERSON: And, as a farmer and board member who read these, I would definitely agree with you.

MS. HAGAN: Okay.

And then on the issue of the TMDL -- it might actually be better if you hear from staff on some of the TMDLs, but it is the case, the permit cannot change what's in the basin plan. You can't change the basin plan by adopting a permit provision saying we want to do something different.

In fact, your permits need to be consistent with the basin plan, because it has the force of regulation. So if there is something in the basin plan the Board does not like -- and this is a general statement, but if there is something in the basin plan the board does not like, the proper remedy is to see if there's a need to modify the basin plan itself.

CHAIRMAN MORALES: Okay. Now what I'm going to do is very quickly go over the general order of presentation, just so that you guys can get a head's up, more or less, when you're going to be up to bat. And then after I do that, we will take a very short recess to give you guys the opportunity to confer between yourselves, and if you still

need to as groups of speakers, and give our staff a chance to get ready for their presentation. It will be no longer than five minutes.

But the order of presentation --

MS. HAGAN: Chair, it might be useful at this point to go ahead with the disclosures, could we do that, with the Board members?

CHAIRMAN MORALES: Sure. Sure, we'll jump to that.

At this time, I want to ask if there are any board members with disclosures in this matter. And we have heard one so far from Miss Kalemkiarian.

MR. ABARBANEL: As the public knows, board members and the executive officer has visited many of your constituencies over the last few months. And during the time that I have participated, we have been quite rigorous not to have any ex parte discussions of this MS4 permit, or anything else before the Board, to my knowledge.

MR. ANDERSON: I was also in a couple of those meetings. And especially with the County, we had County counsel there and -- really supervising us, making sure we avoided that. So I agree with Henry.

VICE CHAIRMAN STRAWN: And I third that. We didn't excuse ourselves from the discussions that might have been directly related to this issue.

MS. HAGAN: I have just one follow-up for Miss Kalemkiarian then.

As a result of your EHC board directorship, you have not had any involvement in this proceeding or any letters submitted by EHC. So would you agree that you can approach this with an open mind and make a decision solely based on the record before you?

MS. KALEMKIARIAN: Absolutely.

MS. HAGAN: Thank you.

CHAIRMAN MORALES: Okay. So very quickly, I know some of you have looked at the order of proceedings that, you know, we posted or that you received. But it states that staff will begin with a presentation of 1.5 hours. For planning purposes, you can expect that their presentation will run from 20 to approximately 25 minutes.

So after that, U.S. EPA is scheduled for a 30-minute presentation. So the presentation by the co-permittees for the San Diego region, which is to run four hours will begin approximately one hour after the presentations start. So let's plan on that, folks.

Okay. Clean Water Now, while not a party, will have six minutes. And a group of four environmental groups consisting of Natural Resources defense counsel, San Diego Coastkeeper, Orange County Coastkeeper and Inland Empire Waterkeeper will have an hour.

Coalition of Building Industry Trade and Professional Associations will have an hour and a half. This group consists of the following entities; the BIA of San Diego, BIA of Southern California, Associated General C San Diego, San Diego Regional Chamber of Commerce, Building Owners & Managers Association, San Diego County Apartment Association, San Diego County -- or San Diego County -- strike that. San Diego Association of Realtors, Alliance for Habitat Conservation, San Diego Chapter of the American Association of Landscape Architects, Associated Builders & Contractors, Business Leadership Alliance, and the National Association of Industrial & Office Properties.

So after each group completes its initial presentation, I'll allow cross-examination of that party's witnesses by other parties, if requested. If any party wishes to reserve time for closing arguments, they should indicate their request at the beginning of their presentations.

Now, entities or organization that are closely affiliated with either of the environmental groups or the building industry coalition, but who are not parties to the proceeding, will speak as interested persons beginning at 4:00 p.m.

Now, we'll proceed with the order of presentations, subject to breaking, taking care of

interested persons at 4:00 p.m. and elected officials at 9:15 a.m. So we will also break at some point today for lunch, but we will try and work that into a part of the proceedings where it's not too disruptive.

MR. ANDERSON: I do have slight disclosure, I think. If the Alliance is the Alliance I think it is, I did serve as a representative for Farm Bureau on the Alliance for a short period of time many years ago regarding multi-species conservation planning. I'm not a member now and have not discussed this issue. In fact, I'm surprised they're still around, so --

MS. HAGAN: Thank you.

CHAIRMAN MORALES: Given that disclosure, no reason you feel bias one way or the other and will rule solely on the record?

MR. ANDERSON: (No audible response.)

CHAIRMAN MORALES: He nodded correct.

Some reminders before we get started. Remember that the Board and board counsel can ask questions at any time. And time for our questions won't count against you. And we are keeping track of timekeeping and have -- we're two deep in the timekeeping department. So we want to be accurate and we'll try and keep time on your behalf.

The Board staff will make a presentation to begin the hearing. And they're also going to have an opportunity

to respond to oral comments and make closing comments at the end of the hearing, in part because the Board is obligated to respond to all significant comments on the tentative order.

Staff is not a party, as I mentioned, to these formal -- to these proceedings in a formal sense, but I will be allowing some cross-examination.

Let's see. If you are using an electronic presentation, PowerPoint, for example, I would like to remind you that you cannot include any new evidence in the -- in the presentation. If you have not already done, so please make sure that you provide us with an electronic copy of the presentation. And make a reasonable number of copies available at the back of the room.

Okay. And we'll take a short break and then before we begin, I will administer the oath.

(Brief recess taken.)

CHAIRMAN MORALES: We're going to reconvene the meeting and we're about to begin our presentations. But before we do, I'd like to administer the oath so that each person who testifies at this hearing will need to take the same oath that you would if you were in a court of law.

Each person who testifies shall begin by stating their name and affiliation and that you, in fact, have taken the oath. All persons who will be testifying at this

hearing now please stand and raise your right hand.

Repeat after me -- or actually just say "I do" after I'm done. I'm not going to marry any of you.

Do you swear that the testimony you will provide is true and correct.

"I do."

CHAIRMAN MORALES: We'll begin the presentations with staff.

MR. CHIU: Good morning, Chairman Morales and members of the Board. My name is Wayne Chiu and I'm a Water Resource Control engineer in the Southern Watershed Unit. I'm with the Regional Water Quality Control Board and I've taken the oath.

I'm the staff liaison on the permit team. And the other members of the team are to my left, Christina Arias and Laurie Walsh, both Water Resource Control engineers with the Southern Watershed Unit. And our supervisor, Eric Becker, supervisor the Southern Watershed Unit. And David Barker.

Today we bring before you for your deliberation and consideration for adoption, Tentative Order No. R9-2013-0001. When this Tentative Order is adopted, it will become the NPS permit and waste discharge requirement for discharges from the municipal separate storm sewer systems MS4, draining the watersheds within the San Diego

region, which we refer to as the Regional MS4 Permit. This permit will eventually cover all 39 Phase 1 MS4 co-permittees in the three counties within the San Diego region.

At this time, we would like to enter the project files into the record. Now, before I go over the changes that we have made to the Tentative Order and response to the comments received, I'd like to start off with why we have this MS4 permit and why we need it.

You could say that the reason why we have this permit and why we're bringing it to you is, because it's our job and it's time to renew it, because the old permit expired. And the reason why we have to renew is because the Clean Water Act and federal regulations mandate that we renew it every five years.

If we really think about why we have this permit, we have to think about why we have the Clean Water Act. The reason why we got the Clean Water Act, along with all the environmental legislation of the 1970s was because we, as a society, started noticing that we -- what we were doing in terms of development and economic activity, without considering its potential effects on the environment, was resulting in the degradation of many resources that we take for granted, such as clean air, clean soil and, of course, clean water and the environment

that -- the beauty of the environment around the creeks, streams, lakes, bays and, of course, the ocean that we live around.

For decades we've been changing our environment and, as result, most, if not all, of the water bodies located within our downstream of developed and developing areas are listed as impaired for one or more pollutants and are being noticeably degraded. More and more streams and creeks are starting to look more and more like this.

Is this what we want to leave behind? Is this what we want to leave to future generations? Can we keep on doing this? And is it sustainable? When I see pictures like this, I know that I don't want this for me or my family. We think most people would say that this is not what they want to see. And most people would say we can do get better than this. We want to believe that we can do better than this.

I went into the environmental field because I wanted to make the future better. I would venture to guess that if you ask anyone in this room, they would say that they don't want to leave this world in the same or worse shape than it is in today. Most people would also say that they want a better future for themselves and their children.

But to do that, we have to start thinking about

what can do today to have that better tomorrow. We think that the Clean Water Act, just like all environmental laws, was created to make us work towards a better future. And we believe that there is a way to bring balance between development, economic activity, and the environment that will let us build that sustainable future.

So how can we do that with this permit? We can only do so much with this permit to build that sustainable future. This is not a permit for the discharge to air or soil. We don't directly regulate solid waste or hazardous waste. We are the Regional Water Quality Control Board and this is a permit for the discharge of waste and pollutants in storm water, discharged from the MS4s to our receiving waters, like our creeks, streams, lakes, estuaries, lagoons, bays and, of course, the ocean.

This permit is how we protect our receiving waters from discharges from the MS4s. And the Clean Water Act tells us how to do it. For MS4 permits, the Clean Water Act has two fundamental requirements and one overall objective that we have to include in this permit. MS4 permits must require the co-permittees to effect -- to have -- or to effectively prohibit non-storm water discharges into their MS4s.

And the MS4 permits must require the co-permittees to have control to reduce the discharge in storm water to

the maximum extent practicable. And finally, the objective of the Clean Water Act is to restore and maintain the physical, chemical and biological integrity of our receiving waters; our creeks, our streams, our lakes, estuaries, lagoons, bays and the ocean. By focusing on addressing non-storm water, storm water and receiving waters, we can have an effective permit that will improve and protect water quality.

So we've been regulating discharges from the MS4s now for over 20 years. Seems like we should have been able to protect our receiving waters better or started to see some significant improvements by now. But it just does not seem like that's been happening or that the MS4 permits aren't getting us to where we want to be. So if we want to have an effective permit that can help us build that sustainable future, what do we need to do with this MS4 permit?

First, we took a look at the current MS4 permits to see why they haven't been working. Generally, with the MS4 permits, we were trying to develop permit requirements that would have the co-permittees begin by developing a plan, implementing programs, monitoring and performing assessments that can prove their plan over time and become better as they learn from their successes and failures. We commonly refer to this as an iterative or adaptive

management process, which is typically represented with a circle.

However, when we looked at the current MS4 permit, and for that matter, the previous MS4 permits, we noticed that they were all focused on implementing actions. The current MS4 permits are centered around what the co-permittees are required to implement in terms of programs and BMPs.

The plans are based on the permit requirements. The monitoring is another set of actions that have to be implemented. And the assessments are not specific enough to really improve the plans or tell us that the programs and BMPs being implemented are really work or not.

Everything in the process seems to have a separate report. We get 59 reports each year, all reporting actions implemented, but not much, if anything, appears to be reported about actual improvements in water quality, the success of any actions to improve water quality. A lot of time and resources are being spent by the co-permittees on preparing reports, and water board staff on reviewing reports. And we'd rather see those resources being spent on improving water quality.

So with this permit, it's time for a new paradigm. We want to move from focusing on actions for the sake of implementing actions to focusing on achieving outcomes

through the implementation of those actions. So instead of having the co-permittees only tell us how many miles of streets they have swept or the number of facilities they have inspected, we want them to start telling us about what improvements in water quality they have achieved and what programs and BMPs help them achieve those improvements.

We want to have a permit that truly allows for an iterative and adaptive management process that begins with a plan with goals for achieving improvements in water quality, strategies to achieve those goals, and schedules for achieving those goals, implementation of those strategies with a focus on achieving the goals that can improve water quality, monitoring to collect data on progress for achieving improving water quality and assessments of the data to inform the co-permittees of the progress and how to improve their plans, programs and BMPs to better achieve improvements in water quality.

As you have probably scene in Supporting Document No. 3 in your agenda package, for over two years we've had this permit team of four staff working almost full time developing this permit and new paradigm. We have spent over a year, in 21 meetings, with different co-permittees, the environmental community and U.S. EPA to listen to criticisms about the current MS4 permits and get recommendations on how the MS4s -- how to improve how the

MS4 permits work.

We released the administrative draft of the Tentative Order to the public on April 9th, about a year ago from today. We provided the public a five-month period to provide us written comments. During that five-month period, we had two public workshops on the administrative draft. We had four professionally-facilitated focus meetings where we had the co-permittees and major stakeholders sitting around the table talking about the outcome-oriented approach and the concepts and how those should be included in the MS4 permit.

Between those public workshops and focused meetings, we had an additional 20 meetings with the co-permittees, environmental groups, the building industry to discuss requirements -- specific requirements in the administrative draft. In response to what we heard and learned in the workshops, the focus meetings, and the meetings, and from the written comments received, we revised the administrative draft and released the Tentative Order on October 31st, 2012.

The public was provided over two months -- 71 days to be exact -- to provide written comments on the Tentative Order. During those 71 days, we had two public workshops in front of the Board in November and December of last year where the public could speak directly to the Board about

their concerns.

During that time, we also had 11 more meetings with the co-permittees' representatives of industry and the California Storm Water Quality Association. After the close of the written comments -- written comment period on January 11th, we prepared our written responses to comments, which is Supporting Document No. 6 in your agenda package and a revised version of the Tentative Order, which is Supporting Document No. 7 in your agenda package, with all the changes we made in response to the written comments received, which we released on March 27th, 2013.

Just in the last three weeks, we had an additional six meetings where we met with the co-permittees, the building industry, representatives of industry, environmental organizations and U.S. EPA. And here we are today before you for a public hearing to consider adoption of the revised Tentative Order.

So for over two years, we have had four staff working thousands of hours. We've spent hundreds of hours in over 50 meetings. We have organized and attended four professionally facilitated focused meetings, each meeting a full day with all the stakeholders sitting in a room discussing the outcome-oriented approach for the MS4 permit.

We have had four public workshops, two of which

were in front of you, where the stakeholders could speak directly to you about their concerns. And we have had two lengthy public comment periods. So as you can see, we have had a very robust and inclusive participation -- public participation process.

We have listened. We have made a lot of changes that have resulted in an improved Tentative Order. And I'm glad to say that we have general agreement from the co-permittees and all the stakeholders that they would like to move from an action-oriented permit to an outcome-oriented permit and that they are in favor of a water quality improvement plan to direct the outcome-oriented approach, which is the central focus of the permit requirements.

I wish I could also tell you that we have total agreement on everything in the permit, that this should be a consent item but, of course, that's not the case. As much as we try to bridge all the gaps of disagreement and understanding, there are still a few remaining areas of concern in the permit requirements, all of which you heard about during those board workshops in November and December.

These are also the areas of concern that received the most written comments that were submitted by the end of the close of the -- by the close of the comment period on

January 11. The remaining areas of the concern are the development planning structural BMP requirements, the total maximum daily loads or TMDL requirements and compliance with the water quality standards based discharge prohibitions and receiving water limitations.

The bad news is that we will probably never get to full agreement with the co-permittees and the stakeholders on how these three areas of concern should be addressed. Now what we have are really policy decisions, where the Board needs to make a decision on the move forward. This was especially evident after we had those six additional meetings with the co-permittees and stakeholders in the last three weeks.

The good news is that we believe we have added a few provisions to the Tentative Order that do address these three concerns and should get us a little closer to bridging those gaps. Fundamentally, we have not changed anything in the Tentative Order, only added some additional clarifications, options and flexibility that will allow the co-permittees to implement an iterative and adaptive management process that will result in improvement in water quality better and faster.

Let me go through the general comments for these three areas of concern and what we added to the Tentative Order in response to those comments. For the development

planning structural BMP requirements, we received a lot of comments expressing concerns about there being almost no exemptions from the hydromodification management requirements especially for projects in locations where there is no potential for erosion and down steam receiving waters, such as projects discharging to hardened channels.

We received a lot of comments objecting to requiring the same numeric structural BMP performance standards on all prior priority development projects. And this was commonly referred to as a one-size-fits-all approach to the develop planning requirements.

We have did been told that in some cases, it is not feasible to incorporate such structural BMPs due to technical factors, such as soil types or limited infiltration capabilities. We have also heard that in some cases there would be limited water quality benefit relative to the cost associated with implementing the structural BMPs on site.

And finally, we have received a lot of comments about requiring redevelopment projects to design to a pre-development runoff condition versus a pre-project runoff condition. We heard that the pre-development runoff condition was an impossible standard to meet because there was no way to know with any certainty what that condition really is or just how far back in time the Board expects a

project to attempt to replicate.

After carefully considering the comments, we decided that we could add a few provisions to the Tentative Order that would provide a little more flexibility to the co-permittees. To address the concerns about hydromodification exemptions, we added an exemption for projects that discharge to channels whose bed and banks are concrete-lined from the point of discharge all the way to the Pacific Ocean.

To address the one-size-fits-all concern, we added an optional watershed management area analysis. If the co-permittees implement this optional analysis, the co-permittees will be allowed to identify additional watershed-specific hydromodification exemptions and allow development projects to comply with the structural BMP performance standards offsite where there would be greater water quality benefits to the watershed, such as retrofitting areas of existing development, rehabilitating degraded stream segments or implementing regional structural BMPs.

To address the concern about restoring the project to some, quote unquote, historical pre-development runoff condition versus a pre-project runoff condition, we added a clarification to the definition for pre-development runoff condition to explain that the standard has nothing to do

with replicating some sort of historical condition. It's not about returning a site back to some pre-Columbian condition. It's about using the underlying native soil and its characteristic as a baseline for designing structural the BMPs.

The goal is to achieve runoff conditions that are more natural, less erosive and, in short, better than concrete. It's not a historical condition to restore, but a design standard to improve runoff from a project site.

For the total maximum daily loads, we received a lot of comments from the co-permittees which expressed concerns about the basis of the TMDLs, such as a scientific basis of the TMDLs or the appropriateness of the water quality standards in the basin plan that are the basis of the TMDLs, the achievability of the TMDLs and, of course, the cost for implementing the TMDLs.

Many comments basically said that the TMDLs should not be included in the Tentative Order until all those concerns could be resolved. However, if the TMDLs are not removed from the Tentative Order, the co-permittees also requested some modifications of the TMDLs to make them more consistent with the TMDLs as they are in the basin plan.

The TMDL requirements in the Tentative Order are completely consistent with the assumptions and requirements of the TMDLs as they are in the basin plan. However, there

are a few elements in the TMDLs, as there are in the basin plan that the co-permittees wanted to see also included in the Tentative Order.

So for the beaches and creeks bacteria TMDLs, co-permittees wanted us to add a provision that allows them to propose interim TMDL compliance dates. The co-permittees also asked for a couple additional elements that would provide them more options to determine -- to demonstrate compliance with the TMDL requirements.

They wanted to see the load base compliance determination options for the bacteria TMDLs. They also wanted to see an option that would allow them to utilize the water quality improvement plan to determine compliance -- to demonstrate compliance.

So, fundamentally, we cannot take the TMDLs out of the Tentative Order. The TMDL is required by law and mandated to be included in this permit. Many of the concerns expressed about the basis of the TMDLs were already considered when the TMDL basin plan amendments were adopted by this board and approved by state -- the state board and U.S. EPA.

Water quality objectives in the basin plan are based on sound science and are there for the protection of water quality. The TMDLs went through a scientific peer review process. The TMDL basin plan amendments were in

compliance with CEQA requirements and also considered the cost for implementation and compliance.

So the concerns expressed are with the TMDLs as they are in the basin plan. The basin plan would have to be changed to a separate process before changes could be made to the TMDL requirements in the Tentative Order. In the event that any of the TMDLs are amended in the basin plan, we added a reopener provision that states we will modify the TMDL requirements in the Tentative Order when the TMDLs are amended in the basin plan.

As further request to allow the co-permittees for code interim compliance for the beaches and creeks bacteria TMDLs, we added a provision to allow for adjustable interim compliance data. As per the request for additional compliance determination options, we added a load base compliance determination option for the bacteria TMDLs and added a way for the co-permittees to demonstrate compliance through the implementation of the water quality improvement plans. So while we did not remove the TMDLs from the Tentative Order, we did add all the requested elements to the Tentative Order.

Finally, we received a lot of comments from the co-permittees expressing concerns with the lack of a pathway to compliance with the water quality standard based discharge prohibition and receiving water limitations in

Provision A of the Tentative Order. The co-permittees are concerned that without a pathway to compliance, there will be no way for them to be fully in compliance with the requirements of Provision A and they will be exposed to potential enforcement actions by the Board and potential third party or citizen lawsuits.

On the other hand, we received comments from the environmental community that opposed any revisions to Provision A or including anything that might resemble a safe harbor for the co-permittees if they are violating the discharge prohibitions and receiving water limitations of Provision A.

So we thought about this one for a while. And to address this concern, we added a compliance option that each co-permittee may choose to implement, as part of the water quality improvement plan, that sets a high bar for them to demonstrate that they will attain water quality standards in the receiving waters, or demonstrate that they are not causing or contributing to exceedences of water quality standards in receiving waters within a reasonable time schedule.

The way we approached this addition was by thinking about what would be required if a co-permittee were issued an enforcement action, such as a cleanup and abatement order, or if a TMDL was developed and required to

be implemented, or if a co-permittee were to develop a restoration plan.

The requirements in the compliance option are what we would expect of a co-permittee to bring them into full compliance of Provision A. We did not revise anything in Provision A. Those requirements do remain. However, we believe that this compliance option to provide a useful tool for the co-permittees to move toward protecting receiving waters from MS4 discharges and improving water quality in receiving waters faster. It also provides the public a more transparent process for holding the co-permittees accountable.

So as you can see, we have added several additional elements to the Tentative Order to provide the co-permittees some additional flexibility and options for implementing the requirements of the Tentative Order and to demonstrate compliance. We believe that by adding these additional elements, we have done as much as can to address these remaining concerns.

We believe that these additional elements can allow the co-permittees to implement a better and truly iterative and adaptive management process. And by allowing the co-permittees to implement a better iterative and adaptive management process, we believe that the adoption of the Tentative Order will better protect our more

pristine water bodies from degradation, restore some of our water bodies to something more natural, rehabilitate some of our water bodies so they can support all of their beneficial uses, and will get us to that sustainable future, at least in terms of balancing development and economic activity with cleaner and healthier waters.

So we're ready for the Board to adopt the revised version of the Tentative Order. However, you'll be hearing from the co-permittees and other stakeholders and there will likely be some additional proposed changes to the Tentative Order the team may recommend.

So at this time, we recommend the Board receive oral testimony and comments from the public, and the team will provide recommendations at the conclusion of those public comments. So the team's available for any questions you might have at this time.

Thank you.

VICE CHAIR STRAWN: You mentioned that under the old permit, there were 59 separate reports required from the co-permittees. Under the revised one, do we have a measure or some comparison of how many reports or how many hours of reporting are required under this new approach?

MR. CHIU: Well, what we have done is, those 59 reports we have consolidated down to 10 reports on an annual basis, focused primarily on monitoring and

assessments versus primarily focusing on reporting actions or numbers of actions being implemented. So those numbers are still being provided, but they're provided in a very short summary form versus, you know, the monitoring and assessments are going to be front and center in the reports.

VICE CHAIR STRAWN: And as follow-up, I'll make the same comment I did at one of the other hearings, as the co-permittees make their presentations, if you have a suggestion of how the reporting could be streamlined, I'd like to hear it.

MR. ANDERSON: I had a brief question about the TMDLs. Now that you did incorporate all the TMDL language in the permit, specifically there were a lot of interim dates that have actually passed. In general, on the TMDLs, have all those interim goals been complied with or do we know?

MR. CHIU: There are a couple of TMDLs where I know the final compliance dates have passed. Honestly, I don't think we have the data to tell us if compliance has been fully achieved and is being achieved continually.

Hopefully, we will be getting that kind of data to inform us whether or not those TMDLs are, in fact, being fully complied with.

MR. ANDERSON: Thank you.

CHAIRMAN MORALES: Okay.

MR. CHIU: Thank you.

MS. KALEMKIARIAN: Actually, I'm sorry.

Mr. Chiu, if this becomes something that will be answered later, just let me know. Great presentation, first, and I understood the first three points very well.

When you got to the amendments or changes that the staff recommended to deal with the compliance issues, I did not quite understand, because it seemed a little vague to me. So I understand there is not a safe harbor and the material talks about the 9th circuit opinions, et cetera.

So what is it that if a locality under the changes you've made says we weren't able to meet the goals, what do they have to show you under the revised order, just that they have tried, or that they have made some progress, or --

MR. CHIU: Well, under the -- under the optional or the compliance options, the way it's been laid out is it -- they provide us a schedule that they will try to achieve full compliance within.

However, that schedule can be adjusted, provided the data and the information that they gather during that schedule tells them that, you know, an adjustment may be necessary, perhaps a numeric goal for one of the pollutants may need to be adjusted if there's no science, for example.

Or if, you know, some of the strategies that they proposed aren't actually making the progress that they had expected, maybe they need to change the strategies that they have proposed or maybe they need to change the -- the end date of their schedule to accommodate that change. All those things can be adjusted.

The main thing is that they actually have someplace in there that says we will attain the water quality standards or demonstrate that we are not causing or contributing to the exceedence of those water quality standards through this analysis and through the implementation of that compliance option.

But, you know, it doesn't necessarily mean that there is a date certain that is never going to be adjusted or cannot be adjusted. It can be adjusted. It is part of the adaptive management process but, you know, recognizing we have to have something that we're striving toward, rather than some ambiguous goal somewhere in the distant future that nobody can put their finger on.

Does that make sense?

MS. KALEMKIARIAN: Yes.

MR. ANDERSON: Achieving that is to the maximum extent practicable standard?

MR. CHIU: Yes.

Anymore questions?

Thank you.

CHAIRMAN MORALES: Okay. Now we'll hear from U.S. EPA.

MS. HAGAN: Do you want to see if there are any questions from other parties?

CHAIRMAN MORALES: Is that how we're going to do it, after each presentation?

MS. HAGAN: I think that makes most sense to do it that way, but you can modify it -- you can do it however you want. Like when you get to the co-permittees, for example, and they go for four hours, and then the environmental groups go, might make sense to have the cross-examination more closely in time.

It's up to you.

CHAIRMAN MORALES: I would think so. And that will make our timekeeping efforts a little easier as well. So we'll go ahead and go with U.S. EPA.

And so you all understand the procedure, folks, when you make your presentations --

You know what, we can't do that because it -- co-permittees, for example, will be the first ones out of the gate. And they may have questions of people that come after them at cross-examination.

So I'm sorry, sir, we'll revert to the way we had it set up. So if there are any questions that any folks

out there would like to ask of staff, now is the time.

MS. HAGAN: Just parties, right?

CHAIRMAN MORALES: That's correct.

And so we all are clear, the only folks that can ask cross-examination-type questions or questions in general of -- at this proceeding are designated parties. So you know who you are, and if you don't know, you're not going to be asking questions. Okay.

MR. BOON: Okay. I'm Richard Boon. I'm the program manager for the Orange County storm water program. I've taken the oath. I don't know if I have to say that at this point, but --

I have one question on I think one of the pivotal issues today, and that is for Wayne and his colleagues. This new performance standard for land development that appears to have, I think for a lot of us come completely out of left field -- so the question is, in the revised draft released on March 27th, the new BMP treatment criteria now requires retention of a hundred percent of the pollutants in the 24-hour 85th percentile storm event instead of the volume retention that is currently in our fourth term permit, Riverside's fourth term permits, and I think most of the fourth term permits in Southern California.

So the specific question is, did any of the

written or oral comments that were received address this specific requirement? And second, whose comment or which comment were you responding to when you changed the requirement? And that's my question.

CHAIRMAN MORALES: Okay.

MR. CHIU: So I guess this was a question that was in the opening remarks from the attorneys as well.

The hundred percent pollutant removal standard is basically a clarification. Whereas before in the Tentative Order, it basically said that the standard was retention of the entire storm design volume -- design storm volume on site to remove the pollutants within that storm volume, in the new Tentative Order -- or the revised Tentative Order, we have clarified that that standard is actually talking about the retention of 100 percent of the pollutants associated with that design capture volume on site.

And the response was in response to one of the comments about allowing for biofiltration to occur in conjunction with retention requirements. If they weren't able to fully retain everything on site, they should be allowed to do biofiltration to remove pollutants before it gets off the site.

So we used that 100 percent pollutant removal as the new design standard so that they can use retention in

conjunction with other flow-through devices in order to capture the pollutants associated with that 100 percent capture volume. That make sense?

So like, you know, we're talking about -- this is called the storm water pollutant control BMP requirements, it's not the storm water retention BMP requirements. So we're talking about the control of pollutants versus the retention of storm water for the sake of retaining storm water.

MR. ANDERSON: So the old standard in the current permits just is a water retention standard, not a pollutant removal standard, right?

MR. CHIU: Well, no, it is a pollutant removal standard, but it is based on the retention of a certain design capture volume. So it's whatever pollutants are associated with that design capture volume that we're trying to make sure don't leave a site.

VICE CHAIR STRAWN: So if I understand you correctly, basically you view this as a -- a loosening or an allowance of some additional options for the co-permittees. Where the old requirement was to capture all the water and then remove the pollutants, now we say you can either capture the water and remove the pollutants or you can use biofiltration to remove the pollutants basically in real-time and allow that water to be released;

is that it?

MR. CHIU: Right, that is exactly correct.

VICE CHAIR STRAWN: So we're not adding any requirements to the co-permittees?

MR. CHIU: No. Like I said, it is simply a clarification of what we are trying to achieve with this design standard. It is the removal of pollutants, not the retention of storm water.

CHAIRMAN MORALES: Okay. Thank you.

MS. SKORPANICH: Good morning. I'm Mary Anne Skorpanich from the County of Orange.

My question is a follow-up to yours, Mr. Anderson, your last question, about whether compliance is evaluated as compared with the MEP standard. And your staff answered in the affirmative.

My question to your staff is, where in the permit is that stated?

Thank you.

MR. CHIU: MEP standard is stated in Provision A, where you have to remove pollutants from storm water to the maximum extent practicable. But the compliance option says that you have to provide us a schedule for which yo will achieve compliance with the discharge prohibitions and receiving water limitations based on water quality standards through the MEP.

MEP is meant to evolve over time. It is meant to become better over time, it is not meant to be static. So if you think that it is going to take more than one permit term or even several permit terms, the expectation is you will tell us when you expect to achieve the water quality standards in the receiving waters or demonstrate that your MEP is removing pollutants to the maximum extent practicable and complying with Provision A requirements to achieve the water quality standards in -- either in your discharge or in your receiving waters.

MS. SLOAN: Good morning. Christine Sloan with the County of San Diego, representing the San Diego co-permittees in the land development core group.

I have a question for staff, if they are aware of any BMPs that are capable of removing a hundred percent of pollutants from storm water?

MR. CHIU: Yes. It is called retention of 100 percent of a design capture volume on site, that is 100 percent of the pollutants. Or using that in combination with some sort of biofiltration or other pollutant removal flow-through device that can remove a certain percentage.

Maybe that flow-through device may have to be sized a little bit bigger in order to get the equivalent pollutant removal of what has not been retained on site, but the combination of those two can achieve 100 percent

pollutant removal of the design capture volume.

CHAIRMAN MORALES: Okay. Any more?

Very good -- oh, one more.

MR. UHLEY: Good morning. My name is Jason Uhley, watershed protection, Riverside County Flood Control.

I'd ask one more follow-on question, which is, do you believe there are any BMPs that can remove a hundred percent of the pollutants if retention is not feasible on site?

MR. CHIU: I believe, yes. However, we have also included an alternative compliance option in there so that it does not have to necessarily be done fully on site.

If the co-permittees choose to implement the watershed management area analysis option, and they identify alternative compliance options off site, those alternative compliance options can also be used to meet the on site performance standard, but it would be done off site.

Furthermore, I -- I believe that there is nothing that is technically infeasible to retain everything on site. It is just a matter of is it cost effective to retain it on site. Technically, we can retain any volume on site.

MR. ANDERSON: The alternative compliance options were arrived at through input from the BIA and the

co-permittees?

MR. CHIU: The alternative compliance options will be developed during the water quality improvement plan development process. Again, this is an optional watershed management area analysis. And this has to be done in order to have those alternative compliance options.

The environmental community and the building industry will be a part of that development process. The expectation is that the building industry, through their knowledge of watersheds and engineering, would allow the co-permittees to identify some of these options, as well as the environmental community may be able to identify some areas within a watershed that are deserving of some restoration or rehabilitation efforts.

MS. KALEMKIARIAN: It may be because I'm the newest member here, but I want to second something that Mr. Strawn said. When you give your testimony, rather than repeating what the letters say, "Oh, this isn't scientifically feasible," "we object to the TMDLs" -- we know that.

But when Mr. Chiu was just saying there's best practices. If you're from the business industry, I want to hear, "No, there's not, we don't know how to do this yet." Or if you're from the environmental groups, I want to hear, "Yes, we do know how to do that, here's an example."

That's going to help me in terms of testimony.

So I'm just putting that out there. If you've got that, I would appreciate it.

CHAIRMAN MORALES: Think you got a taker.

MR. GRIGG: Just coming from the construction industry --

MS. KALEMKIARIAN: For the record, I wasn't saying right now, although I appreciate it.

MR. GRIGG: My name is Barry Grigg. I come out of the mechanical industry. My son's an industrial salesman for Ferguson. In the last nine months, we have not found one vendor that can do what you're asking to do on site, because you can't maintain a hundred percent of the flow.

I would ask the vendors to be presented to us where the studies have been done. I personally have talked to a dozen. Manufacturers don't have the ability to understand what a 100,000 or a 200,000 commercial complex is going to require and at what percentage of maintenance are they going to be required to implement it over what period of time. I don't believe a study's been done.

So asking if it can be done? It probably can be done. I believe there is an advertisement on TV. We can hire Emerson who will actually do the study and provide the figures that will show how much not only will it cost, but how it can be implemented, over what period of time, which

apparently we haven't accomplished yet.

But from the industry standard in the building, sitting outside, trying to go figure out how is it going to impact them, the design side on the civil engineering, it's not done yet. You don't have the infrastructure or the support to even begin implementation. Need to define a few things first.

Thank you.

MS. HAGAN: Chair, can you clarify with the speaker if he's part of the coalition that's a party or he's an interested person?

CHAIRMAN MORALES: Yes.

Sir? Mr. Grigg?

MR. GRIGG: Yeah.

CHAIRMAN MORALES: Are you with the building industry coalition, or are you here as --

MR. GRIGG: I'm here on behalf of 492 people that have put in over 17,000 hours worth of investigation on the permit and the studies.

CHAIRMAN MORALES: And who are those people?

MR. GRIGG: They apparently call themselves the Alliance of Political and Economic Conservatives in San Diego. A silly little name.

But they have actually put in the time. And there were five other people -- and I hope to, I'm not quite

sure, be able to say something at the end of tomorrow. It's pretty much pointblank.

But as far as the facts, if you would like, when this is all done, let's have another open hearing and I'll invite about 14 major manufacturers that will repeat just what I've said, people that are interested in the watershed.

CHAIRMAN MORALES: Okay.

Thank you.

MR. GRIGG: You're welcome.

CHAIRMAN MORALES: And with respect to the procedures for this hearing, if there are going to be comments that interested persons have, you know, please save them until you have the opportunity to speak.

Now, if any of the -- the parties want to make that part of their questioning and you can incorporate, you know, specifics, please feel free.

So, thank you.

VICE CHAIR STRAWN: Would it help if we ask that gentleman to fill out a speaker card so we have that?

MR. GRIGG: I got it. I was just waiting for a break.

But, thank you, sir.

CHAIRMAN MORALES: Very good.

U.S. EPA -- oh, one more question?

MR. GRAY: Good morning. Mark Gray with the Building Industry Association of Southern California. And I represent -- I'm with the Building Industry Coalition.

I have a number of questions that I might ask.

Is that fair, Wayne?

MR. CHIU: (Indicating).

MR. GRAY: Wayne, has an MEP analysis been done for retaining a hundred percent of the pollutants in the 85th fifth percentile storm, or does staff's opinion rest in the earlier analysis that vetted the 85th percentile as a storm water treatment?

CHAIRMAN MORALES: Well, first, before we --

How many questions do you have, sir?

MR. GRAY: I have about five.

CHAIRMAN MORALES: Okay. Why don't we take the questions first and then --

MR. GRAY: These are -- okay.

Well, respectfully, some -- these are somewhat complex. Should I repeat some of them, Wayne, or -- Wayne a works really -- it's hard to respond to questions. I've been in his shoes and I --

Would you like me to ask all five?

CHAIRMAN MORALES: Yes. And then we will be sure to restate them or re-ask them prior to his responding.

MR. GRAY: Sure.

Does the Board staff believe that this performance standard is justified to protect water quality?

Does the staff have reason to believe that the LID performance standard in the South Orange County MS4 permit, which was adopted in 2009 is not adequate to manage pollution? And I'd ask further, what is the basis for this determination, given that the standard is not yet been implemented in that -- in South Orange County that was submitted late in the year in 2011.

And then, I think the last one I'll ask -- I'd really like to go to hydromod, but should we stick to -- should I go on to hydromodification as well? Okay.

Why is only the concrete lining provided as a categorical exemption in the hydromodification control requirements? And why aren't equivalent linings not also provided to categorical exemption?

I've raised this issue a number of times in workshop process. And HNPs describe a little more robust sweeter set of armoring that exists.

And then the last one on hydromodification, is it your intent to require co-permittees to restore all channels to a natural state at some point in the future?

I -- I've read the fact sheet. You assert that. I'd just maybe like you to follow up on that as well.

So, thanks, Wayne. I appreciate that. I'll be

happy to repeat those, Wayne, if that helps us.

MS. ARIAS: Can you repeat the first one, please?

MR. GRAY: Sure.

Has an MEP analysis been done for retaining a hundred percent of the pollutants in the 85th percentile storm event, or does staff's opinion rest in the earlier analysis that vetted the 85th percentile storm water as a storm water treatment design storm.

And I'd follow up with that, how did staff determine that retention of a hundred percent of the pollutants in the 85th percentile storm event constitute MEP? And as we have asked a number of times, has any economic analysis been done looking at the ability of those BMPs to meet MEP?

Thank you.

CHAIRMAN MORALES: Okay. What I'd ask of staff is, before you answer a question, please, you know, repeat it so that we know what you're understanding the question to be prior to your answer.

Thank you.

MS. ARIAS: Good morning, Chairman Morales, members of the Board. My name is Christina Arias and I'm also part of the permit writing team.

So I'll repeat the question as I understand it and try and give you an explanation. So the first question

was, has an MEP analysis been done for this design standard that is within the Tentative Order, or is it staff's opinion that this is the proper storm water treatment design?

So first of all, I would like to clarify or build upon the discussion that Wayne presented to you earlier, that's about the standard itself. Mr. Boon came up here earlier also saying that this requirement came out of left field. But I would actually respectfully disagree with him.

This is not a new standard different from the standard that is in his current South Orange County permit. It's worded a little bit differently, and we did that so that -- to provide clarity. So in the South Orange County permit, the language says that the requirement is to retain the volume of storm water runoff from a certain size storm. And that will vary, depending on where you are in the region and the site characteristics.

But as Wayne mentioned, this is a -- this is about pollutant control. We're not talking about storm water treatment for the sake of -- we're not talking about retaining storm water for the sake of retaining storm waters. That's a nice ancillary benefit. We have hydromod requirements that address the volume issue.

We are not talking about retaining storm water

inasmuch as we're talking about, however, the quantity of pollutants are in that volume of storm water. And depending on what the project is, that could be a little bit of pollutants or a lot more pollutants. But the important thing is we can estimate what that quantity of pollutants is.

Now, why was the Orange County permit written so that we retain the 85th percentile storm. If you read the fact sheet for those earlier permits, it's because retention is the only treatment design that will remove 100 percent of that amount of pollutants. Anything else, any other treatment device you use will have an efficiency with it.

You know, this type of device has a 50 percent removal efficiency or 20 percent removal efficiency. Retention is the only one that will retain 100 percent of those pollutants. So that's why when I say this is not a different requirement, we worded it so that that's very clear that this is about retaining the pollutants on site, and that retention is the way to do it, the only way to do it a hundred percent.

Now, let's say that due to infeasibility factors, that it's -- we really can't retain that -- the pollutants because it comes in a big volume of water that the soil can't infiltrate. So in that situation, the design

requirement -- the next provision below states that in that situation, that whatever cannot be -- pollutants that cannot be retained on site must be treated. We don't say how it must be treated -- well, we say you must consider bioinfiltration first. But then you can also consider whatever other types of treatment there are to -- to remove the amount of pollutants that you were not able to retain.

So let me use some real numbers. So let's say that the design standard is that you must retain 100 pounds of Pollutant X on a site, but you can only retain 50 pounds of it. Then the requirement is that you must treat the rest of the storm water coming off the site such that you remove the remaining 50 pounds. That's what the requirement says.

It's a clarification from the requirements from both the Riverside and the South Orange County permit. I hope that's helpful to the audience. I'm not really sure.

So the question is, do we feel it's justified? Absolutely. This board adopted this requirement upon adoption of the South Orange County and Riverside permits. This is the MEP standard that this board recognizes. It's already in two permits today.

The question was -- the third question, does staff think that the LID standard from the South Orange County permit is not adequate? No, we do think it's adequate.

That's why we're using it again. It's the same standard.

The fourth question, why is the -- this is -- now we're jumping over to hydromod. Why was the concrete-lined channel the only categorical exemption included in the permit? Okay. Remember, there's a lot of discussion about the fact that the previous Tentative Order did not have any exemptions. We got a lot of comments stating that that did not make sense because when you're discharging to concrete, there's no threat of erosion, so why do we have to do hydromod on site.

So we agreed with that argument. That's why we put that requirement back in. So the question is, what about the other exemptions that are included in the San Diego County hydromod plan? And I'm only talking about San Diego County right now, because their's is the only plan that's recognized by the Board at this time.

That plan does contain numerous other exemptions that the co-permittees and the stakeholders and everyone developed very rigorously. That hydromod plan is specific to looking at hydromodification, where the control should be placed, and where it's appropriate for exemptions.

Now, fast-forward to today. Let's talk about the water quality improvement plan. That one is not only looking at hydromodification management. We're looking at pollutants, strategies, innovative strategies. So if we

exempt a certain channel today, per the hydromod plan, then we're forever conditioning that stream to that state. Maybe through the water quality improvement analysis, maybe, just maybe, we can -- there's a stretch of that stream where the concrete may be able to be taken out, we can rehabilitate that -- that stream segment.

So there was also a follow-up question, is it staff's opinion that the co-permittees should be required to restore all the concrete? Absolutely not. That's not the requirement. We know that there's some segments of concrete that will never, never be removed, mostly for flood control, and we understand that. It's important to protect life and property.

All we're saying is that on a watershed basis, that each of these creeks should be evaluated in light of restoration opportunities, or what works best with the priorities within that watershed and how the co-permittees may or may not be able to work together.

Or they may decide that nope, the San Diego hydromod plan works today and it's -- it works with the water quality improvement plan as the process works itself through. And if all of those exemptions are appropriate in terms of the water quality improvement plan and where we're trying to go, then they can present -- then those exemptions can be revived within that plan.

It's important to understand that those exemptions, the hydromod plan today is still intact, nothing is changing until that water quality improvement plan is developed years from now.

Do you have any more questions for me?

CHAIRMAN MORALES: Any questions by the Board?

No. Thank you.

Unless there are any further -- yes, sir?

MR. GRAY: That wasn't all the questions that I asked. May I read it again, for the record, sir?

CHAIRMAN MORALES: Yes. The question that you believe you asked that was not answered, what was that?

MR GRAY: How did staff determine the retention of a hundred percent of the pollutants in the 85th percentile storm event constitutes MEP? Has staff conducted an economic evaluation of this edit to the permit?

MS. ARIAS: Do you mind if I answer from here?

CHAIRMAN MORALES: Not all.

MS. ARIAS: Okay. The question, how do we determine the MEP standard for 85th percentile? And I'd have to say that this was included in the South Orange County and the Riverside County permit.

So this Tentative Order recognizes the MEP standard that the Board adopted from these earlier permits.

Did we do a cost analysis? No, we did not. We're

not required to do a cost analysis for this proceeding.

MR. UHLEY: May I ask another follow-up question, just a follow-up question for Miss Arias.

In the 2010 Riverside County permit, does it currently require that we reduce an equivalent amount of pollutants for biofiltration and other BMPs from retention are not required, just yes or no.

CHAIRMAN MORALES: Sorry. Let me make sure I understand the question. And if it's not just a simple yes or no answer, I will allow more than just yes or no.

MR. UHLEY: I'm trying to structure it so it's just a simple confirmation or denial.

CHAIRMAN MORALES: I appreciate that.

MR. UHLEY: What I understood Miss Arias to say was that the current 2010 MS4 permit for Riverside and the current 2009 permit for Orange County required that for biofiltration and other BMPs that are not retentioned that they must retain an equivalent amount of pollutants otherwise be captured by retention BMPs.

I'm just asking her to confirm or deny that, please.

CHAIRMAN MORALES: That question, I understand.

MR. CHIU: I'll have to answer that. Sorry, Miss Arias is not quite as familiar with the Riverside permit as I am.

The short answer is we don't know, because the -- the way that the Riverside permit is -- is structured basically says you must retain the design capture volume on site. If that is technically infeasible, then you may use biofiltration BMPs and then there's a design standard that is associated with the biofiltration BMPs where it says -- I think it's like 0.75 of the core volume space of something or other and that will constitute MEP at that point.

We don't know if that's equivalent to removing all pollutants or more of the pollutants than a design capture volume. The intent was to be as much or more than all the pollutants, but we don't know. So by adding this additional clarification of removal of 100 percent of the pollutants associated with the design capture volume, there is no design standard associated with the flow-through BMPs that can be determined upon evaluating what 100 percent of the pollutant is.

So that becomes, then, a flexible design standard versus a fixed standard.

MR. GRAY: Mark Gray again, representing the building industry. Just one follow-up to Christina's testimony. I just want to clarify that the South Orange County permit -- and this gets at what Wayne was discussing in the Riverside context and maybe Wayne could clarify

this.

The South Orange County permit allows biofiltration of the remaining volume in the event of infeasibility. And there is no really manage of delta between what you can manage on site. You manage that delta in a biofiltration. There is no other design coefficient or sizing factor.

Is that not the same standard that we're proposing here? How is that different? To me, it appears that the standard you've created with the pollutant removal language is a different standard than what exists in South Orange County.

Can you address that, please?

MR. CHIU: Again, I would disagree with their interpretation. I think they are trying to make it all about the retention standard, retention of storm water.

Again, we are talking about retention of pollutants and removal of pollutants prior to discharge from a site. So in the Orange County and Riverside County permits, as they are today, it is all about first, look at if you can retain the design capture volume on site, which is associated with the 85th percentile storm event.

If that is technically infeasible, then you may use biofiltration BMPs. Biofiltration BMPs must be designed according to how it is in the permit, which is

0.75 of something -- I can't remember off top of my head what it is -- it's fairly hard to understand, I think.

So what we have is now a pollutant removal design standard. It is not a retention standard. It is not a flow-through design standard. It is a pollutant removal design standard. Retention is going to get you to that pollutant removal standard fastest and easiest, because if you retain 100 percent of the design capture volume, you remove 100 percent of the pollutants in that design capture volume from being discharged from the site.

If you cannot retain 100 percent of the design capture volume and 100 percent of the pollutants in that design capture volume, you may use flow-through BMPs. Those flow-through BMPs must be able to achieve the removal of 100 percent of the pollutants within the design capture volume.

Now, if that is not feasible, or if a project proponent or the co-permittees determine that it would be better to do something off site through an alternative compliance project or a candidate project identified by the co-permittees within their water quality improvement plans, they are allowed to utilize those alternative compliance projects to meet that on site design standard off site.

Whatever portion of it may be done off site. They can capture 100 percent of the pollutants off site

somewhere. Or they can remove 75 percent of it on site and do the remaining 25 percent off site. But we have provided the flexibility for them to do it either on site or off site with retention, with retention and flow-through BMPs, with retention and off site alternatives, with retention flow-through BMPs and off site alternatives, or off site alternatives.

So they have a lot of flexibility now to do any one of those options in combination with each other to remove 100 percent of the pollutants associated with the design capture volume.

CHAIRMAN MORALES: Thank you.

Okay. Now we're going to move on and we'll hear from U.S. EPA. And while we scheduled them for a half an hour, folks, it's my understanding the presentation will not be half an hour. So the intent is that after they do their presentation, there won't be any questioning of EPA, so we'll break for lunch at that point.

MR. LIDEN: Thank you very much.

Members of the Board and Chair Morales for this opportunity.

Unfortunately, my boss, the acting water division director, John Kimmer, really wanted to be here in person to testify, and he had a conflict. And our other staff person, who works very closely with the regional board on

storm water permitting, also had a conflict. And since our travel budget has limited us to about a radius of ten miles from our local offices, and I'm based here in San Diego, I was the one chosen to give this testimony.

I work very closely with the regional board and with the sitting County of San Diego Storm Water Department, and under the leadership of the executive officer here in trying to address storm water, as well as water and waste water issues in Mexico. And I think we would all be very well served if Mexico also had a storm water permit and a TMDL process. I think that would solve most of our problems.

So the bad news is I won't be able to answer very many technical questions, but I would be very happy to take those back to my colleagues and, hopefully, get you answers by tomorrow, if you have any following my testimony. But that's the bad news. The good news is that I should hopefully have you out of here by lunch.

Thank for the excellent presentation, Mr. Chiu. I think you've really captured how much work has -- your staff, your colleagues have put into this effort over the last two years. It's a tremendous effort. And I know that EPA is very supportive of the approach that you've taken and we encourage the adoption of this permit as currently drafted.

We believe the decision to issue a regional MS4 permit for the entire San Diego region is a wise one. We have seen this approach work well in the San Francisco Bay region. By issuing this regional permit, your staff will have more time to work on permit implementation that leads to water quality improvements, rather than spending a lot of time issuing separate MS4 permits for each separate entity.

Your staff has made incredible efforts to involve interested stakeholders in development of those permits. Meeting last April, as you heard, they have held eight workshops focused on various aspects of the permit, followed by two board workshops held November and December. Your staff has provided many opportunities for input and has shown flexibility in how permit language has been updated to reflect stakeholder input.

I'm going to focus my comments on a few specific areas. One is that flexibility in achieving compliance with water quality limits. One aspect of this permit has been revised response to stakeholder comments is the proposed approach for achieving compliance with receiving water limits.

This is a significant step that departs from the approach used by the regional board on existing MS4 permits and those MS4 permits across California since the issuance

of the State Water Resources Control Board Resolution 9905.

As described in the draft permit, permittees may use implementation of strategies and accepted water quality improvement plans to demonstrate compliance with receiving water limitations. In order for permittees to take advantage of this, the permit requires the permittees provide numeric goals and schedules for protecting water quality and attaining water quality standards.

Additionally, quantitative analysis must be provided which demonstrates storm water control actions implemented will achieve the numeric goals. While we would prefer the receiving water limitations including these -- included in the existing permits for San Diego, Orange and Riverside County, we can and do support the draft permit's approach which still ensures measurable water quality improvements be achieved.

Proposed permit provisions -- that's a tough one to say numerous times -- on the preparation of the -- and implementation of water quality improvement plans are an important step forward. Under these plans, the direction taken in water quality monitoring and storm water control measures should be prioritized to those areas of greatest importance. The plan provides a framework for efficient and strategic use of resources to control urban runoff and achieve measurable water quality improvements.

The next area I'd like to talk about is low impact development tools. As we have seen across California and the nation, the use of low impact development tools has resulted in efficient storm water control to protect water quality and achieve other benefits, such as the replenishment of groundwater supplies.

We are supportive of the post-construction controls laid out in the draft permit's development planning section. Provisions that require new and redevelopment projects to control the 85th percentile storm are fundamentally consistent with the approach the Board has taken previously in the Orange and Riverside County permits, as well as with many renewed MS4 permits across the state.

We support the permit -- this section of the permit includes important provisions to manage hydromodification. We support the permit's requirements to minimize potential erosion to natural non-hardened channels. We also agree with the permit's -- draft permit's approach for alternative compliance under this section of the draft permit, which allows for implementation of off site storm water retention projects in lieu -- or in lieu of programs.

Next section is on TMDL implementation. We very much support the draft permit's approach for incorporating

TMDLs. Finding No 5 in the draft permit regarding TMDLs appropriately references EPA regulations, including the regulations requiring that NPDES permits incorporate limits consistent with TMDL allocations.

Urban runoff is a primary contributor to water quality impairments addressed by the TMDLs implemented in this permit. In order to achieve the water control improvements mapped out by the waste allocations in the TMDLs you have a adopted, it is vitally important that this permit include a clear, measurable and enforceable approach for TMDL implementation.

The proposed permits TMDL provisions achieve this objective. Your staff has been very responsive to comments by expanding the options for determining compliance with TMDL-related provisions. Specifically, we believe your staff has appropriately incorporated into this permit the waste allocations, numeric targets, interim milestones, and final compliance goals from the adopted and improved TMDLs.

We are aware that in many cases, implementation of the TMDLs would be costly for the municipalities working to improve water quality. We remind the Board that each of these TMDLs underwent extensive public process during the TMDL resolve ment phase. In this region, the state holds a process for the TMDL implementation plan phase frequently lasts between two to for years per TMDL. In particular,

the limitation plans and associate schedules were the product of detailed discussions and negotiation between your staff and stakeholders and are appropriately reflected in this permit.

It is important also to note that there are opportunities to revise the TMDL implementation schedules. The draft permit calls for an adaptive management approach, as we heard about, to achieve water quality improvements. As knowledge is gained during the TMDL implementation, it's possible that monitoring and control measure performance data may lead to reassessment of the TMDL implementation plan, that the -- it's possible that monitoring and control measures performed may lead to reassessment of the TMDL implementation plan conclusions.

We understand that your staff is open to such reassessments if they are based on sound scientific data and on the ground experience addressing storm water discharges. Such an adaptive management approach to a achieving water quality improvement is also consistent with the longstanding iterative approaches in MS4 permitting.

In conclusion, again, we do support the proposed permit as a necessary step to address the primary contribution of water quality impairments in your region. And we hope that you will adopt this permit that your staff has worked so hard to develop.

Thank you very much.

CHAIRMAN MORALES: Thank you.

MR. ANDERSON: And because I can't find it, could you just confirm that you had a letter in the record supporting this permit as well? I don't think we actually had a letter in the record.

MR. CHIU: There's a letter -- we do have letter in the record officially.

CHAIRMAN MORALES: I was going to say I think Mexico's storm water plan is called the Tijuana Valley recovery team.

MR. LIDEN: And we certainly are hoping to use some of the -- I think some of the -- the experiences gained here and that the dedicated staff at the City and County of San Diego are working to implement here. We're hoping that we can help Tijuana implement those types of procedures south of the border so that it will help all of us.

CHAIRMAN MORALES: Thank you.

Is there anything we need to put on the record before breaking for lunch?

MS. HAGAN: Not with regard to this matter. Just that I do want to announce that we'll be talking about the international boundary and waste water treatment plant litigation, briefly, in closed session.

MR. ANDERSON: Before you go, can I get your name?

MR. LIDEN: Sorry. It's Doug Liden, L-i-d-e-n, and I'm an environmental engineer out of the San Diego EPA border office.

MR, ANDERSON: Mr. Liden, we just received letter from the congressional -- the whole congressional delegation -- so the assembly delegation -- asking your superiors to ask us -- to review that.

Do you have any comment about that letter? Have you seen it?

MR. LIDEN: We have seen the letter, our regional administrator has seen the letter. I cannot -- we have not yet responded. We certainly will. I think it's important to note that we do believe that the TMDL process has -- as I mentioned in my testimony, has been appropriately included in this permit and does provide for flexibility.

We also, again, recognize that it is -- some of these efforts will be costly, but as the draft permit points out there -- and the LA area has shown that there has been real cost benefits from improved water quality as well. And we want to make sure to point that out.

But I have not. We certainly will let you know as soon as we respond to letter.

CHAIRMAN MORALES: Thank you.

A very quick question for the co-permittees. You

guys are up to bat next. I want to give everybody an opportunity to grab a bite to eat, but how soon do you think you'll ready to proceed.

UNKNOWN co-permittee: One hour.

CHAIRMAN MORALES: An hour?

Okay. We'll reconvene no later than 1:00. Please try to get here so we can start at 1:00, folks.

(Whereupon, at 12:00 p.m. the lunch recess was taken.)

(AFTERNOON SESSION - DATE******** 1:04 P.M.

CHAIRMAN MORALES: Okay. Call the meeting to order.

And if I could ask the co-permittees to begin their presentation. And just for a point of information, we stated at the beginning, and in the documents, that any amounts of time that get used for cross-examination would be deducted off of the total block. And so for the co-permittees, we have got a total of seven minutes that you have used on your cross.

Okay. So I think we'll first hear from Mary Anne Skorpanich.

UNKNOWN SPEAKER: Chairman Morales, in terms of those seven minutes, I just want to confirm, does that cover all the questions that were asked of staff, or is that just those asked by the co-permittees?

CHAIRMAN MORALES: Those were the ones asked by the co-permittee representative. BIA will have a larger deduction.

MS. SKORPANICH: Good afternoon, Chairman and members of the water board. I am Mary Anne Skorpanich from

the County of Orange, and with me is Todd Snyder from the County of Orange, and Jason Uhley from Riverside County Flood Control District.

I just wanted to make some brief introductory comments before the individual presentations by the permittees will begin.

Although the hearing just started, you already heard, before today, from many, many people that more time is needed before adoption can happen. It's been nearly universal; you've heard it from the permittees, you've heard it from the nongovernmental organizations, from business, from legislature, congress and the newspaper, all saying this needs more time.

You'll be hearing testimony today from many, each with their particular issues, but a common theme that you'll hear throughout these proceedings is a broad opposition to the permit as it's currently drafted.

As to the permittees' testimony, you'll be hearing about how the environment is getting better as a result of our programs, about how there is a lack of substantial evidence to change course as laid out in this Tentative Order. And about, finally, how there is more work to be done.

We strongly urge you, at the conclusion of tomorrow's session, to direct your staff to continue the

stakeholder process that worked so well for those months that we engaged in that last year, and to return with you with a permit that has broad support rather than broad opposition that we can all be behind.

In addition to that, I'm also requesting that we have some time for closing argument, 10 to 15 minutes, possibly tomorrow. And as to specifics that were requested earlier, I did want to point out that in the introductory slides of the staff presentation, there were a series of photos, some showing sort of the dos and don'ts of what we would like our waterways to look like.

And all of those bad examples were all as a result of the 401 and 404 Clean Water Act section of activities and permitting. So the concrete-lined channels, the bridges over the waterways, the ditches and the culverts, none of that's governed by the MS4 permit.

So I just wanted to draw that distinction, that while those are not things that we necessarily want to see, that changes to this permit are not going to change those things and make them go away.

On the other hand, a lot of the pictures of what we find very good about the waterways, some of those success stories that you'll hear some more about in the following testimony, are examples -- and those photos documented a few of them -- of actual good activities that

have been undertaken by the permittees to make those waterways look as good as they do today and perform as well for the environment and for the people here.

Thank for your time and your consideration.

MR. ABARBANEL: Would you and the other co-permittees be coming up with a specific date at which the permit should be voted on?

MS. SKORPANICH: I would say that considering that the normal permit process takes well over a year for a single county, and you're taking on three, that the -- what was it, from April to October stakeholder process, while there was some meetings with selected permittees before that, that I would think another couple of months would be needed to allow time, as you heard earlier, for those meetings to happen, for folks to go back and reflect on what they mean and to come back and have some further discussion.

So I would think another couple of months would probably get us there.

MR. ABARBANEL: Okay. June?

MS. SKORPANICH: I beg your pardon?

MR. ABARBANEL: June? I'm asking for a specific answer to the extent that --

MS. SKORPANICH: I would say by the time we would have a new round of -- a new draft that might result out of

that, and then time for comments, we'd probably be looking at the end of the summer. So September, October, somewhere in that time frame.

MR. ABARBANEL: Thank you.

MS. SKORPANICH: Any further questions?

CHAIRMAN MORALES: No.

MS. SKORPANICH: Thank you.

MR. SNYDER: Good afternoon, Chairman, members of the Board. My name is Todd Snyder. I'm a watershed planning manager for the County of San Diego and, yes, I have taken the oath.

Under the current 2007 storm water permit for San Diego County region, my agency serves as the principal permittee. So in that capacity, we're responsible for coordinating the regional efforts of our 21 co-permittees which included the County of San Diego, the Port District, the Regional Airport Authority and the 18 incorporated cities in San Diego County.

We have done our very best to insure that the presentation we're about to give represents a consensus of our 21 co-permittees, but with only eight business days to read the revised permit, share our thoughts collectively, we had a chance to meet once, and coordinate our message, this has been a real challenge.

We very much support the many requests you've

heard today to continue this hearing so that all parties will have time to understand the changes that have been made and to dialogue with your staff on the new permit language.

It appears there are many instances where regional board staff might have intended one thing, but permit language can be interpreted very differently by permittees and stakeholders. So we will attempt to bring these issues up as we go through our comments. However, one of our concerns is that we simply have not had enough time to identify some of the changes that would require additional clarification.

So please keep in mind, as we go through the San Diego County co-permittee presentation, that this represents the consensus of the 21 co-permittees in San Diego that we've been able to reach over the last eight business days. There are definitely still issues where some of our co-permittees have differences of opinion. And we very much hope that each individual co-permittee who has requested time will be given the opportunity to express their unique perspective at some point either today or tomorrow.

So we're going to focus our presentation on five key topics, which you see up here on the slide. So we'll be talking about water quality improvement plans --

MR. ABARBANEL: Mr. Snyder, the previous speaker represented co-permittees as in broad opposition to the permit. Are they opposed to the permit itself, broadly, or are they, as a collection of co-permittees, expressing a specific set of opposition that they want addressed?

MR. SNYDER: My perspective would be we're going to show you in our presentation the portions of the permit that we have identified that we're in opposition to.

MR. ABARBANEL: Can we infer that you are in support of the remainder?

MR. SNYDER: No, you cannot. And that comes from my comments that we have only had eight business days to look at the revised draft.

MR. ABARBANEL: Thank you.

MR. SNYDER: So our plan is to walk through each of the five issues on the screen first, one at a time. We're first going to discuss our technical concerns, and we'll follow that by discussing our legal concerns. So when we have finished with the technical and legal comments for each issue, we will move on to the next. So that will result in some frequent switching out of speakers, and we hope that won't be to disruptive.

So for San Diego County, in deference to the other co-permittees that are still to speak after us, we're going to attempt to limit our presentation to an hour. We're not

sure we can get there, but if we can have the official timekeeper or timekeepers give us a head's up when we're about ten minutes out, that would be really helpful.

We will probably, at the end of that hour block of time, defer to Orange County. But if there is still testimony to be given, we would appreciate the opportunity to come back and finish our presentation.

And so if there are no questions for me at this time, I will ask Mikhail Ogawa, who's representing the City of Del Mar, to start us off with comments on our water quality improvement plan section of the permit.

MS. OGAWA: Honorable Chair, members of the Board, my name is Mikhail Ogawa. I am the clean water manager for the City of Del Mar. I have taken the oath and am prepared to speak.

It's unfortunate that I'm timed to be the first primary technical speaker right after lunch because my monotonous voice has been described as both buttery and sleep-inducing. So I won't take offense if you kind of get a little sleepy.

Although I'm the representative for the City of Del Mar, I'm here today to represent the San Diego regional co-permittees -- San Diego County regional co-permittees. And as Todd says, the topics we're addressing today represent the general consensus of the co-permittees.

The co-permittees thank the regional board and your staff for considering, acknowledging, and incorporating some of the comments submitted in January to the Tentative Order that was released in October, specifically, the water quality improvement plans. And I have to say that, from a volume perspective, over the course of the year, since the administrative draft was released and the numerous meetings we have had, as Wayne described, as far as content goes, we're probably 90 percent there.

But also, as Wayne described, in any relationship, there's some remaining issues that we need to work out. So I'll be covering some of those outstanding issues related to the water quality improvement plans. But before moving through, getting into the comments, I want to also describe sort of the presentation format you'll be seeing, in general, for our San Diego co-permittees' presentation.

So at the top of each slide, it's got the general, sort of, theme and area of the permit that we're discussing, the issue specifically, or any supporting information related to that issue, a direct proposed solution, and then also how to propose solutions integrated directly into the current Tentative Order. And I also believe that a red-lined strikeout of the current Tentative Order with the San Diego co-permittees' recommended changes

has been given to you so you'll have that in front of you.

So the first item is related to the compliance option for water quality improvement plans and is directly related to the requirements necessary for co-permittees to maintain their status under this compliance option. The context for the issue is that the co-permittees have the individual choice to exercise entering into this rigorous option.

However, as this particular provision states, each co-permittee can only obtain the rewards of this option if all the co-permittees in that watershed implement the strategies. The co-permittees believe each co-permittee should have that, is committed to the compliance option, should not lose their compliance status because another jurisdiction, for whatever reason, is not fulfilling their obligations. And my understanding is that this issue has been discussed with your staff and, in general, your staff agrees with it. So we're just asking that we change co-permittees from singular -- I mean to singular from plural.

The next issue is related to another one of the requirements necessary to maintain that compliance status under the compliance option. The phrase "continues to be accepted" is used relevant to our analysis that's performed under this compliance option. And that could be

interpreted to allow the regional board to rescind the coverage provided by the compliance option at any time and it's not based on any submittal of documents or of the analysis itself.

So we just ask that we maintain the association of that term, accept it when we deliver materials or our analysis that's being analyzed. There's plenty of opportunities for the regional board to review that documentation prior to it being accepted. We just don't want any mid-course changes to our compliance if we elect to do this compliance option.

And again, this issue has been discussed with staff. My understanding is that staff is in concurrence, in general, with this change.

The next issue has to deal with the approval of the water quality improvement plans and submittals. There's inconsistency in the terminology that's used. In some ways, it's approved or approving or approval, acceptance, concurrence. And in one case we have the executive officer may certify our plans. And so we would just, you know, like to have this streamlined and use the term "approved" throughout the document so that we understand.

However, if the use of all these different synonyms is intentional, we believe that a definition

should be provided for each, so there is no confusion as to what kind of approval we're receiving from the Board. And then because it's used so frequently throughout the document, we're not presenting the language here, it's in the red-line strikeout version you have in front of you.

The other issue with water quality improvement plan submittals is the lack of explicit comments provided by the regional board. In fact, between the October version and the March 27th version, the language that specifically said that the regional board -- or that co-permittees would need to respond to regional board comments was struck. And so we would just like to have it explicitly stated in the permit that the regional board will be providing comments on these key milestone submittals, the priority conditions as they are submitted and the numerical.

Next is an issue related to the timelines for changes to our water quality improvement plans and our submittals based on the approvals or comments from board staff. So we believe that the intent is not for the regional board to require mid-course corrections within 90 days, but perhaps it's to address any issues or deficiencies that the Board staff may find. And so we believe that it's inappropriate for the -- for us to completely change course or make dramatic programmatic

changes within 90 days if an issue is found within our plans. Again, there's a distinct and rigorous approval process that will occur and so we don't believe that in any given year that the Board staff finds an issue that we have to turn around and change our entire programs within 90 days.

Similarly, the jurisdictional runoff management plans are -- in the current Tentative Order are slated to be turned in three months after we receive approval on our water quality improvement plan. And so the idea is that we complete our plans, board staff approves it or the Board and, within 90 days, three months, we're expected to turn around updates, complete updates to our jurisdictional programs based upon the approved plans. And for some jurisdictions that need to take their jurisdictional plans to their governing bodies, it's impossible, you can't even get on their agendas for three months. So what we recommend is that the jurisdictional runoff management plans are submitted coincidental with the water quality improvement plans, and if there are issues that will require changes to our jurisdictional plans, that those changes would be submitted with the next annual report. And we believe that that provides sufficient time to demonstrate that we're responsive to the comments of the Board, as well as gives us the ability to make the changes

programmatically and been approved by our governing bodies.

And again, these particular issues have been addressed with board staff. And my understanding is there's general concurrence with these language changes. So those language changes are presented here.

This last one is related to Provision A. And again, it's related to the updates necessary within 90 days and again, 90 days to make a complete update to a water quality improvement plan would be pretty aggressive. And so with minor modifications we believe that we can address those within 90 days. But major updates should remain on an annual cycle. And again, this has been addressed with board staff and our understanding is that there.

So that concludes my portion. If anyone has any questions I'd be more than happy to answer.

CHAIRMAN MORALES: Actually, I do, very quickly. I think it's a procedural question. The document that was red-lined that you referred to, is that this document that was given to us?

MS. OGAWA: Correct.

CHAIRMAN MORALES: Okay. I think we have something to --

MS. HAGAN: I wanted to ask a question about that. Is the -- are the presentations that you're going to be going through showing all of the changes that are also

shown in this permit, or will there be other proposed red lines in this document that are not discussed during your presentation?

MS. OGAWA: I can't guarantee that they're all -- that they're the same.

MS. HAGAN: Okay. Well, we can follow up later and maybe we can square up which ones were presented and which ones weren't when you're finished or tomorrow.

MR. ABARBANEL: I wonder if I might address your suggestions. Except for the first, I have no problem with them. The first seems to me to be disaggregating the collective responsibility of the region for the quality of its water and the reallocating of that responsibility on geographical lines that have very little to do with water quality.

So I would say that you have not gone far enough. Why bother with the jurisdictions having independence, why not every individual in the region having to have an NPDES permit and so we don't have to rely on each other at all? I think that's the wrong direction to go. You haven't gone far enough in the wrong direction, in my opinion.

I think there's a real value for collectively addressing the fact that as the Board's practical vision, which has been discussed here and will in the future emphasize, is perhaps on a watershed approach instead of a

regional approach, although I think that is not adequate enough in itself.

Suppose they take the watershed that your city happens to sit in, or at least the northern watershed, you would have to deal with the City of San Diego, the County of San Diego, Solana Beach, Poway and Escondido in order to maintain proper water quality in that watershed. I think that's dividing the attention of the cities and county that are involved and that we ought to focus on a regional permit and regional responsibility. If Escondido is out of compliance, that lack of compliance flows down the river to Solana Beach and Del Mar, and you really don't want to be trapped with that.

MS. OGAWA: I'll turn over the podium to Kris McFadden from the City of San Diego.

MR. MC FADDEN: Good afternoon. I'm Kris McFadden. I'm the Deputy Director of the City of San Diego Storm Water Division and I have taken the oath.

I'm here today because, actually, the City of San Diego is the only co-permittee in San Diego County that does discharge to an ASPS, in particular this is La Jolla Shores ASPS. Of course, working with our partners over the many years, the City has made great efforts to address dry weather flows and is well on the way to address all the water quality issues in the ASPS.

Currently, the Tentative Order does exclude references to ASPS in B3B. Therefore, it's not covered by the water quality base compliance. We propose to include the references from Provision A under Provision B. This slide actually has the underlined additions that we would recommend.

Our main goal is to be sure that this new permit does incorporate all of the ocean plan standards in the same way that it is going to be incorporating the basin plan standards for compliance. This will allow us to finalize our current plans for water quality improvements in the ASPS and throughout the rest of the city.

Also, I want to do one other thing and reiterate what everyone one else is saying, how productive the staff have been and available they have been. And when we're talking about reopening TMDLs, I think it's important that we do have commitment that regional board staff will have the time to actually spend on this very important process. I know that they're very, very busy, and I would encourage allocating any additional resources, if possible, or potentially looking at a third party TMDL. That was very successful for us in the past where the regional board actually partnered with the municipalities in that particular area.

Those are all the comments I have, but I'm

available for any questions now or in the future.

MR. ABARBANEL: I wonder if I can make a suggestion.

Thank you very much for the suggestion that the water board staff have more time and resources. We have a letter here from one, two, three, four, five, six, seven, eight, nine -- ten people in Sacramento who can help you.

MR. MC FADDEN: Excellent.

Thank you.

VICE CHAIR STRAWN: Kris, I don't seem to have a speaker card for you. Did you do one for --

MR. MC FADDEN: I'm part of the co-permittee, but I can definitely. Actually --

VICE CHAIR STRAWN: If you could, with spelling of names and what have you. Not that we don't know who you are.

MR. MC FADDEN: Very good.

Thank you.

MR. HAGGERTY: Mr. Chairman, members of the Board, Shawn Haggerty, partner with the law firm Best, Best & Krieger and City Attorney for the City of Santee. And I'm going to make two legal comments on the WQIP compliance option. And while my comments are legal, I've also taken the oath.

The first one has to do with one of the key

issues -- key policy issues facing the state and MS4 discharges today, which is the receiving water limitations language that is in the permit. The -- as was discussed in our presentation, the Tentative Order does establish that very rigorous compliance option through the WQIP. And that's in Provision B3C of the permit.

To fully implement this compliance option, it's our legal view that you have to also link Provision A of the permit to this compliance option. Right now, as it's written, the Provision B3C links back to Provision A, but Provision A does not reference Provision B3C.

That may seem overly technical, but the courts have read these permits as having each section of the permit be independently enforceable. And so we are very concerned that whatever benefit might be provided to the compliance option after going through a very expensive and rigorous process, we may not be able to obtain the outcome that I think everyone's looking for, unless this change is made to the permit.

So we are asking for -- it's a simple language change, which would be to add the suggested language that we have on the slide to the provisions in A1 and A2. And that would close the loop between the compliance option and the Provision A.

And I need to take a second to address some

arguments that I anticipate you might be hearing later, and these are things that, if we have an opportunity, would probably be more effective after hearing from others in the form of rebuttal or summation. But just to make sure that you get our point of view, I do want to address what I believe will be some contentions you might hear about the compliance option in general, and whether that's something that is even consistent with the Clean Water Act and, of course, state law. And, specifically, that relates to concepts called anti-backsliding and anti-degradation.

We think that you fully have the ability to pursue the compliance option. I think that's reflective in the staff's presentation and also the EPA has supported the approach. But more specifically, you -- this is an area where you really have to look closely at what the Clean Water Act says and what the regulations say.

The concept of anti-backsliding does exist in the Clean Water Act and there are restrictions on the ability of regulators to relax specific technology-based effluent limitations or specific water-quality based effluent limitations, standards or conditions.

However, if you read the act carefully, those requirements, the anti-backsliding issue, does not apply to receiving water limitations as we're dealing with here when they're incorporated into an MS4 permit. Section 42P3B of

the Clean Water Act is a unique section of the Clean Water Act applying to MS4 permits.

And I think we often forget that it is a very specific congressional solution to a problem that is very difficult to address and a system -- MS4 system that is different than closed systems, like public-known treatment works or individual industrial permits. This is a very different situation. And Congress came up with a very different approach to regulating it. And we heard discussion of the maximum extent practicable standard earlier. So that is the anti-backsliding issue.

And to the extent there is an application of anti-backsliding, Finding 24 of the permit, and also the fact sheet on Page 27 find that the permit, as written, is consistent with anti-backsliding provisions.

With regard to anti-degradation, there are state and federal requirements. We'll probably hear about that as well. But this permit does not allow new or increased discharge of waste. The WQIP process includes a very specific monitoring process, reporting process and adaptive management process that is specifically designed to prevent degradation of water quality. And to the extent that there is any question about that, Finding 23 of the permit and also Pages 26 and 27 of the fact sheet address the issue.

The second issue is a more technical one in the

sense of this is really just permit language, we think. With regard to the WQIPs, and to take advantage of the compliance option that's in the permit, certain things have to go to a consultation panel. And the consensus of the San Diego co-permittees is that they have no objection to the development of the WQIP through that stakeholder process. And likely, there would be value to going through that process.

The problem is, is that the way the permit is currently written, it uses a term that the -- basically, the WQIP can't go forward unless there's a majority concurrence of members of the panel. And that is the language that we have a concern about.

So I'm going to have a problem with reviewing -- the panel reviewing it, taking input from the panel. But the idea this independent panel would have, essentially, veto authority over the process and, if no majority concurrence, put the brakes on the process, we think it is very problematic from a legal point of view.

We think it's an improper delegation of legal authority by the Board because, essentially, the Board could be prevented from ever acting upon the WQIPs if the panel just stops it and there is no way to have review of that panel decision.

We also think it's an improper impairment of

jurisdictional authority because, again, this independent panel could put the brakes on the process even though the jurisdiction wanted to go forward. And then there's some complexities with open meeting requirements and potential conflict of interest issues. So we have provided some simple language changes to address that point.

Those are my legal comments. I'll turn it over now to Drew Kleis from the City of San Diego.

MR. ANDERSON: Just real quick, were those legal comments the reason for the letter from the state that raise concerns about the -- let me rephrase that.

Would those fixes address the concerns raised in the assembly letter about the receiving water limitation language in the permit?

MR. KLEIS: It would help. I mean I think there's, honestly, a broader statewide issue -- and we have a member of the state board here -- that they are addressing. This would go, at least partway, to addressing that issue. And it would at least provide the linkage between the receiving water limitation of this particular permit and this particular compliance option.

But whether it address all of the issues I think you'll hear others comment on that.

MR. ANDERSON: Okay.

MR. KLEIS: Good afternoon. My name is Drew Kleis

and I'm a program manager with the Storm Water Division at the City of San Diego, here to talk about TMDLs.

Okay. Before I get into the specific slides, let me also echo what Kris McFadden said, and a few others. I probably hold the record for most meetings and time spent on the phone with Board staff over the last year, and even before then, talking with them as they were contemplating how to approach the new permit. And I want to echo the comments about -- a lot of comments about time and energy spent trying to work with the municipalities to identify solutions.

And I think the TMDL section of the permit, they did identify some solutions, ones that we brought up at the December board workshop, and Wayne covered those in his presentation. So there was a lot of progress made on certain key issues that the San Diego co-permittees requested. That's not to say that all the issues from all individual co-permittees are addressed, but certainly for those group requests, they tackled those issues.

And so I think the -- the items I'm going to cover fall into two categories. Those issues that were addressed, now we're just tinkering with the fine-tuning of wording. Then there are maybe a few things that were not addressed that were other issues on the team, and I'll try and capture those. Then there's just a few typos and

things like that that were found.

I also want to say that I'm speaking on behalf of the San Diego co-permittees. And when the discussion about who's going to cover TMDLs came up, there was general silence in the room, so I was selected to do that. There are people in the room that have more detail on TMDLs.

So I want to approach it that -- I think I mentioned this at the December workshop. I'm in charge of planning our compliance -- putting our compliance plans together for the City watershed planning, et cetera. So I want to approach it from a land use planning and from a watershed planning perspective and try and put some context to why these requests are really an attempt to be more strategic and more efficiently achieve water quality faster in our planning.

Okay. The first issue has to do with how concentration-based TMDL compliance is determined in the permit. And the general approach, from a planning standpoint, would be to try and prioritize your watershed areas and outfalls and address BMPs in the highest polluting areas first.

And we would like to be able to do that with an approach where we calculate the concentration limits on a watershed basis, rather than outfall by outfall. When it's measured outfall by outfall, compliance is everywhere and

there is no prioritization, you have to meet that concentration everywhere.

The concept would be let's target first those highest polluting areas, address BMPs there and actually exceed maybe the concentration reductions that are required to offset the areas that maybe aren't really contributing to the problem so that the overall watershed average concentration is met.

And I know I'm under oath on this, so I wanted to make sure that I'm speaking adequately. I checked with both our consultants and attorneys on this. As permit writers, regional board and the regional board body has the discretion to -- on how to translate waste load allocations into the permit that are from adopted TMDLs. For example, the -- including the load-based calculations for the bacteria TMDLs, one of the changes that was made, that is within staff's discretion to write that into the permit and how it's done.

They also have the discretion to clarify how the concentration limit is calculated, whether it's on a watershed basis, a region basis or an outfall by outfall. So from a water quality standpoint, we think it's more advantageous to be able to calculate that concentration limit on a watershed basis.

MR. ABARBANEL: May I ask you a question about

that?

There's definitely a difference between an outfall by outfall average -- excuse me -- requirement than an average over outfall. But average does not represent distribution very well at all.

Would you and your co-permittee troops be willing to consider an average over outfalls, possibly a weighted average where some outfalls are more important than others, and a limitation on the RMS variation around that average so there are no outliers causing significant damage?

MR. KLEIS: I cannot keep up on RMS outliers, but I think I understand your concept.

The City of San Diego would certainly support -- this is a great example where we'd like to have more discussion and talk through those sort of things.

But, yes, the City of San Diego would be interested in trying to put some clarity, or better defining what this flow-weighted average would look like. I can't speak for the other co-permittees on that.

MR. ABARBANEL: Thank you.

MR. KLEIS: Okay. The next issue has to do with the Shelter Island Yacht Basin TMDLs. And this one's pretty straightforward.

We did talk with --

MS. KALEMKIARIAN: Sorry, just a clarification

question, going back.

MR. KLEIS: Sure.

MS. KALEMKIARIAN: When it says in your language there, on the previous slide, "across all outfalls within a jurisdiction," you're referring to the jurisdiction of one co-permittee, because you also referred to watersheds, and that would be across jurisdictions, potentially, right? What's the jurisdiction that's mentioned? What's the jurisdiction?

MR. KLEIS: The jurisdiction would be the jurisdictional boundary. So you have to weight the average within your jurisdictional boundary.

MS. KALEMKIARIAN: So the City of San Diego is the jurisdiction?

MR. KLEIS: That's correct.

MS. KALEMKIARIAN: So then, how does that relate to the comment of the fella from Del Mar who said we don't want to have to be tied to each other when we look at the whole watershed, that would be a cross-jurisdiction -- how do we -- how does that have any significance if you're getting an average for jurisdiction versus the watershed?

MR. KLEIS: Okay. Good question.

Just to clarity, when I say watershed approach or a watershed average, what I mean is an average for a drainage area, could be a subdrainage area, for that

jurisdiction. But you would -- you would want to have a clear distinction between one jurisdiction's efforts and their compliance progress versus all the others. You would want that clarity in between each jurisdiction's implementation. So the calculation of the concentration would be on a watershed basis within that jurisdiction, within each jurisdiction.

So I think what I'm asking for here is in line with what Mikhail was saying, that we would want to have compliance jurisdiction specific. Our planning is watershed based, but compliance, ultimately, because it's compliance, needs to be jurisdiction specific. We would take that same approach on the concentration calculation.

Okay. Back to the water effects ratio and the Shelter Island Yacht Basin TMDLs. We talked with Board staff briefly on this on Friday, I believe. And at the time, I did not mention the specific language from the TMDL.

The TMDL addresses that -- a water effects ratio that if a study is completed and the new ratio is established, it lays out the methodology and process for incorporating that water effects ratio into the calculations for the TMDL. And so we just would like to carry through that TMDL provision into the permit. And it's noted there in the underlined text.

This too is -- this issue is also clarification. If you recall, one of the options that the co-permittees requested was to allow for different methods of complying with the TMDLs. And that has been incorporated into Attachment E, the TMDL attachment, in the compliance determination provisions.

Just for clarity sake, we would also like that essentially in all our statements included in the final effluent limitations of each TMDL where there are multiple options for complying with that TMDL, so that those two separate sections are not in conflict.

I also want to note that was added to the baby beach bacteria TMDL. We would just like that same core language included in the other TMDL.

This next slide just captures or presents the suggested language to make that more -- option clear. And at the bottom of the slide, it indicates the separate sections in Attachment E where we would like that acknowledged.

Okay. This next issue, we informally call it the dormant TMDL issue, and have met with Board staff on this several times, most recently the day the permit was released, but before its release.

Essentially, the bacteria TMDL says that no further action is required for delisted water bodies. If

you're meeting the water quality standards, no further action is required.

And our recommendation -- or our belief is that if water bodies are meeting the receiving water limitations, that the more in-depth and more costly and extensive TMDL monitoring is warranted. Really, there should be what would be appropriate is monitoring to confirm that you're continuing to meet the water quality standards, that you're not slipping.

And so we talked about that concept with Board staff. There was general agreement in principal -- I was not at that meeting. I believe there was general agreement in principal and Board staff suggested that we put together some suggested language.

And so we put that language together. I will show you on the next slide. Just in case you don't miss it, we made sure it was bold and red and underlined. It's in four locations where this would occur. It would be -- the suggestion is to allow for the possibility for the co-permittees to develop an alternative monitoring program as part of their water quality improvement plan, have that reviewed and, hopefully, approved by the regional board. Then if they approve that, that would be part of their WQIP.

We also suggested -- and that would apply to both

beaches and creeks. And we also suggested the same approach for a modified assessment program, the logic being the same amount of detailed assessment is not necessary if you already know that you're achieving water quality standards.

So this next slide -- it looks almost identical -- but those are the four sections where we propose that language. We haven't really had a lot of time to get feedback from Board staff yet on this issue.

I'm going to skip the typos, but here's -- maybe I went one slide too far. I'll go over this real quickly. It's just a typo to correct in the TMDL Attachment E, also answers the question whether the red line corresponds directly or on a one-to-one relationship with the slides. They don't. I believe there is more edits in the red line than the PowerPoint slides.

Thank you.

Any questions before I go?

MR. ABARBANEL: Just let me correct a typo. It's p-r-i-n-c-i-p-l-e, not a-l in an earlier slang.

MR. KLEIS: Thank you.

MS. STROUD: Good afternoon. I'm Heather Stroud, Deputy City Attorney with the City of San Diego. I'm just going to address a few compliance and legal issues with the TMDL issues.

The first is, there is a provision in Provision F of the draft Tentative Order that would require the water quality improvement plans to incorporate waste load allocations of newly adopted TMDLs, prior to those TMDLs being incorporated into the MS4 permit.

It's kind of a situation of the cart being put before the horse. TMDLs are kind of a broad planning document that are not self-enforcing. And the waste load allocations would need to be translated into the permit. And we don't really have any way of knowing how the regional board is going to exercise its discretion in doing that until that process actually happens.

So we're requesting -- we have two possible fixes, either strike that requirement or, at a minimum, revise the applicable provision that require that the WQIP be updated in the next annual update following incorporation of the TMDL into the permit.

The next two slides address what may seem like, you know, minor or really technical changes, but they actually have pretty significant impact on the compliance determinations. The first issue is one that has been touched upon, that the permit language requires that all co-permittees implement strategies or all co-permittees may be found out of compliance.

And the place this comes up is in Attachment E, in

both the interim and final TMDL compliance determination sections for all of the various TMDLs that are included in there. It's where the alternative compliance options were added, which we asked for, so we certainly appreciate that they have been incorporated.

So it's a matter of moving an apostrophe to make the co-permittees from plural into singular. And this is actually consistent with the Clean Water Act and required by the Clean Water Act, because a co-permittee is only responsible for discharges from its own MS4, that's 4DCFR122.26 Subsection B1. It's also consistent with the definition of co-permittee in the draft Tentative Order directly out of the federal regulations.

The next issue is just a minor grammatical clarification and kind of a legal pet peeve and/or is used throughout the permit but, especially, in the TMDL compliance section is inappropriate, just creates the ambiguity. I think the intent was that it be an or, so it should just say or instead of and.

And then the final issue on TMDLs, the compliance language in Attachment E suggests, by the way the headings are set up, that receiving water limitations are, in and of themselves, water quality-based effluent limitations.

Water quality-based effluent limitations have a specific definition in the federal regulations. And the

restriction on the quantity of pollutant that can be discharged from the point source into the receiving water, whereas the receiving water limitations is just that, it's a limitation on pollutants or a standard that's applicable in the receiving water itself, it's not the end of a pipe numeric limitation.

So we would request that that -- that just minor change to clarify that the receiving water limitations are not in and of themselves set in stone.

And with that, I will pass it on to Christine Sloan.

MS. SLOAN: Good afternoon, Chairman Morales, members of the Board. My name is Christine Sloan. I am the chair of the Land Development Work Group for the San Diego co-permittees. I have seven distinct land development items to share with you today. In the interest of time, I will try to move quickly.

Our first topic is retention. The retention language, as you've already heard, now states that you must first retain on site a hundred percent of pollutants contained in the captured volume. Then the language states if you can't retain, you can treat with flow-through BMPs to achieve a hundred percent pollutant removal.

By adding in this hundred percent removal, the permit is attempting to establish a new MEP standard. This

hundred percent standard is not found in other permits, nor is it attainable. Drinking water treatment standards can't even reach a hundred percent pollutant removal.

If the language remains as it is, or without clarification, it will be infeasible for most projects to comply on site. If a hundred percent pollutant removal is not feasible on site, we are forcing jurisdictions to use the optional alternative compliance program, or they must deny development.

For those of you in the audience who are not familiar with what retention looks like, we have this slide here to give you a visual. This is so you can capture large volumes of rainwater and keep it on site without release into drains or creeks. And this will be our new on site standard.

Here is a picture of current BMPs that we use now and that are effective at removing pollutants, but do not meet a hundred percent pollutant removal. The language -- if the language remains as written, we will still have to do this, but you will also have to do mitigation off site.

So we have some suggested language. And we do believe the language would be consistent with Orange County's 2009 permit and Riverside County's 2010 permit. We do believe you're going to hear more comments on retention today and that Riverside has further edits on

this section of language. And San Diego supports Riverside's edits on this language.

Our next topic is alternative compliance. As I mentioned, if you cannot comply on site, you may be able to comply --

MR. ABARBANEL: Sorry, I should have asked.

So what percent do you suggest, 99.8?

MS. SLOAN: I suggest that if the intent is that the Orange County and the Riverside language has not changed, then we should not change the language.

MR. ABARBANEL: Thank you.

MS. SLOAN: Okay. So as we said, if you can't comply on site, you may be able to comply off site. However, there are new changes to the alternative compliance language. The language now imposes an optional WQIP watershed analysis on the jurisdictions before they can offer off site mitigation. The language is so specific and complex that it is creating a disincentive for jurisdictions to use it.

Due to this complexity, we are already aware of some smaller jurisdictions that plan to opt out of this program. Jurisdictions that do opt out will not have an option for off site mitigation for their applicants. The way the language is written now, they won't even be able to allow applicant-found mitigation.

With a couple simple changes, we can make this option more attainable. By removing some specificity of the language, we can allow the WQIP process to determine the details, therefore getting more jurisdictions to use the program. In addition, we should allow applicant mitigation off site until jurisdiction is able to pursue the watershed analysis.

VICE CHAIR STRAWN: We're at our ten minute warning.

MS. SLOAN: Okay.

My next topic is the HMP exemptions.

As you've heard before, the co-permittees are adamant that we retain our current HMP. They have been vetted, they have been approved by the regional board through resolution in 2010. We feel that it is inappropriate to repeat this within the WQIP. This repeats a costly stakeholder process within each watershed. By doing so within an optional program, it will be creating inconsistent application and implementation of exemptions across watershed and jurisdictional boundaries.

We also argue that we should be changing aspects of our HMP after we have completed our HMP assessment. As you know, our HMP was approved in 2010, began implementing in 2011, we started monitoring in 2011 and that extends until 2016. Changes to our HMP affects what we are already

monitoring now and brings us back to the beginning without completing our assessment.

By ignoring our HMP exemption, we have to repeat the HMP exemption stakeholder process, continue our HMP monitoring and begin a new watershed analysis under the WQIP. We feel that this is simply a waste of taxpayer funds to repeat what we have already completed. This is the language we are suggesting.

Next topic is prior lawful approval. This is a simple edit that I believe Regional Board staff have already indicated that they will change. There was an oversight on the prior lawful approval timing when the permit was adopted in March -- I'm sorry, updated in March. The original 18-month timing should now be aligned with our new WQIP timing and subsequent BMP design manual update. We're unable to give existing applicants direction until our BMP design manual is accepted. Therefore, we suggest the language aligning the timing with the acceptance of the BMP design manual.

We have another item with priority development projects. At the request of the San Diego co-permittees, Regional Board staff reconfigured the PDP category language to improve understanding. We appreciate the change, however we believe there was an unintended omission with redevelopment.

As it is right now, redevelopment has a stricter threshold than new development. Redevelopment has a positive impact on water quality and should be encouraged. We request an additional adjustment of the language so that the redevelopment threshold is existing development qualifying as a PDP.

VICE CHAIR STRAWN: I apologize. We had a correction in our time here. We're giving you three more minutes, over and above.

MS. SLOAN: This is my last slide.

Single-family residential.

Due to the stricter PDP threshold for residential projects, we have had discussions with regional staff to include an alternative for small residential projects.

We understand in the responsive comments that many commenters were against the leed language -- the l-e-e-d language. We support the decision to remove the leed language. However, we feel it is still important to have an easy option for single-family residential.

For someone like me who attempts to build a new home with a driveway and a pool, I could drop in a preapproved BMP and be done. This would still be compliant with the regulations and would have the same water quality benefit. It would streamline the process and save taxpayer dollars. And this is the leed language.

Next, I hand it over to Heather Stroud.

MS. STROUD: Hello again, Heather Stroud from the City of San Diego.

VICE CHAIR STRAWN: Can I get a pink card from the previous speaker. I don't think we have a speaker card.

MS. STROUD: I have a sense to say the last time up that I did take the oath.

Also, drew just told me that the slide I presented on the TMDL and/or issue had an error in our red line. So I think the red line that we handed out is actually correct and you can disregard the language that was on that slide. We intended for that to be an or not an and.

So the pre-development standard issue, we have submitted extensive written comments on it and I won't go into it in too much detail right now, given our time constraints. But we don't feel that their response to comments are the changes made to the Tentative Order addressed our concerns fully.

Basically, the response to comments seems to boil down to the Regional Board's opinion that they don't think that it would be a taking for the co-permittees to impose the pre-development standard on redevelopment projects. And we are glad to hear that that's the opinion, but we're not sure that gives us a whole lot of comfort in case that we do end up with legal challenges when we try to enforce

that.

Just briefly, the legal standard is that mitigation for a project has to have a nexus to the impacts of that project. And for redevelopment projects, if we're going back to the conditions that exist on a site before any development happened, then we're asking those projects to mitigate for impacts that they did not themselves cause.

The -- there's not really a great alternative option because the alternative compliance would allow in lieu fee, but that is subject to the Mitigation Fee Act most likely, which also requires a reasonable relationship between the fee and the project's impacts, which may be difficult to establish.

So our --

MR. ANDERSON: So would you fix it by saying "while complying with the law regarding nexus"?

MS. SLOAN: That would be one way to fix it. And that would allow the co-permittees to work with their attorneys to address those issues. The other solution would be to change the standard to pre-project so that we're not asking redevelopment projects to mitigate for more than they're causing.

Okay. How much time do we have left?

VICE CHAIR STRAWN: Eight minutes.

MS. WEBER: Good afternoon. I'm Jo Ann Weber with

the county of San Diego. I did take the oath.

I'm here today to talk about the monitoring assessment section. I'd like to echo some of my colleagues' comments, that it's been excellent to work with the staff. And, again, they have been ever ready at the telephone whenever I have had a question, and I really appreciate it.

The first issue has to do with requests for MS4 outfall monitoring and its frequency. Just for your background, what we use this data for, we contend we can -- for wet weather, we can monitor homogeneous land uses or representative mixed land uses and extrapolate the results to other drainages. These data better inform the planning process and allows us to prioritize drainages and/or land uses for implementation. Also, in the back end, it helps us to demonstrate progress down the road.

The San Diego co-permittees have really been way out ahead of this with a bacteria TMDL implementation plan. And as part of that effort, a robust data set has been already collected in San Diego of homogeneous land uses, specifically residential and commercial. We have similar or even more than the L.A. data set which has been considered the gold standard in the past.

In addition, as part of our 2007 permit, we have collected over 250 random wet weather samples. And the

purpose of those samples was specifically to provide a baseline of our water quality from our MS4s. We feel that there's no benefit to actually collecting what would be 102 samples, that 51 samples per year would be appropriate, and that we can easily continue our baseline as well as -- as well as filling in any additional homogeneous land use data that we do need to proceed forward.

Our recommendation is to change the suggested language -- and you can see the red line -- from twice to once. We're required to do special studies as part of this permit which we actually like, because it helps answer very specific questions, helps us move forward.

However, in the most recent draft, it appears as though the special studies that we are currently doing or that we would do once the order started would not appear, instead it would not count towards that requirement, instead it would be -- it would be based on when our WQIP was accepted. And, as you know, that process is about a two year length.

And so we would like to have some slight modifications in language, as you can see at bottom, so that we actually do get counted for special studies done during the WQIP process which, in fact, can help guide the WQIP planning effort.

This has to do with in the assessment section, the

co-permittees, as part of their assessment, are requested to annually conduct a spreadsheet exercise to estimate discharge concentration volumes from each land use area for each major MS4 outfall for each storm event.

First, annual. We see no additional benefit for doing this annually. Waterfall doesn't change that fast, there is a lot of variability in storm water concentrations between storms. We think that once per permit term would be a more reasonable time scale to do this.

We have thousands of outfalls, so we don't feel there's an additional benefit to do this on an outfall by outfall basis. Instead, we would recommend aggregating the outfalls based on some kind of hydrologic sub area, such as a scale that we typically use for modeling.

Also the duplicative requirement, there are annual estimates from monitored outfalls that will be extrapolated to estimate individual jurisdictional loads already in the permit. It's in the previous subsection from this section. I know that staff -- we did work closely with staff on this and they did want this estimated jurisdictional load so we'd actually given them that language so they could get what they want, but we could do it without overextending the quality of the data, but also giving them some number to go by. And the proposed solution, the red line is shown at the bottom of the slide.

Oh, sorry. Here's the red line.

VICE CHAIR STRAWN: Jo Ann, if I can jump in here, back to your last slide, would you -- where you want to go from annual to once per permit, would you consider kind of an additional requirement in there that, if there were significant development or redevelopment in the area of that outfall, that you would -- that could trigger a more -- a repeat or something less than once per permit? You have to base that on building permits or something, but I could see where we're going five years in some areas where there was significant development, might not cover the needs.

MS. WEBER: There is the additional analysis under the duplicative requirement that could be picked up there, potentially. I can see your concern. I certainly would be happy to address staff with that concern. Thank you.

A new requirement with this March draft is a transitional monitoring and assessment program annual report. Assuming that this permit is adopted, such that we begin the monitoring before October 1, which I think is likely, we would be required to actually submit a report next January, 2014. We have not budgeted for that. Our budgeting process took place in January of 2013. And so what we would request is to accommodate the co-permittees budgeting timeline, that our first transitional report will

be due January 31st, 2015 and would essentially include the last two years of data.

We would put the data -- we have budgeted to put our data on Seden, which is a statewide database. And so the data would be available to the public before it is formally reported. The suggested language to make that happen is in the bottom. And, basically, if we just put complete transitional monitoring reporting period, that would sort of solve the budgetary issue.

Under TMDLs, this is a bacterial TMDL, beaches and streams. Currently, there's a compliance calculation that is not part of the actual TMDL resolution. It's under Part C, it says, basically, any storm event not sampled bacteria density for every wet weather day of these storm events must be assumed to be equal to the highest bacterial density reported -- result reported from wet weather samples collected.

Bacteria TMDL only speaks about what to do within a single storm. It does not -- it's silent on what you do for storms -- for other storms that you have not sampled. This approach is very stringent. It's not sound science to assume it's just the highest value. And, frankly, it's a disincentive; either you're going to sample just one sample -- one storm the whole year, see what you get, or else you're going to feel like you have to sample every

single storm. And I don't really see the benefit to doing that.

Additionally, in the actual bacteria TMDL on Page 854, it states that, because of the many issues related to collecting wet weather samples from multiple sites within a short time frame, it basically indicates that discharges are expected to develop a wet weather monitoring or sampling approach in their blurps or clurps which are the implementation plan for the TMDLs.

These plans were submitted in October 2012 and they're going to be implemented upon permit adoption. And so, essentially, we have looked at this, we have come up with a solution to this. And at this point, in the San Diego County slurps -- blurps -- excuse me, blurps -- I guess I got a new one now, slurps -- we have recommended three wet weather samples, rain event samples, as a place to begin, with the idea being that, as we get closer to our compliance deadlines for wet weather, we would want to ramp that up in order to show the good progress.

And I wonder if we should try to take a page from L.A. and Santa Monica -- they have been doing bacteria TMDLs for a lot longer than we have. And what I notice there is that they always base wet weather interim compliance on sample storm, they don't try to extrapolate to non-sample storms. And here's just a -- it's a

strike-out is what we're proposing. So lots of red.

Okay. Then finally, action levels. The Tentative Order provides clear linkage between Provision B and C and states that the water quality improvement plan should guide the customization of "nows and sows" to meet the highest water quality priorities in a given watershed. We propose, you know, to be consistent with Provision B that co-permittees should be allowed to do that customization. And this is suggested language so that basically B and C are consistent and talk to each other.

MS. STROUD: I think this is the last time you'll see my face. Heather Stroud, City of San Diego.

VICE CHAIR STRAWN: You're now into the other county's time, but it's your split.

MS. STROUD: This is my last -- it's our last slide, so I think it may be more efficient to cover it.

This is another quick fix. Essentially, there was language added to a footnote in the "nows and sows" section in Provision C which could, potentially, be read to create another compliance point in the permit. And we don't think that was the intent at all, so this is clarifying language just to say that for TMDLs, compliance is determined in Attachment E. So if there's an exceedence of a now or sow that just happens to be a WQBEL, that that compliance determination is made in Attachment E.

And to quickly wrap up, you know, the San Diego co-permittees don't feel like the permit is ready to be adopted as is. As you can see from our presentation, there's a lot of just kind of -- what may seem like small issues that really could turn into big issues as we try to live with this permit for the next five years. And we would request that you direct your staff to work with us to work out some of these issues.

Thank you.

MS. KALEMKIARIAN: Chairman Morales, just a question for Mr. Gibson or for Mr. Chiu, I guess.

How -- what's the most efficient way, in a short time, for us to get the staff's response to these types of edits? Is that going to come from a concluding comment that they'll make at the end of the hearings or --

MR. GIBSON: I would suggest to the Board that you give the other speakers an opportunity to speak. The environmental groups might have a different point of view on some of these issues. And at the conclusion of those comments, you may have areas of focus that you may want to ask the staff to consider and address in their closing remarks.

MS. KALEMKIARIAN: And my question goes to -- I imagine that some of these, from the comments made, the staff would say yeah, that's no problem. And I'd like to

know what those were. And I may not be able to keep track of that so easily.

MR. GIBSON: Sorry, Catherine Hagan was speaking for the moment.

But another thought that we were just discussing was that to the extent the Board wants to have an errata prepared, the staff would be able to work on that tomorrow afternoon during our break and be able to bring back a suite of proposals for the Board to consider on one or more areas that you identify from the hearing.

MS. KALEMKIARIAN: Yeah, I'm not asking them to do something herculean, but if there are some of these where -- from anyone's comments, the NGOs or the co-permittees, if they say yeah, we don't agree with that, I'd like to know that so that we're not talking about stuff that's not an issue, for the staff at least.

So, however that can happen. I don't know how difficult that would be. I assume that if they're easy ones, they know them now, but I don't know.

MR. GIBSON: I'm not sure how difficult it will be. Part of the discussion you may wish to have on Thursday is if you want to provide them enough time to put a lot of effort into it and come back in May with some proposals. If they are focused areas that the Board has agreement on that they want the staff to bring a proposal

back on Thursday afternoon, it would not be herculean for them to do that.

Most of the changes to the Tentative Order have been such that they can be revised efficiently with the anticipation that the Board may want to explore them a little bit more or have errata prepared. Staff have structure the changes to the Tentative Order surgically so they can make those changes.

I would suggest that for efficiency sake, that if the Board can identify the areas in particular that it may want addressed, rather than ask the staff to address a very long and detailed minutely changed Tentative Order, that would probably be most constructive.

MS. KALEMKIARIAN: Okay.

CHAIRMAN MORALES: Okay. Let's take -- let's see, it's about 22 after on that clock -- five minutes. And then Riverside and Orange County, you guys can decide who goes next, but be ready to start in five minutes.

Thanks.

(Brief recess taken.)

CHAIRMAN MORALES: I have an announcement.

There has been some questions with regard to today's timing -- the questions primarily from -- I'm thinking it's people that want to go to the ball game, but what we will do is, at 4:00, when we start taking the

public comments, even if they finish prior to 7:00, we won't be expecting any of the identified parties or, you know, the co-permittees to continue on immediately after they conclude.

Our thinking is that we wanted to start the public participation section at 4:00 to give as many people from the public the opportunity to participate. But those of you that don't conclude today, we'll start you up tomorrow, understanding that we will take a break at 9:15 for the public officials.

So with that, if we can get started here.

MR. BOON: Okay. Good afternoon, Richard Boon with the County of Orange and the Orange County Storm Water Program. I've taken the oath. This is presentation in four parts. I will speak for 15 or 20 minutes, then hand it over to my colleague Ryan Baron, with County Counsel; Scott Taylor with RBF; and, finally, my colleague from Laguna Niguel, Nancy Palmer.

So before I start I have a slightly off the -- an opinion, editorial, please. I don't share your staff's dystrophian view of the storm water landscape. I don't think we're shortchanging the next generation. I've taken my daughters down to upper Newport bay, we've gone kayaking, I've pointed out all of the restoration projects, quite dramatic improvements in water quality occurring --

not as a result of me, but certainly as result of the people that I have the privilege to work with.

We have gone town to Salt Creek Beach. Before they have gone in the water, I have taken them to one side and shown them the ozone treatment BMP, PWA Engineering project of the year and explained that because of the people that dad works with, this water is clean to swim in, where it probably was not previously.

We have looked at the beach and gone looking for trash. And I've pointed out there is no trash because we passed those drain inlet filters on the way down to the beach that the people that dad works with put in place. I don't think we're cheating the next generation. I think we're doing them -- we're making them proud.

So anyway opinion editorial piece over. I'm talking to -- going to talk about some introductory items. You've seen a lot of text. I'm going to talk more about some ideas and some points of contention. I don't have a lot of decks on my slides. Then my colleagues are going to get into a little bit more detail. And then, finally, some conclusions and questions.

So, first the stakeholder process. We have talked about the stakeholder process. I think it was proceeding very well through the end of October. Our perception from Orange County is that something happened after October --

see the slide -- and it did not work quite so well after that.

But going forward from today, hopefully with some judicious direction from yourselves, we can get this process back on track. And I think I'm going to talk about some of the ideas that I would like to be the focus of those focus meetings that, Chairman Morales, you hinted at might be a way of resolving outstanding issues over the next couple of months -- month or couple of months.

So, where are we at in Orange County? We are in the middle of our forth term permit. So our concerns are somewhat different from our colleagues in San Diego. We have a program that we are still seeking to fully implement, seeking to maintain the momentum of.

So what does this regional permit process mean to us? Well, the permit comes out -- and somebody mentioned that I talked about in left field earlier on. We get a permit, we come up with a plan to meet the permit. And our frustration, I think, is that even before we get to fully implement the plan, the goalposts move.

And that came into focus today -- the question was particularly on land development, that we have this unique performance standard. I'm not clear if the goalposts moved or whether they didn't move on this hundred percent pollutant capture system. If they did not move, as I think

your staff suggested, then we should be able to retain the current language, there's no change in the performance of the program. If they did move, we need to be very clear on that because it has really tremendous ramifications for the program we have constructed for the last set of requirements.

So don't take my daughters' word for the state of the environment. I wanted to put some data up there, because it's one of the few things, as we have contemplated this permit, that we really haven't talked about, where are we at with water quality in the open environment.

I just wanted to touch on a couple of, I think, key areas of concern to storm water practitioners; bacterial metal, toxic organics, condition of receiving waters, and where we are with this new paradigm for storm water.

Okay. So this is something that's going to be difficult for the court reporter to put down, but it's a plot of bacteria data at the monitoring station at the lowest point in the Aliso Creek watershed for the period 2001 through 2012. The only take-home message from this is that there is an unmistakable downward trend in concentration of bacteria, intracochti on the lower shot, fecal coliform. It's unmistakable, it's statistically valid.

It shows that over the last ten years, we seem to have achieved a 20 percent reduction in bacterial concentrations. So what does that mean in terms of beneficial uses? It appears to show that in recent years, we are meeting the Rec 1 standard for this particular watershed in its lower reaches in dry whether.

And I want to point out this is a trend that we see not only in Aliso Creek, but in all of our watersheds in Orange County. And it's something that we drew attention to in our last annual report. So something is working.

I wanted to talk about metals. These -- these are all our monitoring stations. These describe the monitoring program elements that use those locations for taking samples. And the take-home message here is, that during dry and wet weather, we don't exceed these objectives that frequently. We have a single exceedence of one location for copper during a storm event, and we have some exceedences for selenium.

But when we do toxicity identification evaluations, we never ever find toxicity that we can attribute to metals. So I think that's important to understand.

MS. HAGAN: Mr. Chair -- excuse me for interrupting. Are these data showing information that's

already in the Board's record for this matter? Has staff seen it, other parties seen it?

MR. BOON: We have put in every comment letter and every conversation that we have had that we need to get recognition for the accomplishments of the program. And this is information that is pertinent to that argument.

MS. HAGAN: But has this data been presented previously? Is it in the record?

MR. BOON: Some of this data has not been previously provided to you. But if you're thinking that you might want to strike it, this would be the first municipal permit renewal process that preceded with no discussion of the state of the environment.

MS. HAGAN: Well, the difficulty is that the proceeding -- hearing notices clearly stated no new evidence would be admitted, that the written record closed on January 11th. So this -- does this data predate January 11."

MR. BOON: I don't know that this is what we have said. We're not getting due recognition for the accomplishments of the program. I don't think the Board can properly evaluate the efficacy of a permit of regulatory construct unless they understand how the current program is working. And this, ultimately, is the ultimate performance data for the program.

MS. HAGAN: Maybe we could take a break and just discuss this briefly? I don't know -- I mean, it sounds like it's information the Board might like to have. On the other hand, is anybody being prejudiced by not knowing where this comes from, whether it's accurate, how to question it. And I don't know if staff has concerns with it or other parties do.

MR. BOON: It's in the annual report.

MS. HAGAN: It is in the annual report?

MR. BOON: It's in one of those 59 reports.

MS. HAGAN: That's what I was hoping you would say. If that's true, then that's great.

MR. BOON: All right. To continue, copper. The principal sources of copper in the urban environment are vehicle braking, architectural copper and ornamental ponds and swimming pool. The first outweighs the second and third by many orders of magnitude. Senate Bill 346 went into effect 2010. It requires changes in brake pad composition for water quality protection. It will essentially phase out copper in brake pads.

The California Storm Water Association was very aggressive in moving this along. It was carried over the line by our colleagues from San Diego. It is going to solve the copper problem such as it is in urban runoff.

So where is the toxicity that we find coming from?

State board looked at toxicity back in 2010, a very comprehensive analysis of 992 sites, occurrence of toxicity in 48 percent of them. In every case, it was either organophosphorus or pyrethroid pesticides plus some ammonia. So really, the focus is on toxic organics pyrethroid pesticides because the OBs have been regulated out of the marketplace.

So we do all of the things that you would expect a municipality to do in MS4 program. We talk to people about pesticide use. We have a very innovative, integrated pest management policy for our own municipal works colleagues. But the real achievement here was the work by Department of Pesticide Regulations, again encouraged by the service water protection regulations labeling requirements are estimated to ultimately reduce pyrethroid loadings to surface water environment by 80 or 90 percent. And that's an evaluation that was done by Jorgenson, Ph.D. out of U.C. Davis. So state intervention is really going to have a major impact on major source of toxicity for us.

Beaches. We have 42 miles of coastline. We have invested very heavily in protecting our beaches and restoring water quality. And you can read the bay report card for a lot of excellent statistics and very excellent summary of the progress made and are continuing to make. And this is Baby Beach, one of our problems spots, but is

no longer.

Coastal waters. We move off the beaches. Southern California Coastal Water Research Project last year had a nice glossy 40 years of the Clean Water Act. Where are we at. The last sentence of the first paragraph, Toxic Contaminants, have been decreased up to 99 percent. And they were considering all sources, not just PRTWs, but also urban runoff and industrial discharges. And also reflected on the very significant improvement of coastal water quality of the beaches.

Then finally, low impact development. This new paradigm for how we manage urban runoff. Where are we at in Orange County. We have a comprehensive model program for LID implementation. It's been in effect North Orange County 18 months. In the last reporting year, 284 sites, 9,000 installed LID BMPs in the Santa Ana region of Orange County. Our program is still pending approval with your staff in South Orange County.

Channel rehabilitation. Achieving the practical vision. We also have projects that have restored channels. This is Norco Channel in Laguna Regional Park, County of Orange, City of Laguna Niguel. Over ten year, it went from what you see on the left, to what you see on the right.

So I just wanted to reflect on the permit that is being created. This is a word cloud. The size of the word

is proportional to its frequency in the document. You'll see that must is fairly prominent. In our current permit we have 415 musts, which you can also read as individual directives. In the regional permit, we have -- now have 1079, so almost three individual specific directives for every day of the year. If prescription is good, then more prescription must be even better. But we remember the safe words of Paracelsus, the dose makes the poison.

All right. Last item in terms of particular to Orange County. We have four jurisdictions that cross the regional board boundary. We were under the assumption, and indeed received assurances, I think, that for those jurisdictions, rather than having to manage two different sets of requirements, you could apply to be managed or regulated by one board or the other.

The regional permit says no, there will be three programs in Orange County now; a North Orange County program, South Orange County program, and a blended program of the more stringent requirements taken from either permit for the four jurisdictions that have the misfortune to sit on the boundary. That's just nuts.

So how it all adds up, I think your staff lost faith in the stakeholder process, at least as to Orange County's involvement at the end of October. I think we were making good progress. I think we can continue to if

we have the option to meet.

I want to leave you with this. Our current program is working. We have tangible real water quality outcomes we can point to. As we say, and I've said to your counsel, we never seem to be able to get that into the record. And I really think you need to have an appreciation for that as you contemplate the structure and what is being required with this next generation permit.

MR. ANDERSON: So you're arguing to continue the current state of MS4 permitting?

MR. BOON: I think that our current program, the Orange County Storm Water Program, is working.

MR. ANDERSON: It's making progress?

MR. BOON: We are making significant progress. It's doing all of the things that the staff wanted to improving water quality. We have channel rehabilitation, restoring beneficial uses, but you never see any mention of that in the preamble to the next -- to the next permit.

MR. ANDERSON: I agree with you on the iteration about moving the goalposts, having sat through a couple of those, but -- because you guys generate more paperwork than just about any other entity, right?

I would think that you would be arguing to reduce and approach this, because I -- although there may be that many musts, I did not count them when I was reading them,

they seem to allow alternative ways to comply with the musts that seem to be better than the previous permit.

MR. BOON: I think we have. We think that the water quality improvement plan portion is necessarily a helpful feature to us, it's something that we welcome. But when we start fiddling with the land development program, a program that cost us over $1.2 million to develop, that went through an exhaustive stakeholder process in over 18 months, we think it's just unnecessary disruption being caused.

MR. ANDERSON: And you don't think that this permit reenforces this LID?

MR. BOON: Well, I think that's one of the questions for these focused meetings hopefully going forward, have you changed the standard or have you not changed the standard. If you have, you're putting back the cause of LID implementation in South Orange County potentially 12 or 18 months. If you have not, let's keep the current language and continue to move forward.

CHAIRMAN MORALES: You mentioned, toward the end there, when you were talking about the stakeholder process, you said a few more meetings on very focused issues. You just mentioned one, the LID program. And I guess, you know, how this change modifies or doesn't modify at all the current South Orange County LID program.

What other focused questions would you anticipate being necessary to be done.

MR. BOON: Okay. I've got a couple of those coming up. So let me just catch up with the paperwork here.

CHAIRMAN MORALES: Okay. Then I'll let you -- I'll hold my question. You can get there.

MR. BOON: Okay. So the --

CHAIRMAN MORALES: But I do have one further question. And this does not count against your time when we ask questions.

What's your understanding of the application of multiple MS4 permits? Say this gets approved and then there is a current, as you mentioned in the middle of the current Orange County permit. How do you understand the overlap to work.

MR. BOON: Well, my understanding is, if the permit were adopted this year, we would ultimately prepare a reported waste discharge and roll into it when our current permit expires. So we're necessarily -- we're looking obviously at this next permit. So you've heard the protests, but we necessarily have to be engaged in the -- in this dialogue.

I think there was a commitment that there's a potential for reopening when we enroll, but that's never --

you know, your staff may think do we need to do that again. Probably not. I think what is key in the short term is how you resolve the jurisdictions that lie along a regional board boundary. I think trying to take the most stringent requirement from either permit is unworkable.

CHAIRMAN MORALES: Okay.

MR. ABARBANEL: I wanted to comment on some of the things you said. I really appreciate it and am impressed by your sequence of successes. I, too, read the SCCWRP 40 year anniversary of the Clean Water Act document and you were not well represented there, and you should have been represented more.

MR. BOON: I was, actually. I wrote Page 42.

MR. ABARBANEL: Then you were not sufficiently represented according to things you've told us today. At one of our workshops, I think it was December, we were excoriated by the BIA for having spent an enormous amount of money and having accomplished nothing in the last -- I don't remember whether it was in the last 10 or 20 years in improving water quality.

Without meaning to put words in your mouth, I have a sense that you would disagree with that.

MR. BOON: Yes.

MR. ABARBANEL: Okay. Thank you.

I understand the issues that you've raised,

besides the desire for additional recognition, are transition issues. Your permit ends soon, but you will then, if there is a regional permit, transition into that. And there's some smoothness criteria, does your LID plan fit with this, does this fit with that.

Those things, I presume, can be worked out in discussions between the counties, not just Orange County, San Diego and Riverside and the staff at the water board. Do you think that there is a possibility for these things being worked out?

MR. BOON: I certainly hope so, because I think the program is delivering all of the things that you want your staff -- that your staff want to have delivered. I mean, there are 9,000 acres in North Orange County now that look lot greener more ecological.

So I believe we have a robust program that delivers low impact development, which is where the state wants -- and the feds want to see storm water management go. And I wouldn't want to derail that, put a halt on that while we argue or try to fine-tune the mousetrap for infinitesimal incremental gains. We're going to get as much as we're going to get. We should just be out there, continue.

MR. ABARBANEL: Finally, I'd like you to know that your daughters would be welcome at the University of

San Diego when they're old enough.

MR. BOON: Should I make the check out now?

MR. ABARBANEL: Doesn't go to me.

MR. BOON: So I think we have covered that. So critical regulatory issues -- Shawn Haggerty talked very eloquently on this, the receiving water limitations language. I think your staff has taken a bold step, I think they have gone as far as they can go. The water quality improvement references the receiving water limitations. It's just that the receiving water limitations need to reference the WQIP.

And I don't think we're going to -- I think the resolution to that is going to occur in Sacramento. State Board Member Frances Spivy-Weber, you guys are up. And you understand our concerns.

I did want to talk about action levels and, particularly, numeric action levels. The purpose of NALs -- and your staff well know my concerns here -- they're supposed to guide the program we have for abating elicit discharges on lethal connections. And they define numerics. They're inflexible. They don't work as they're intended to work. They don't work as they're explained in the Response to Comments.

And there are two consequences of that. On this chart here, which I actually copied out of the National

Research Council Report on Storm Water, it's a cross-section of a typical watershed. We know in South Orange County, the local geology is dominated by these marine sedimentary formations that are high in phosphorous, that have naturally high -- are naturally high in nickel and cadmium. It seems to me that --

And so the water drains out of the hillside, down into the channel, receiving water exceeds the NALs that we have for nickel and cadmium and some other things, phosphorous. It seems under the NALs provision, although we have a natural condition, we have to investigate every pipe that has a wet weather -- that has a discharge from it because it exceeds a NAL, even though the drainage is subsurface drainage that reflects the local geographic chemistry, it's not a GIC.

I looked in the Response to Comments. It states, "If there are nonstorm water discharge issues, the co-permittees" -- "those discharges should only be NPDES permitted discharges."

So if you are a homeowner, you have a French drain with a small sump pump, and you're pumping out subsurface drainage, are you now required to get an NPDES permit as a homeowner, because your discharge -- we will find that your discharge exceeds the NAL. Was the Clean Water Act meant to embrace homes and homeowners? So that's what it would

seem, that's one of the consequences.

The second consequence is, as I mentioned, we have lost -- this is our numeric action limit exceedences over the last year. And because of the local geology, we are pretty much the entire time exceeding phosphorous, whereas under that prior program that we had that was really targeted at aberrant conditions, there was a much lower frequency of exceedence.

So we have lost the ability to distinguish between natural subsurface drainage that is a reflection of the local geology and those discharges that are arising from connection to illegal discharges.

One other item. As I said, we like the water quality improvement plan, but it needs to be better interlinked with the germ- -- essentially the mandatory program elements that you have to do seemingly irrespective of what you've laid out in your WQIP.

So how it all adds up, the WQIP, the purpose is negated by having these requirements that cannot be modified based on your local priorities. So changes to the permit, defer the receiving water limitations section until the state board has acted, ideally, or include a reopener. Allow for a local derivation of NALs data set, and then just align the WQIP program so one can inform the other.

And that's the end of my contribution.

MR. ANDERSON: Just a quick question on the subsurface. Is that a fairly widespread issue throughout, or is it a fairly unique situation? I know in the past, we haven't dealt with those very well.

MR. BOON: It's a significant issue for a number of our South Orange County cities where there's been a lot of hillside development.

MS. KALEMKIARIAN: I have a question too, Chairman Morales.

Mr. Boon, the presentation by staff and also others have said that there was a new approach in this permit by not looking at actions, but looking at goals and outcomes and taking a flexible approach to that. And I think, perhaps, my colleague was trying to ask you, do you see that that's different, or is your position from Orange County that that's really not a significant difference and you think the old approach of actions would be fine. Or do you not believe that that's even the case that that was the old approach.

MR. BOON: I don't think that that is the case, that it was the old approach. I think what I'm asking for is that we be allowed to continue the momentum of the Orange County program, because I think I can, hopefully, convince you that it is delivering the outcomes, the ecological outcomes, the water quality outcomes that you

want to see -- both you and your staff want to see.

MS. KALEMKIARIAN: Do you disagree with an approach that's -- that the staff leads are taking that's different in asking to look at outcomes and give you flexible ways to reach at outcomes? You have a problem with that, I gather?

MR. BOON: We're entirely aligned on the outcomes aspirations. I do think the permit creates some flexibility -- starts to create some flexibility -- helpful flexibility where there previously was not. I think it just needs to go a few extra steps to cement that flexibility.

I also think you really need to do some soul-searching on land development and whether these changes to these performance standards are really helpful when such good progress is already being made.

MS. KALEMKIARIAN: That's clearly an issue that is going to keep being discussed, but the framework is not one that you disagree with in terms of the approach.

MR. BOON: No.

MR. BARON: Good afternoon, Chairman Morales, honorable board members. My name is Ryan Baron, Senior Deputy, County Counsel, from the County of Orange. I'm Mr. Boon's monkey wrench for this afternoon. I'd like to join in the comments. We continue to advocate for the

changes that we filed on -- the recommendations we filed on January 11 on our 500-page filing. I'm not going to go into that here, maybe just cover two, maybe three issues now, for purposes of our limited time.

I raised procedural objections at the beginning of this hearing regarding the regional board's ability or authority to issue a region-wide permit to Orange County. I'm not going to reiterate the objection, but just sort of give some context to it, some more substance, and talk about what exactly the EPA was looking at in its 1990 rulemaking.

When Congress passed the 1917 Clean Water Amendment, EPA was charged with developing permitting system for storm water discharges. And that rulemaking or portion of that rulemaking looked at how to define a system, what was going to be the regulatory definition of an MS4. What was going to be the regulatory definition for a medium or large MS4. And a system would be issued a permit, a system, singular.

The rulemaking looked at eight options, but it only looked at basically two categories in those eight options; individually owned MS4s, those owned by a city, county, owned by state transportation authority, and then MS4s within the same geographic area defined as either watershed or political boundaries of a discharger, not the

regulating entity. Again those examples, state owned roads, counties or even regional storm water authority which you have in the Bay Area.

Multiple systems could have been defined as a system based on common physical factors and under sort of a unified storm water management plan which you would have in a county or region-wide authority or even Caltrans. But in only one case was comment sought and did the EPA even respond to, was we a region-wide permit issued after formal application by regional storm water management authority. There is not one single solitary sentence in those comments that discuss the ability to issue a region-wide permit to a geographic area as diverse and as large as these three counties.

So Orange County asserts there is no common physical factors with Riverside or San Diego County. We're not interconnected in any way. There's different political boundaries, different political bodies. There is no region-wide storm water management plan.

In fact, Page 1 of the permit recognizes three separate systems and no unified program, such that we're only responsible for things that are inside of our own jurisdiction, not things outside of our own jurisdiction. Although, we do have a duty to collaborate in common watersheds. But Orange County does not share a watershed

with San Diego or Riverside County. The San Juan hydrologic unit drains strictly to the Pacific Ocean.

Now, Richard Boon talked about some of these issues already, but there's differences in geography, soil conditions. Riverside County is inland area, we're a coastal, drains to the ocean. There's differences in drainage patterns, types of discharges. There's different census areas, we're not in the same census area as San Diego County. And this was discussed in the rulemaking as well.

So adopting a permit that applies to Orange County would effectively be adopting a general permit without going through the procedures of adopting it. Now, the single consideration that was advanced at last summer's workshops was the regional board permit would apply to all three counties because it was difficult to read all the reports that had been filed. And a lot of time was spent writing permits.

And we sympathize with that in local government, particularly a county that has three million people, there's a lot of time spent on paperwork. But under the EPA regulations, cost is not a consideration, only physical factors are a consideration.

So the sole reason that was advanced at those workshops was to save internal board staff costs. And the

sole reason that was advanced by EPA today in their testimony was to save costs for the Bay Area as well. That is not a reason or procedural or jurisdictional reason by which you can issue a region-wide permit.

You'll see the urbanized area here, the gray area at the top of the map that I'm showing. Right here is about 140,000 acres of federal land comprised of Camp Pendleton that separates the Orange County permittees from the San Diego permittees. This area here is Cleveland National Forest, which was dedicated open space on our general plan that is also governed by the feds.

There is not an interconnected system here, any common geography or any common jurisdiction. Now, the only other reason that's been advanced is that there is adjacent, but you'll see we're not adjacent with 140,000 acres of land to this MS4 system or to the Riverside County system.

So we would assert that there really is no jurisdictional or procedural basis by which to issue a region-wide permit. Now, the argument is yeah, it worked in the Bay Area. But up in the Bay Area, there is also a Bay Area Storm Water Management Agency Association that over 90 members are a member of that handle some common programs throughout the watershed. And every single permittee in that watershed drains, I believe, to the bay.

Here, we drain to the pacific Ocean. And every permittee in that watershed also, by consensus, agreed to enroll in a region-wide permit.

The second subargument here is that an application or a report of waste discharge is required by the federal regulations. And a complete application must be filed and considered by the, quote, director, prior to its adoption. That application contains quantitative data and other evidence by which to make findings, conclusions of law, establish our programs, and approve a permit to a system.

And holding up my finger here for the record, that application is about three to four inches, it's a big application. That application has not been filed. The Orange County permittees have not filed an application for reported waste discharge, and we're not required to until 18 months prior to 2014, the expiration of our permit.

In Administrative Procedures Act terms, and Clean Water Act terms, that is sort of the administrative basis by which you issue a permit. You look to that application in order to determine what kind of progress you're going to implement, what kind of things the permittees will be subject to. So without that application being filed, you cannot issue a permit to Orange County.

Now, the argument is well, the original draft of the order did not contain a route requirement. It now

does. And the argument is well, now, it requires it before you enroll, we will then go through the application requirement and reopen up the permit. But that's after the fact.

You would be adopting a permit today, or in May, or in June, or end of this year to have a region-wide permit without -- that have provisions that are general to Orange County, with provisions that are specific to Orange County water bodies without having gone through that application process. And there is no substantial evidence under the Administrative Procedures Act to adopt a region-wide permit to Orange County.

We would also contend, by other comments made by board members, that if a route requirement is also going to be implemented after the fact, then that route should be able to open up every aspect of this existing region-wide permit as to Orange County, and we should have the ability to comment on every detail of that permit.

So what's our request? We respectfully request that you exclude Orange County. We object to a regional permit and we're participating under protest. Issue a permit to San Diego. Let the Orange County programs run their course.

I believe that certain programs have not even begun. The Model Water Quality Management Plan was

submitted in December 2011 and is still waiting approval. The Hydromodification Management Plan we submitted in October 2012 is still waiting approval. Those programs have not yet gotten off the ground or they are in interim status.

So let the Orange County programs run their course, consistent with what Mr. Boon said here a few minutes ago, and the co-permittees will consider a region-wide permit in the 2014 route where we can supply you the data and quantitative information that you're seeking.

And if we apply for a region-wide permit consistent with those regulations, we would also ask maybe at that time to extend our permit to 2017 so you can align all three permits. At that point, the San Diego permit will have expired in 2017 and you could do all three permits in one.

The second issue is the WQIP consultation panel. This I was raised by Mr. Haggerty it improperly delegates board approval authority to private parties. The panel will have final authority on what the WQIP says. The permittee will be required to adopt those findings and be a condition precedent prior to submission of that WQIP to the executive officer for approval.

Courts have consistently struck down delegation of

quasi judicial powers to private groups, specifically in the aspects of permitting or licensing. There is no blocks from that discretion and those bodies are not subject to judicial review.

And the third issue, I'll get to, just came up a moment ago. I think that we would not -- Orange County would not be comfortable with the idea of a pre-development standard that is limited by -- in accordance with the laws on nexus or whatever the constitutional language is going to be. We believe that would be vague. We would advocate for pre-project standard consistent with our comments made on January 11th. But we just -- if it were left that vague and ambiguous, it would sort of shift us back to find the bright line, and we don't -- we would prefer that the regional board establish that bright line as where that nexus and -- issues are, so we're not having to figure it out ourselves.

Thank you.

MR. ANDERSON: Sir, I'm just stunned. I've sat through these and all the time, the different regions are always arguing for consistency. In fact, part of Mr. Boon's objection to this is the fact there's going to be three regions that have different inconsistent programs.

I -- I, especially, thought that a regional wide permit in this mode would not be a good idea, especially

given the way that we were approaching the MS4 permitting process. The way you make the permits work when you do a -- a larger area is by making them more flexible, which I find these -- this permit does.

So I'm just stunned, truthfully. And, Counsel, if you could comment on the no application issue.

MS. HAGAN: Well, I think it was included in the Response to Comments, but the Tentative Order does require -- acknowledges the federal regulations that requires submittal of reported waste discharge within 180 days, I believe, prior to expiration. And it provides that the Board would consider proposals in that reported waste discharge and make appropriate changes at the hearing.

So I disagree that we do not have -- that we're not meeting the terms of the regulations in terms of providing the reported waste discharge process.

MR. ABARBANEL: Isn't a rational remedy for Orange County to go to your assembly members and members of the state senate and ask them to include all of Orange County in this region?

MR. BARON: Or maybe the Region 8. That is a request that we can make. And I think it's been made in the past.

VICE CHAIR STRAWN: I think I understand your argument, but I don't believe I understand what it is you

really want. So I'm going to ask a different question.

MR. BARON: Sure.

VICE CHAIR STRAWN: If we were to take this particular permit and change the name on it to say San Diego County, and then bring the same permit back to you next year and say Orange County, what would your problem be then?

MR. BARON: I think that you've heard that we have had problems with how the WQIP process has been defined. There are new standards that have been introduced in this latest iteration dealing with a hundred percent issue.

We have issues -- we have a current appeal of the existing permit on hydromodification, low impact development. There are issues we have objected to in the past. I think what we're trying to say is, you know, let us run these -- like Mr. Boon said, let these programs run their course before we start over as to certain programs and whole training sessions and new workshops as to new standards.

And I think because of procedural arguments are valid reasons that we have to go through in order to adopt a permit. We would do that in court of law. And if we don't follow those procedures, then we feel that it's somewhat arbitrary to adopt this permit as to Orange County.

VICE CHAIR STRAWN: So the argument that it should not be a regional one is really a smokescreen over the specific issues that Mr. Boon's brought up.

MR. BARON: No, I don't believe it's a smokescreen at all. I think it's a matter of following procedure of the federal regulations and it's a matter of going through the application process. Because you can get some of this information out of past permits, you can get it out of reports. But the report of waste discharge is the formal application by which you base a permit on. It says it in black and white in the regulations.

CHAIRMAN MORALES: Just --

Mary Anne?

MS. SKORPANICH: If I could just add one more item. Previously, during Mr. Boon's presentation, he was questioned about whether he's introducing new evidence.

Had your permit for Orange County, that addressed Orange County, come after our reported waste discharge, we would have had the opportunity to put that sort of information in the record, and much more in the record, to provide substantial evidence for what is working with our programs and what should continue and what areas we think we can improve, based on the data that we're collecting.

But because we have short-circuited that process, we don't really see where there's substantial evidence

being presented that you should change our permit and our program at this time and it's because we have leap-frogged the -- the legal process laid out by the Clean Water Act and the EPA.

CHAIRMAN MORALES: And I just wanted to make a real quick comment.

I wanted to thank you for telling us that we shouldn't take cost savings arguments into account.

MR. BARON: If you go beyond MEP, you have to take cost savings into account and there are physical factors that must be looked at when you define a system.

MR. MORALES: My little tongue and cheek.

MR. ANDERSON: My interpretation of the cost savings was not so much that we're saving any cost, but that more in allocating those monies to more directly clean up water than generating the reports, and reading, interpreting the reports.

MS. SKORPANICH: You have heard plenty from us abut cost considerations. We're not saying ignore cost considerations by any means. What we're just saying is -- citing the law where it says you cannot use that as a basis for issuing a regional permit.

MS. KALEMKIARIAN: I have a question that probably goes back to Mr. Boon, but just to follow up on something Chairman Morales said. I understand -- I hear there is

this difference about the 100 percent, is it the same, is it not the same. I know we're going to hear a lot about that.

I don't understand that Orange County would have to change what you're doing, unless it's going to have to meet these new requirements. I understand that that may be a difference. But if the LID measures that are being taken are good measures, they're still going to be good measures, right, or not? They're not going to be suddenly bad measures because there is a new permit.

MR. BOON: You're going to have to pitch that question at me again.

MS. KALEMKIARIAN: What I'm wondering is, I -- of course if you're in the middle of doing things that are remediations for pollution, we want you to continue doing that. The fact that there's this dispute over what the hundred percent means, and is it new, is it not, do we adopt the old language -- I know we're going to be dealing with that.

But I don't understand that dispute to mean that you're going to be stopped dead in your tracks and have to go through a whole new planning process and have to come up with a whole new plan, because you think your plan's working, so it should continue to work.

MR. BOON: The plan that we have in North Orange

County that is delivering low impact development has not been approved for implementation in South Orange County in the area staff jurisdiction. The argument is we just want to go ahead and have a single performance standard for land development for LID countywide.

We don't want to put our LID program for South Orange County on hold for another period while we go back and reinvent it. We just want to get approval for the current program and move ahead. And by going from the storm volume to this hundred percent pollutant removal, we would have to substantially reconstruct this program that we have created. And I have technical consultants that can get into the detail of that.

CHAIRMAN MORALES: Okay. I think -- I kind of understood the question, if I could -- I think of things very simply, because I have kids, and so I talk in those terms.

I understood the question to be that if you've got good processes in place in Orange County, I would think that those good processes will suffice for an outcome-based program, because you'll hit target levels if you have these wonderful working programs.

And the question being why would you need to change anything if -- you know, as you describe, you all are doing really well. And you may be the model for the

rest of the region, we don't know, but --

MR. BOON: I could share my opinion on that.

CHAIRMAN MORALES: So just -- that being just a simple question, if your programs are working really well, isn't it likely that you're not going to have to change anything to get them to hit our standards?

MR. BOON: Well, this is the fundamental question to your staff. I think maybe the -- the piece of information here that is being overlooked is, two fourth term permits were issued, Santa Ana region, San Diego region. We built a land development program, we moved from the treat and release paradigm to the retention paradigm, the low impact development paradigm.

We have had 18 months of implementation of the new program in North Orange County. We have stalled in South Orange County because your staff had the model program since December 2011, we have not had formal approval.

So this program that is delivering LID, which everybody wants to see, is not moving forward in South Orange County at the moment, we still have a basic treat and release requirement.

My concern is that that program is going to get put -- the model program that we have ready to go, that is going to deliver LID, is going to get put back further and further as we continue to rewrite it, because you've

changed the basic performance standard.

CHAIRMAN MORALES: I could see how that would be a concern, but I'm -- I guess I'm not quite following why that would be the case because if it really is a good program, it seems to me you could plug it into the requirements of this permit and it would work.

MR. BOON: Well, I think that's a great suggestion. If you can plug our model program into this permit, that would -- that would be a very positive resolution to this concern -- major concern we have.

CHAIRMAN MORALES: Okay. Thank you.

MS. KALEMKIARIAN: My question was too complicated because my kids are grown, Tomas.

MR. TAYLOR: Good afternoon, Chairman, members of the Board. My name is Scott Taylor and I'm RBF Consulting and I'm representing Orange County. And I think, hopefully, I can shed a little more light on this issue.

I have really two that I wanted to bring to your attention, primarily for the land development portion. And the first one being this issue of the BMP treatment criteria.

Fundamentally, I think one of the problems here is that staff characterized this as a clarification and we're not reading it as such. The language says that it requires retention of 100 percent of the pollutants from the storm,

whereas our old language said insure on site retention with no runoff.

Now, this is a significant change. And as you can see on this slide, we have several documents that -- several documents model WQIP, the technical guidance document, the training modules that we feel would all have to be revised to incorporate this.

There's something on the order of seven million chemicals that are in commercial use today. So how am I supposed to demonstrate that I've retained 100 percent of the pollutants with that kind of a universe that I'm looking at. The devil is really going to be in the details of how the guidance on this would be written. And if it truly -- again, truly was a clarification, I think there may by a very easy solution to this, which is just to retain the existing language.

If that was -- it's working for us right now because we prepared our materials for that. And if staff says there is fundamentally no change in terms of the performance or how they see it, it's just a clarification, then we may be talking about this way too much. And if we just retain the language from our previous permit, I think everybody's happy. And I think that's what I'm hearing everybody say.

But that, essentially, is our ask on this

situation, is to modify Footnote 27 to say the current fourth term permit BMP criteria and their associated programs meet the criteria.

VICE CHAIR STRAWN: If I can jump in here -- let me stop the clock a minute -- because I hear two things. And I share your concern, because when I read this, the umpteenth time -- and I think the professor will probably jump in and support me on this -- the term "hundred percent" scares the wadden out of me. Okay? Any time you say hundred percent anything, you know, I question that, just statistically, how do you get there.

But hearing Mr. Chiu's description today, it's not a hundred percent of the pollutants. It's a hundred percent of the amount that would have been included in that amount that you used to have to retain.

If the wording was changed -- you know, blow out a hundred percent, just because of all of the emotional baggage that comes with that, and it said you have to remove the same amount of pollutants that you would have held captive under the old rule but -- and the reason for wanting any change at all was to allow the option for you to do some green filtering, so to speak, and not have to retain it all on site. That, I think, is a benefit to you.

If that clarification was somehow built in here -- and it takes better wordsmiths than me to do that -- would

that satisfy your concerns?

MR. TAYLOR: Well, again, the devil is going to be in the details. I mean, how do you demonstrate this equivalency when, again, there is potentially, you know, in the millions of pollutants out there. How do you demonstrate that? How do you show that?

I think the previous work-around before was always flow-based, you know up-sized your flow base BMP and that was deemed okay. I think that that is relatively easy to administrate. And that is one of the issues here.

Something like this is just going to be fraught with technical problems to try to implement on the practical basis that we can work -- have something workable over the land development counter with applicants coming in for development applications.

So it seems to us that it wasn't broken and we're taking a lot of pains to fix it.

VICE CHAIR STRAWN: Well, the part that was -- it was not broken, but the part we're trying to improve is to allow the option to be able to filter some of that and let it go and not have to hold it all on site.

Is that not correct, Mike? So that, I think, is a good thing. Seems to me we all have exactly the same purpose here. The question is in definitions. And it seems to me that that's something that we should be able

to work out -- at least you guys should be able to work it out. I don't know that I could.

MR. TAYLOR: I completely agree with that. I think this is perfect example of one of the things where, if we had more time to work with staff where we could talk about our interpretations of the language and what those problems and issues are for us on the regulatory side, or really the land development side, and work with you in terms of what you want to achieve on the regulatory side, there probably can be a meeting of the minds. But we haven't had the time to allow that process to take place.

All right. So we'll move on to the next one, which is streets, roads and highways. And this is my second item. And what we wanted to point out is that roadways are just -- are fundamentally different than land development projects. They have specific constraints and also specific public benefit.

And, really, the land development criteria is applied indiscriminately to all projects. And we wanted to talk about some nuances here that could benefit, I think, the environment, as well as the permittees in terms of streets and the roads. So this is the -- essentially, what we're asking for is to be able to apply the U.S. EPA green street standards to roadway redevelopment projects.

Here's an example of a retrofit that we are

completing construction drawings on right now. And these are some of the constraints that we ran into. As you can see, there are many when you're looking at retrofit within an existing residential area, which is what this was for bioretention.

There are a lot of competing interests besides, you know, just getting the flow to infiltrate or be retained on site. And by way of an example, then, put this together for a right-turn pocket project. You can see this is the right-turn pocket that's being added right here where we're replacing impervious surface that exceeds the 5,000 foot threshold.

And because of right-of-way constraints, we can't have full retention and bioretention within the street right of way. So we have to go offsite. And going offsite, and using these numbers right here, which are down to the penny, and you say wow, that's pretty accurate -- that's because we just finished doing this retrofit project that I showed you previously -- we get a total capital cost of this project of $80,000, and $20,000 of that is bioretention cost.

Well, if we use the EPA green street's approach, we can fit a swale in right here within the thin strip of right of way left over. The project cost -- the total project cost then drops to $62,000, and the BMP cost in

that case is $1950. So we have almost 25 percent treatment per capital project cost versus a 3.1 percent.

And the take-home point here, then, is that these -- you know, this indiscriminate application of this criteria is going to have the effect of really probably slowing down or stopping a lot of public work street improvement projects.

And, again, that's really -- water quality is just one of the things that the permittees need to balance when they're looking at the need for projects. The others being public safety and, you know, traffic improvement. We're not really giving much away by allowing the green streets approach in this case. Vegetated swales are probably somewhere on the order of, you know, round numbers, 70 percent efficient. So you allow projects like these to move forward, more of them at a reduced cost, I think you improve water quality as well as improve public safety.

And so our requested change to the permit is really then just -- actually a complete modification to Section E3B3C which would be to allow the use of green streets in street reconstruction and widening-type projects.

And we would just ask -- this doesn't -- this is something we, again, could work with staff on. There's a lot of gray areas and difficulty with this that we could

come up with a street development standard-type section that could be done after the permit is completed but a placeholder saying these types of standards can be developed.

So we had some other issues and, in interest in time, I'm not going to go into them in detail. But just very quickly, some of the things that we would like to discuss further is the redevelopment projects that have water quality treatment BMPs. I think we're going to start seeing this coming to -- you come in to redevelopment a project that already has some BMPs, they shouldn't be subject to the PDP requirements.

We have already talked about the pre-development and pre-project for hydromodification. Not well-grounded in science, I wouldn't think, when you look at the SCCWRP studies on this issue. The same for the sediment supply, there's wording in the permit that says that sediment supply must be unaffected by the project. Again, not really consistent with the SCCWRP studies and really somewhat of an impossible standard to have completely no effect.

Flow-through BMPs are required for alternative compliance projects if the alternative compliance project also has to have a greater water quality benefit. And, in interim, if you allow this to occur you have to have

temporal mitigation, still have to mitigation before you get the offset compliance project done. It seems like there's kind of mitigation on top of mitigation for some of these offsite projects that maybe could be streamlined, less complicated. And, again, not giving away much in terms of environmental protection.

So, again, we'd like to work with staff more on some of these issues. I think that there are solutions to those and we could arrive at something of a general consensus on what we need to do.

And unless you have any questions, I'm going to turn it over now to Nancy Palmer.

MR. ANDERSON: Did you follow the County of San Diego's suggestions on this section, or did you -- do you have a copy of their suggestions?

MR. TAYLOR: No.

MR. ANDERSON: If you can look at those and see which ones cover your concerns, that would be great.

MR. TAYLOR: Okay.

MS. PALMER: Good afternoon, my name is Nancy Palmer. I'm with the City of Laguna Niguel. And I've been South Orange County's representative on the bacteria TMDL Stakeholder Advisory Group for the last ten years.

My comments are specifically directed to the

bacteria TMDL provisions that are found in Attachment E of the draft permit. I have not had the opportunity to compare notes in advance of this meeting with -- San Diego presented some comments this morning already. But we'll proceed anyway and flip through quickly where there is overlap.

We have come a long way on this in the last ten years. And, really, stakeholders from all sides of the aisle asked for some of the same kind of changes to the previous draft of Attachment E to make sure that it was consistent with the approved TMDLs. The most important of those changes have already been incorporated, while some of them are recognized as intending to be revisted later, when the TMDL reopener occurs as we have some new data.

So I would personally like to really thank your staff for listening to all of us and commend them for getting this Attachment E really a lot closer to where it needs to be. And I commend them for some good work.

That said, there are still some requirements in Attachment E that are inconsistent with provisions of the adopted TMDL basin plan amendments. There are three that we believe should be corrected before it's adopted. No. 1, Attachment E does not acknowledge water bodies that are 303D listed. No. 2, final receiving water limitations have been a bit tinkered with. And No. 3, the exceedence

frequency calculations have been a little bit embellished.

All these provisions in Attachment E should reflect what was previously approved by the Board. You'll recognize all three of these topics as brought up already by San Diego.

I'm going to skip over this little history on the idea of delisting, which is my first topic. This is the language currently in the basin plan that specifies that there were beaches in Orange County and San Diego County already been dramatically improved and have been 303D delisted before the basin plan amendments were even adopted.

So here's a little more from the basin plan. It indicates that the delisted water bodies have to continue to be monitored so in case improved water quality is not maintained, the water body would be put right back onto State 303(d) list.

Again, from the approved basin plan text specifies that the delisted water bodies not subject to any further action as long as monitoring data continue to demonstrate and support compliance.

I would like to show you the comparable Attachment E language, but it does not exist. The draft does not acknowledge water bodies that are formally -- formally delisted and no longer considered impaired, or it

does not make a link to monitoring being used to demonstrate that ongoing lack of impairment.

What Attachment E should do and currently does not is specify that formal 303(d) delisting by the state, coupled with ongoing monitoring confirming the lack of impairment constitutes a valid demonstration of compliance with the TMDLs. And we're asking that such a provision be added to the permit.

My second topic is receiving water limitations. This is the current basin plan Table 7-48, which shows receiving water limitations for beaches. The standards are differentiated between single sample, exceedence frequencies for wet weather days on the left side of the table, and then geomean exceeded frequencies for dry whether days on the right side of the table.

This is the comparable table in the draft of Attachment E, the yellow -- or the red outline there is something that snuck in there that wasn't in the receiving water limitations in the basin plan that needs to be removed. What they put in there is a single sample, zero percent allowable exceedence frequency for dry weather. That doesn't -- does not really belong there. And we really need to stick with the objective as it was stated in the TMDLs that have already been approved.

Basically, the same thing, the previous slide was

for beaches, this is the one for creeks. This is out of the basin plan, shows the same -- the comparable standards again; single sample for wet weather, geomean for dry weather. When you get to the draft Attachment E, they have added in that zero percent single sample exceedence into the dry weather sample, which is not appropriate. Again, we need to stick with what it says in the basin plan.

Issue No. 3, the -- another issue that's come up, this is the basin plan's provision having to do with how the result of a limited number of samples are extrapolated to calculate the wet weather exceedence frequency for a year.

I want to point out that during the TMDL process, there is whole series of these requirements. And there was a lot of arguing about what should go in there and what should not. And in the end, we all kind of agreed we really did not have enough data to really answer that question very well. So the stakeholders and the board all agreed that we would revisit this subject after more field research was done, at which point the TMDL and basin plan would be reopened to change these provisions, if that was appropriate.

And so the first two provisions up there are exactly as they are in the basin plan, which I expected to see those and I expected to maybe talk about those again

later. But what's interesting here is the third one there in red, which is sort of a brand new one, but as San Diego pointed out this morning it extrapolates the storm data to unsampled storms.

And that's probably not scientifically valid, but maybe the main point is it's brand new, does not belong there. If we want to talk about that when we have data, okay, but it should not be there now.

So in the end, basically, we're just saying don't create -- don't create new requirements that are inconsistent with the basin plan, inconsistent with the intent of the regional board in approving those basin plan amendments and that go beyond the requirements of the adopted TMDLs. And these ones that I've mentioned should be corrected prior to adopting this permit.

The rest of this is basically just a summary and some of the chapter and verse of the provisions that were suggested be corrected. So I'll flip on through those. I haven't seen this one. That's not mine.

So with that, I'll just thank you for my attention and -- or for your attention and let you know that I'm available for any questions.

VICE CHAIR STRAWN: Did you give us a pink card?

MS. PALMER: I gave you a green card. I always go back to that table and I look at that pro versus con and I

always think --

VICE CHAIR STRAWN: You're a pro kind of person. I'll look for it in that pile.

CHAIRMAN MORALES: Anyone else?

No.

MR. BOON: So it's for me to conclude.

I think really there are too many issues for us to try and resolve today and tomorrow. I think the basic fundamental request would be for you to direct your staff to go back to work with the stakeholders, Chairman Morales, you've continued the possibility of some focus meetings and come back with a Tentative Order that offers broad support.

I just have one last picture of a steam locomotive but I -- I did want to note that I used these -- the train coming off the track. Our experience of the stakeholder process, I think, perhaps was a little different than the other counties. We were under the impression we believe that some requests for some meetings through the start of this year have been declined by your staff. So I think we came away with a different impression than perhaps San Diego County. But we look forward to re-railing the train.

Thank you very much.

MR. UHLEY: Good afternoon, Chair, members of the Board. My name's Jason Uhley, Riverside County Flood

Control and Water Conservation District. I'm the chief of watershed protection and I have been sworn in.

I understood that you wanted to stop the testimony at 4:00. We probably have a 45-minute presentation. I also wanted to check time, if we could.

CHAIRMAN MORALES: Yes.

Trust me, we're not stopping testimony. We're just moving on to different testimony at 4:00 but --

For the co-permittees, that's right, we had planned on stopping at 4:00. And I think we would probably break for a bit prior to beginning the 4:00 session anyway. So rather than interrupt the flow of your presentation, I think we'll take you -- my guess is immediately after the elected officials tomorrow morning.

As I had stated earlier, for the co-permittees or any of the other parties, we are not expecting you to stay here until 7:00 in the event that we finish up early with the public testimony portion of the day, but we will expect you back tomorrow and we will try and work through this. Okay.

MR. UHLEY: That's acceptable to us.

Thank you.

CHAIRMAN MORALES: Okay. So let's take a short break and try and figure out how many folks we have got for our 4:00 and our --

(Brief recess taken.)

CHAIRMAN MORALES: Okay. I'd like to reconvene the meeting and begin with the public testimony portion of the day.

And what will happen here is we like to line up the speakers. So Mr. Strawn will call your name in advance, you know, one or two speakers in advance of you coming up. So please be ready to proceed.

There have been questions asked by some of the folk at Orange County -- and this is perhaps best directed at maybe BIA and the NGO's other parties. Some of the Orange County folks had asked if anyone intended to possibly cross-examine them because, if not, it might save them a trip back up.

We don't want to prejudice anybody's right to do so, but if there's anybody that, you know, feels strongly one way or another about having anyone in particular here, now would be a good time to share that with us.

So if I could hear first from, let's see, BIA.

MR. WINCKEL: Good afternoon, gentlemen and ladies. My name is Borre Winckel, the president of BIA San Diego. We do not intend to cross-examine any of the co-permittees.

CHAIRMAN MORALES: Thank you.

And NGOs?

MR. GARRISON: Good afternoon, Mr. Chair and members of the Board. My name is Noah Garrison, I'm with the Natural Resources Council. We do not have questions or cross-examination for the County at this time.

CHAIRMAN MORALES: Thank you.

Okay. So let's go ahead and start the --

MS. HAGAN: Mr. Chair, excuse me, I'm sorry.

I wanted to find out if we could see if the Coastkeeper representatives also concur that they would not have any cross-examination of the -- of the co-permittees.

UNIDENTIFIED COASTKEEPER: Orange County Coastkeeper and Inland Empire Waterkeeper do not have cross-examination at this time. San Diego Coastkeeper was here. I'm not sure where they stepped to, but --

MS. HAGAN: Well, maybe when they come back, you could --

VICE CHAIR STRAWN: She pulled their cards and said they would be making their presentation tomorrow morning, so I think they took off for the afternoon.

MS. HAGAN: Is Jill Wikowski still here?

CHAIRMAN MORALES: Thank you for your patience folks. I used to make the drive to Orange County opposite direction daily, so if I can save someone that, I'm more than happy to do it.

VICE CHAIR STRAWN: The order will be Chris Haynes

first and then Roger Butow, then Christine Mailloux and then Livia Borak. And Mr. Butow will have an extra three minutes.

CHAIRMAN MORALES: Miss Wikowski has stepped up. I was basically conducting a query if anybody was going to cross-examine the co-permittees that have spoken today.

MS. WIKOWSKI: I don't believe so.

Thank you.

CHAIRMAN MORALES: Thank you. All right.

Mr. Haynes?

MR. HAYNES: Chairman Morales and members of the Board, my name is Chris Haynes, and I have taken the oath.

You guys have had a busy and very typical day to understand all these issues. My focus is going to be pretty small and, hopefully, easy to understand. Thank you for this opportunity. I want to highlight just one area of our written comments.

This MS4 permit requires toxicity monitoring in the receiving water. The Navy supports this approach as consistent with state and federal water quality law and really protective of water quality beneficial uses. Monitoring for toxicity of storm water discharges in the receiving water is also consistent with the framework for monitoring assessment that this board adopted, I think December last year. As well as the monitoring done for

areas of special biological significance, California's most pristine and protected water bodies, all of those are directly in the receiving water when toxicity is evaluated.

I want to emphasize that this is testing of 100 percent receiving water, not the storm water that's coming out of the end of the pipe. Testing of a hundred percent storm water runoff from nearly every parking lot statewide would exhibit toxicity, but toxicity is rarely measured and shown in the receiving environment.

By measuring toxicity in the receiving water, this permit appropriately focuses our attention on the resources and on protecting those resources from damage from that storm water discharge. And we then only address areas where there's a toxic response in the receiving water.

In summary -- I told you I'd be brief -- we support the toxicity testing proposed in this permit as consistent with the -- with the application of receiving water toxicity as protective of the water quality end beneficial uses.

We want to thank you for this support -- for your support of this outcome-oriented approach.

CHAIRMAN MORALES: Thank you.

VICE CHAIR STRAWN: Mr. Butow?

MS. KALEMKIARIAN: I'm sort of surprised because the Navy's known to be so precise in terms of regulations.

So all the comments that were made earlier today, did any of them echo with the Navy, or you guys are okay with the permit as drafted?

MR. HAYNES: The permit does not directly impact the Navy so we're okay with it.

MS. KALEMKIARIAN: No apartments being planned anytime soon I guess.

MR. HAYNES: I think everybody in this room is desirous of being very protective of water quality, as was stated earlier by the Board staff. We want to leave a clean environment, clean water in the bay and San Diego County for not all only ourselves, but our children. So we have no problem with that.

MR. BUTOW: Once again, this is Roger Butow. I'm the founder and executive director of Clean Water Now. And I want to thank the Board, especially Chairman, for allowing me to speak at this point in time.

Briefly, I would like to establish some boni fides. One of the things that was perhaps confusing at the focus meetings and at some of the Board meetings is, I'm probably -- I'm not sure if there is anyone in this room with the same boni fides.

I am a 40-year builder of both commercial and residential in South Orange County. I have built not only an award-winning residence that was voted best

architectural project and home by the residents in South Orange County, by the Guild, Architectural Guild, but also was water quality advisor to the five-star Conde Nast Laguna Beach Montage Resort and Spa.

I say that because perhaps you can understand why I bring a different skill set. I am a cross-trained person, so I understand both sides of the equation, both builder and as an NGO leader. But I'd also say that the last 15 years, I've also started building up my environmental consultancy career and I am a land use and regulatory compliance advisor. So, once again, I'm not sure if anybody else in this room has those credentials, but I think they're critical in some of the comments I'm going to make to you today.

I like to start out, I did provide, by the way to your XO -- sorry, assistant executive officer Jimmy Smith, an 8-page comment -- pre-comment kind of outline of what I'm going to say, but this is actually what's more in depth, so I'm going to hit you guys with the bullet points. And once again, thank you for the time frame and the time slot.

First, I'd like to start -- this is out of order, so Jimmy, I apologize. The water quality improvement plan panels -- I'm going make a bad joke -- those, to me, are death panels. I don't really see anything efficacious

about those panels.

For this board's edification, and perhaps for staff, the County of Orange already had an unsuccessful analog very similar to this about ten years or so ago. What happened is, is that they appointed an NGO rep that, in fact, rubber-stamped and green-washed all of the BMPs.

So we don't have lot of faith, and we now are asking for that be stricken from this permit. If you want to create voluntary panels -- I know the County is also going to claim it's unfunded, so we strongly encourage you, and once again, the reasons were provided, and in case you have questions, I'll answer them.

But we don't know what the legal basis for this panel is. Secondly, we really would like to know if someone from staff could tell us who suggested this, because we really don't see it being a very efficient way to do it. This does not work for us, it has not worked for us in the past. And, once again, the historical analog to us was an abject failure.

If we had not outed this person in the Los Angeles Times, we don't know what kind of havoc would have been brought. But once the Times was through with a series of feature columns, that person was removed from that position and the panel was put to sleep.

We would like to also say that we are curious,

legal counsel seemed mildly confused by our questions about recent adjudications. What we see, Clean Water Now, is kind of an erosion -- if I can use a phrase -- a kind of a blurring of the line between point and non-point. And there have been numerous federal court adjudications. And we're kind of desirous that there be a little bit more, at least, feedback from counsel, because we think the line's being erased by these adjudications. And we know that that will cause problems for this permit.

We do -- believe me, we approve of 99 percent of this permit, as I said last November. That said, we're really desirous of this being a defensible permit. We are not interested in an endless chain of hearings. And once again, we've actually gone to Sacramento to defend this staff and this permit at the 2002 occurrence.

Moving on -- and we need to X these off. We are desirous that someone explain to us -- I wish U.S. EPA were still here -- about effluent-dependent water bodies and their effect upon aquatic and myparians. We're concerned that the HMP might in some way affect these effluent-dependent water bodies, and particularly -- I know it sounds crazy, counterintuitive, but in some cases, you can actually kill ecosystems. We have created these systems as if we were God and we are very desirous of making sure that they are protected. We know the water

should be of high quality, obviously. We are the ones that got the Steelhead Trout listed through NOAA in Aliso Creek. So we are committed to aquatics.

The other thing we're concerned about are Class 5 injection wells. We did note three of them for the -- for the Board to be aware of. Once again, U.S. EPA, along with the NRDC and several other parties, determined that infiltration trenches, commercially manufactured storm water infiltration devices, dry wells seepage and improved sinkholes are determined by U.S. EPA. This was in 2008. And they're White Paper determined to be, in fact, a form of a Class 5 well. So we'd like some clarification on that issue.

I'm going to try and move down the highway of life. Okay. Restoration. Wayne, did appreciate your comments about restoration, but we are desirous of understanding a little bit more about why "restore" was stricken and red-lined. Restore just means to return to a previous state or put something back. Cindy Liu, of U.S. EPA, at one of the focus meetings -- and I like what she said, "We're not asking for Jurassic Park here," and I think Wayne used "Pre-Columbian conditions." I think she said 50 years -- that's about the time I graduated from high school.

So we would like to know why "restore" was taken

out. We kind of like that. We liked the idea of natural restoration to the maximum extent practicable. So we would like some guidance from staff as to why "restore" was removed. We're not sure under what circumstances that petition was successful. And, in fact, that's part of the reason we want to know who came up with the water quality improvement plan panels, because we like to know who we're dealing with.

I will say this, and it is rather interesting. Richard Boon said that darn, his name did not get mentioned or the County get credit for Aliso Creek. Sure, there's 20 percent less pollutants. If you don't know why, your staff knows why. Clean Water Now was the sole petitioner around 2001. We wanted a cleanup and abatement order for the entire Aliso Creek watershed.

Around 2001, the Clean Water Code 13225 directive was imposed, we'll say. This was a compromise. But that imposition is the reason that the County is in compliance in Aliso Creek. When it came up for renewal five years later, we were the sole petitioner, with other NGOs sitting in the audience, to make sure that was renewed.

Your permit, this NPDS, is actually remarkably similar to that directive. That's part of the reason we support it the way that we do, because this directive has increased. There's your results that you're hearing people

complain about.

Mr. Boon, you're right, that worked in Aliso Creek, 20 percent reduction. So I say that the metrics are there in place. Ten years later, Aliso Creek is 20 percent better. I consider my life, personally, for the last 15 years to be a hundred percent success because I actually made a difference.

Thank you, Chairman Morales. Unless you have any questions, or someone else, I'll happily answer them.

CHAIRMAN MORALES: Thank you, Mr. Butow.

MS. MAILLOUX: Good afternoon. I have not been sworn in. I don't know if that matters, if you're doing all the public.

MS. HAGAN: Since lot of the public was not here earlier, you might just administer a new oath to those that haven't take it already.

CHAIRMAN MORALES: Sure.

Thank you for pointing that out, Ma'am. For those of you that are going to speak -- I think we have probably got, oh, 20 some odd comment cards -- if you were not here in the morning session, I'm going to ask you to come toward the front, and I'm going to administer an oath. And then when you do come to the mic, please state your name for the record and that you have taken the oath. Now, after I make the statement, just please say "I do."

Do you swear that the testimony you will provide is true and correct. If so --

"I do."

CHAIRMAN MORALES: Thank you.

MS. MAILLOUX: Good afternoon. My name is Christine Mailloux, M-a-i-l-l-o-u-x, and I have been sworn in. I'm currently a board member of the Friends of Rose Canyon and we submitted comments earlier in January, a very short letter in response to the Tentative Order.

Rose Canyon in the UTC area is a critical linkage between the eastern part of the city and Mission Bay, allowing wildlife, native plants, and recreation, a corridor to flow through that area in order to an enjoy the canyon and to have those three elements peacefully co-exist.

I'm here to speak in favor of Agenda Item No. 8. The storm water runoff is a critical issue for those that rely on canyons like Rose Canyon. We appreciate the focus that this current agenda item, this current permit, has on watershed-based plans as Rose Canyon is an integral part of the Rose Creek watershed. And we also appreciate the increased emphasis on public participation.

I'm not sure that the earlier speaker was talking about that, but we believe that San Diego will have a very different experience with the increased emphasis on public

participation and stakeholder input. San Diego has an incredible brain trust of talent here on these issues, on the environmental issues. And specifically because of the diversity of the ecosystem in the county, all the different canyons and mountain areas and beach areas, the public input that coordinates those expertise would be incredibly valuable.

Specifically, however, Rose -- Friends of Rose Canyon encourage you to remove the safe harbor provisions from the current permit. From a cost benefit perspective, we believe that the minor installation from potential legal action that apparently the safe harbor would provide to some stakeholders is not worth the sacrifice that that safe harbor provision may entail from measurable concrete protections and results for the actual water quality improvement in San Diego.

Thank you very much.

CHAIRMAN MORALES: Thank you.

MR. STRAWN: Livia?

MS. BORAK: Good afternoon, board members. Livia Borak, Coastal Environmental Rights Foundation. I took the oath this morning.

I would like to echo some of the comments made by the environmentalists and agree that this permit was something that we could support and something did go awry

on March 27th when the safe harbor provision was added into the permit.

There are specific areas where we had a few concerns, such as the monitoring and the hydromod, but really the poison pill for this permit is the safe harbor. This regional board has a legacy, and until today, and potentially continuing, legacy has been as a strong regional board with strong MS4 permits.

And as the EPA mentioned, this permit is a significant departure from previous iterations and previous permits because of the safe harbor and because of the way the receiving water limitations have now been addressed in this permit.

There have been attacks to the previous permits. The BIA sued in 2004 and lost, arguing, essentially, the same thing, that you can't have MEP and have water quality standards. The Court said yes, you can, and you can attain those. And there's been no evidence that that can't be attainable. I'm sure your counsel has that case. And probably the BIA remembers that, because that was a sound beating.

The departure now is something that is premature. The State Water Board has, you know, received numerous requests for safe harbors from everybody in response to the NRBC case, as if this was something new. The receiving

water limitations have always been enforceable. We could have sued. We didn't. We haven't sued. There has not been a proliferation of lawsuits. Yet, we here the same argument, the sky is falling and you can't have the receiving water limitations in the permit. It's not a realistic threat and you should not be rushed into putting something into the permit when the State Board is considering that.

Do the best you can now. Approve a permit that's protective of water quality now. We know we have more and more water bodies on the 303(d) list. We haven't been able to go into the water for 72 hours after it rains. We're not go doing a good job. Do not reward the municipalities for doing a bad job by giving them an out or a potential out.

The burden that you will put on your staff in assessing these new models, these new compliance alternatives, is it worth it? Do we need numeric goals to replace the receiving water limitations? You have numeric goals, you have water quality standards and receiving water limitations.

I urge you to take out the safe harbor, follow in the footsteps of the previous boards, keep your legacy intact. Approve a permit that is protective of water quality and please remove the safe harbor.

Thank you.

VICE CHAIR STRAWN: Julia Chunn-Heer, followed by Adam and then Matt O'Malley will be next.

MS. CHUNN-HEER: Good afternoon, members of the Board. I'm Julia Chunn-Heer. I'm the campaign coordinator for Surfrider San Diego and I'll be speaking on their behalf today. I have also taken the oath earlier this morning.

First of all, I'll like to get started by pointing out the crowd -- if they could all hold up their signs -- who have come to voice their opinion about the storm water permit. And as of 12:00 today, your staff has received 215 letters from our members following the revised version of the draft permit. I'd also like to acknowledge your staff, who has done a tremendous job through this process. It's been very time-consuming and I've been utterly impressed.

I, along with my environmental colleagues, have sat through the all-day workshops leading up to this point. We've looked into the tremendous complaints and concerns from the co-permittees and the BIA that accommodated the last two permit cycles. And like your staff acknowledged earlier this morning, at some point, there is just not going to be complete agreement.

I hope you don't continue to hear, but if you do continue to hear the complaints about potential new cost, I

would suggest that the reality is that we should all be more concerned about the cost of non-compliance. There is a great example up in Orange County in Aliso Creek, where hundreds of millions of dollars are spent just to stabilize the creek, not to restore it, because it was public -- public infrastructure was threatened.

Your own document, in Attachment F, Section 6, states that this permit is not more strict than the federal regulations, so the cost consideration should not be taken into account, although you have done extensive examination of those cost considerations.

Surfrider San Diego is supportive of the new regional structure. We are supportive of the watershed-based approach. We support the shift to become an outcome-oriented instead of action-oriented permit, the increased reliance on BMPs and low impact development and the increased stakeholder and public participation in the water quality improvement plan process.

However, we were very disappointed by the last minute addition of the safe harbor clause in the recently released revised version of the permit on March 27th. If that clause remains, we will have to oppose the permit. It's a poison pill and must be removed.

The safe harbor takes the teeth out of the permit. And we know from experience that without the potential

threat of litigation, storm water permits can be completely ineffective. No one wants an overly litigious environment. Litigation is extremely resource-intensive for us as well and reserved for only serious violations. But members of the public and environmental organizations deserve to maintain their right to sue for egregious violations.

If co-permittees are truly acting in good faith throughout the process, I'm sure they will have little to fear. Furthermore, I'd encourage you to ask them how much money they have spent on litigation in the last 12 years in the San Diego region.

When faced with competing multiple priorities, such as budget cuts and lowered staff, co-permittees will likely be under pressure to pursue the cheapest and easiest ways to comply with the permit. We need to maintain our potential for litigation to keep them motivated and accountable where necessary.

The safe harbor clause is a dangerous get-out-of-jail-free card. And there have been enough comprises that were reached in this revised version so the safe harbor is unnecessary and it should be removed. If it remains, Surfrider will have to oppose a new permit, like I mentioned. We believe that it's a step backwards and is most likely illegal, which you'll hear more about later.

I would applaud all the efforts that have gone in

so far to make this more of an outcome-based approach as opposed to action-based. But with the safe harbor clause left in there it remains action-based. So please don't go backward on that progress. This is an adaptive iterative process and with several edits that were made in this revised version softening the permit, it is no longer needed and I would urge you to remove it.

Thank for your time and consideration.

MR. O'MALLEY: Afternoon members of the Board. My name is Matt O'Malley. I've taken the oath.

I live here in San Diego. I'm also a Surfrider member. And you have one of my green cards up there, I believe.

I want to start off by saying I really am encouraged by the outcome-oriented approach of this permit as opposed to just tracking actions. I've had some experience with those tracking actions MS4s and know they just become a checklist and not really evolve into anything. So I'm very encouraged by that. That's a start.

I'm also hopeful that this permit can really begin to make a dent in the remaining issues that we face in our region here. But I did you give you a green card on this. I support the permit only with the removal of the safe harbor. And the reason for that is because I believe that provision violates Clean Water Act regulations. In

particular, the anti-backsliding law 40CFR122 expressly states that renewed or reissued permits must contain limitations, standards and conditions at least as stringent as the previous permit. The new language of the safe harbor, to me, is too similar to the functional equivalent language of past permits which essentially said implementation of certain measures aimed at improving water quality was compliant even though water quality standards were not being achieved.

By resurrecting this functional equivalence for compliance alternatives containing less stringent standards and conditions than previous permits, this new permit violates anti-backsliding regulations. Instead of compliance meaning clean waters, it would mean studies, models and schedules.

Furthermore, the new language allows for more time to meet water quality standards by its very nature, something EPA administrators expressly stated violates anti-backsliding regulations.

From a more practical standpoint, I kind of think it just starts off on the wrong foot. Basically, we have beefed up public participation provisions, which we're very much in support of, and that would hopefully allow us to be more collaborative to reap the goals we want to get to.

By putting the safe harbor provision, it is sort

of telling us right up front that we should be divided over the issue. And also, staff earlier alluded to the idea that part of the reason for putting this is in is the fear of citizen suits. So basically, we're hearing right up front that NGO participation wants to be limited, even though, to my knowledge, I don't know that there have been any environmentally-funded legal actions against MS4 permits in San Diego.

We also heard a few people talk about watershed panels, which we support. We think it's great that we might have some say in some of these matters. But if, in fact, they are an improper delegation of authority, that further limits our ability to take part in it.

So by implementing a safe harbor, you're taking away some of our ability to participate and if, in fact, these watershed panels are not allowed, further degrading our ability to participate in the process. So just starting out from the beginning knowing that that's sort of, you now, the starting point in this permit, it's not really encouraging for us.

However, that said, with removal of the safe harbor provision, we are, and I am generally, in favor of this permit as a whole.

So I want to thank you for taking the time to hear us today, appreciate it.

MS. KALEMKIARIAN: Chairman Morales, just a clarification from this group. I'm a little confused, because I know there was a -- there was some back and forth with the co-permittee about safe harbor and that certain things would not constitute safe harbor.

Can you all be a little more specific for me about what aspects of the safe harbor in the permit you're objecting to. Because my understanding is it's rather limited, but I want to get a better understanding of that.

MR. O'MALLEY: I can speak for myself. And, basically, the aspect of what I call the safe harbor is compliance alternatives. So by allowing some other process to basically equal compliance, like I said, sort of a functional equivalent, you put in these BMPs, you follow this process, you are deemed in compliance. Well, my idea of compliance is water standards are met.

So you're basically substituting that compliance with a new compliance. To me I say, well, that's anti-backsliding. And I think the regulations are very clear. You're changing standards and conditions, which is a language of the actual federal regulations.

Those standards and conditions are actually backtracking. Instead of saying that the water quality standards are now what is your final compliance, you're now saying some other process, some process that's sort

of more studies, more schedules, you know, the eventuality that you will meet these water quality standards.

But in the previous permits, it's the water quality standards which are actually compliant. So I see it as -- I think it's pretty clear, and even EPA has spoken, that allowing more time for compliance when a previous permit, you know, required compliance now, would violate anti-backsliding.

MS. KALEMKIARIAN: So do you have another perspective on how you accommodate what appears to be an acknowledged need for flexibility, meaning if the people are making -- if a co-permittee is making an effort --

MR. O'MALLEY: Sure. Generally, the iterative process does allow for that. Even now, it allows for that. I mean, the fact that we have --

MS. KALEMKIARIAN: Slow down a bit. She's going to faint.

MR. O'MALLEY: The fact that we have come how many years with this process, we understand that there are changes. You know, earlier, they talked about the change in goalposts. I can definitely understand, you know, that issue, but the goalposts change because we're seeing progress. If you always had the same goalpost, then once you reach it, you would never need to go further than that.

We haven't met water quality standards. So as far

as I'm concerned, that goalpost needs to be changing until it's at the water quality standards. So I think the iterative process takes into account all of these sort of changes and adaptive strategies that need to happen. And I encourage that, I think it's great. Hopefully we can be part as NGOs helping out that process.

And there's -- in the past, we have made a lot of statements about how that might go forward, whether accepting some of our permitting -- sorry, some of our monitoring data, just having more meetings, more inclusive. And I do think the public participation process are encourage ing. But the safe harbor, I think, pretty much kind of knocks out a lot of that, especially then if these water panels are deemed -- you know, if they're considered not to be or anti-- or improper delegation, it even further limits us.

So I think without -- I mean, I don't know that the process now isn't adaptive and isn't changeable. I think it is. I think that's kind of what we have seen over time. Because if they're talking about changing goalposts, it obviously has been changing over time. So I think it allows for that. But I don't think that, basically, substituting actual compliance for some sort of, you know, agreed upon scheduling or monitoring that may be imprecise or -- that's not something we think is acceptable.

Otherwise, in the permit, though, yes, I think that it does allow for the iterative process and adaptive process to go forward.

Thank you.

VICE CHAIR STRAWN: Next two speakers will be Paloma Aguirre and Haley Haggerstone.

And while they come up, I'd like to remind everybody, at this point, we have almost 80 speaker cards, so we're going to be here till late tonight. Speaking fast only wears out our court reporter.

So I strongly encourage you to keep in mind who has gone before you and who is coming after you if you're part of a group and don't repeat each other. We have read most of this, we appreciate you coming today, but you don't all have to feel like you need to use your full three minutes or we're going to be here a long time.

Thank you.

MS. AGUIRRE: Good afternoon, members of the Board. My name is Paloma Aguirre and I'm the Coastal conservation program manager for WildCoast. WildCoast is an Imperial Beach-based nonprofit organization that conserves coastal and wildlife. I'm also a local surfer. I have been surfing Imperial Beach for over ten years and have to deal with the constant beach closures caused by ocean pollution.

Imperial Beach is predominately a working-class community that has limited access to open space recreational opportunities. For many underserved children, ocean recreation is one of their only outdoor recreational means to have a space.

We need to insure our Coastal waters are safe for our community's use. We hope the Board considers issuing a strong permit that will insure the beneficial uses and health of all ocean users is protected.

Thank you.

VICE CHAIR STRAWN: Thank you for being brief.

MS. HAGGERSTONE: Hello, my name is Haley Haggerstone, chapter coordinator with Surfrider Foundation San Diego County chapter.

As Julia, my coworker, mentioned, you should have received 215 versions of a letter, an action alert that we sent out to our members, supports and activists. I'm going to read that letter into the -- to you today.

"Dear members of the San Diego Regional Water Quality Control Board, as an ocean user and an ocean lover, I'm writing to inform you that I support the comments made by Surfrider San Diego and the other environmental organizations in relation to the draft MS4 permit.

"I am dismayed by the ease with which all of us have come to accept post-storm beach closures as a fact of

life. Furthermore, pollution from dry weather flows are constantly polluting our ocean every day. That is why we need a strong permit.

"We just celebrated the 40th anniversary of the Clean Water Act and we're still not meeting those goals. You have heard many of the same complaints from co-permittees and the building industry for the past ten careers. The time to act is now and to be aggressive.

"The co-permittees are advocating for an MS4 permit they can easily comply with, but as the agency tasked with protecting the beneficial uses of our waters, I urge you to push the envelope. Our local waters are polluted and we want to move away from the 72-hour rule following rain storms. Our local water bodies contribute too much to our quality of life and tourism economy to take this matter lightly.

"I'm excited by the new regional MS4 permit that moves toward outcome-oriented and watershed based management. Please hold the line to protect water quality, restore our local waters and get rid of the unnecessary safe harbor clause.

"This new permit needs to be a step forward not backwards. I urge you to consider the thousands of beach users and water advocates as you make this decision and not just the co-permittees tasked with implementing these

regulations. Co-permittees have had the same complaints for years and our water is still dirty.

"Thank you in advance for taking a strong stand in favor of clean water for the citizens and tourists of San Diego."

VICE CHAIR STRAWN: Allison Prange and Alison Hindley and Sandra Moore and Lyle Beller.

MS. PRANGE: Hello members of the Board. My name is Allison Prange and I have been sworn in.

I live in PB and -- Pacific Beach and I'm a volunteer with Surfrider. Please excuse the scrubs. I actually got off work early, made arrangements so that I could be here today.

I currently live two blocks from the beach -- I'm very lucky. And to say that it's part of my life is an understatement. In my line of work at the San Diego VA Hospital in the OR, I need a place to unwind that is calm and peaceful. I.

Have been able to count numerous times, especially in this last year, where the water in PB was incredibly dirty, replacing the beauty of the beach that I've grown to love so deeply, hearing the waves every single night and every morning. The beauty of the beach was replaced with trash and filthy water, making it impossible to swim without getting sick.

I'm an avid swimmer, been swimming since I was a little kid. And I walk, I run every single day pretty much on the beach. In my 19 years in health care, we try to focus on prevention and protection of our patients when it comes to disease and illness. I ask why wouldn't we do the same when it comes to our water quality. Health and healthy water go hand in hand.

We do need a strong permit. Thank you very much.

MS. HINDLEY: Hello my name is Alison Hindley and I've been sworn in earlier with the group.

I wanted to say I approve of the new MS4 storm water approach. I'm also a Surfrider member and I'm here because I'm very concerned that this new permit, although it sounds good, is not going to be strong enough. And I want to make sure that I can safely go out in the water, go swimming and go surfing snorkeling, not to worry about oh, when did it last rain, oh no, I can't go, 72 hours.

I mean, that's not good enough. I think we can do better than that. In my opinion, the storm water drains, they should only really be there for storm water, that's why they're called storm water drains. They shouldn't be used as, like, a trash disposal, you know. They should be free of all the pollutant and contaminants.

I'm just here to support clean water and hope that the permit's going to enforce those uses.

Thank you.

MR. BELLER: Good afternoon. My name is Lyle Beller. I live in the Ocean Beach community of San Diego.

I feel that your requirement for a watershed-based storm water management planning just makes sense. And it's sorely needed if we're ever to reduce storm water-based induced contamination of the oceans.

I surf and swim in the ocean. I experience frequent ear infections. First half of my life, I spent living in and on Puget Sound, never got an ear infection. The later chapter, I spent five years in the Indian Ocean off West Australia, dove a lot, swam a lot, never got an ear infection. Here I get them every year. My doctor tells me that's from the ocean. So anything you can do to clean that up, I will really appreciate it.

I had the recent opportunity to observe the process and comment on development of a drainage plan done by one of our municipal agencies. And I was just totally flabbergasted that the professionals involved could not look outside their own geographical area of influence for solutions to the problems even though all the waters coming from up there, uphill, throwing through. They just weren't allowed to look at that or consider it. That's why I feel so strongly that watershed-based planning is sorely needed.

My past life, I worked for a government agency for almost 40 years in the facility planning and engineering shops. I know it's really hard for these agencies who do things that are not required. So that's why I'm asking that you require them, please, because that's what will motivate them and basically give them the reason to do this watershed-based planning.

And I would like to see that requirement done, no wiggle room with no safe harbor clauses because, as a bureaucrat, that's the first thing I looked for was, do I really have to do this, can I save my agency some money.

So please, make this as strong as you possibly can. And also I'll just -- members of Surfrider and everything they have said, I just agree with.

Thanks.

VICE CHAIR STRAWN: Next Jamie Ortiz, Harry Orgovan, and Mr. Peugh.

MS. MOORE: Good afternoon, my name is Sandra Moore. I'm new to this area. I recently moved here from North Carolina, where I did work with the Division of Water Quality for the State of North Carolina. And I do understand the problems with storm water runoff, we had them there, and obviously, we're having them here as well.

I recently volunteered to help the San Diego Coastkeepers with their monthly water quality monitoring.

And I'm here today to support them and to support the changes that they would like to have made to the permit.

I would also like to share that my husband and I walk on the beach almost every day in La Jolla Shores, and we enjoy swimming, kayaking, and we used to enjoy surfing when we could. But we also enjoy watching the other local residents, the tourists and the wildlife on the beach in the ocean.

And when we walk down to the beach every day, we are met with the sign that says -- where the storm water drain is that says, don't come into contact with this water or anything that's coming out, and don't swim two or three days after a rainfall. And I think we all know why and we know what the problems are. We know what we need to do. We know that it's going to cost some money. But we also know that it's worth every penny to protect the vital resources because it's a lot easier to protect it and it's going to cost less to protect it than to clean it up.

And I think everybody else has said all that really needs to be said. And I appreciate your hard work. And thank you very much.

MS. ORTIZ: Hello. Thank you for hearing from me today. My name is Jamie Ortiz and I was sworn in.

I'm a homeowner in Ocean Beach. I'm a triathlete and swim in the Pacific Ocean and in Mission Bay. I'm

going to do a little history here.

In 1966, Henry Ford, II is famous for his speeches about how his company was going to close when federal regulations required safety requirements like seatbelts. As we all know today, Ford is still in business. And if we watch advertisements, I don't think there is one car company that does not leave with safety standards as one of its top selling points.

In 1977, the industry cried foul play over requirements to phase out ozone-destroying CFC emissions in aerosols. The day after the regulation was put in place, the original inventor of aerosol found a solution.

In 2007, decision makers said no way to federal laws to approve efficiency standards in light bulbs. Yet I doubt one person here today does not energy efficient light bulbs in their homes because that's all you can find on shelves.

In 2013, industry and decision makers stood before the regional board saying the storm water permit is infeasible and costs too much.

I'm a small business owner and I've designed my business to work with other businesses and colleagues that want to leave this region a better place. And I'm here telling you that San Diego is still full of businesses that are creative, innovative, problem solvers that can

implement this permit, thrive and continue to be successful businesses in San Diego.

Please let us learn from history. I urge you to adopt the storm water permit with the amendments because regulations spurs innovation. And clean water is worth it.

Thank you .

MR. ORGOVAN: My name is Harry Orgovan and I have lived four blocks from South San Diego Bay for 60 years. I own and operate a kayak business operating in South San Diego Bay offering Kayak rentals and wildlife tours utilizing the San Diego National Wildlife Refuge and the Chollas to Wildlife Reserve.

My business brings me in direct contact with storm water and urban runoff. I cannot operate my business after a rainstorm because of bacterial contamination and the risks to human health. The economic impact to our region in regards to the tourists' perception of our region's ability to maintain a safe environment in which to bring their families and vacation is at risk.

I strongly urge you to approve the new regional MS4 permit, but not to include the safe harbor clause. Our storm water and urban runoff systems run through channels, rivers, streams and a lot of out of site conduits and empty into marsh and wetlands, where they still do exist.

If the general public realized the pollutants and

hazardous contaminants that we were willing to let spew directly into our bays and ocean, would they be so tolerant.

I want to thank you for your time and the work this board has done to protect our children and grandchildren, the environment and wildlife.

Gary, before you start, I'll get the next few people in line, Roderick Michener, Belinda Smith, Shauna McKeller and Mark West.

MR. PEUGH: I'm Jim Peugh. I'm the Conservation Chair for the San Diego Audubon Society.

Our wildlife are suffering huge impacts from global climate change and from water pollution. We don't seem to be smart enough to do anything about global climate change. But if this permit is implemented, we will be smart enough to do something about pollution.

We strongly urge removing the safe harbor provision. Just looks like it's substituting clear water quality for bureaucratic charts, you know, with boxes, arrows and diamonds on them. And it just is not the kind of trade off this body ought to be making and not a trade off the public should accept.

I'd like to talk a lot about the exemption for hydromodification for our concrete channels. I strongly urge you to put -- return that as not being in this permit.

One simple reason is a lot of our channels -- even if they're cleared, and mostly they're not because of expense -- flood when it rains. Hydromodification permit will at least allow some provision for reducing that flooding during rainstorms and that has a huge water quality impact.

When channels -- you know, when the water leaves channels, washes across lanes and through driveways and through parking lots, that's bringing in -- then comes back, eventually ends up back in our receiving waters, that's bringing pollutants into the receiving waters. So this flooding issue has direct impact on water quality. And the hydromodification provision will allow you to begin to fix that.

But the secondary reason, which I think is probably more important, the permit, in a number of places, acknowledges the rehabilitation of the creeks, you know, taking channels, concrete channels and turning them back into creeks. It is an important way of improving water quality. And we know it's the most natural way, it's probably the most cost effective way, letting nature do it instead of having gadgets doing it.

But this provision for existing projects from it will basically give you a dedicated stakeholder group to prevent the rehabilitation of channels. All the property

owners, all the potential developers that drain into this channel will want to make sure that channel stays concrete so they can be exempt. And so you're just guaranteeing a way out constituency to prevent it.

How can they prevent it? All sorts of ways; lobbyists talking to people trying to divert -- keep restoration projects from being funded, they could file SEQUA lawsuits, run the clock out so the restoration money couldn't be spent by the time it had to. There's all sorts of ways that clever business people can figure out to keep from rehabilitating streams.

So it's just -- the unintended consequences of that measure are just huge. So I hope you will not include that in the permit. And finally, if you are going to have watershed panels, I would love to participate from Mission Bay San Diego.

MS. KALEMKIARIAN: Chairman Morales, can I ask for clarification?

CHAIRMAN MORALES: Because we have got community folks here and government people here, Wayne or your staff, can you, just in a minute or two, address the safe harbor issue while everyone is here listening? I'm looking through the permit and the fact sheet and I don't see where there's a huge hole here. So maybe I'm missing it.

MR. CHIU: I think there's a difference of opinion

of what the term "safe harbor" means. One view of it is that, you know, if -- if somebody is provided safe harbor, they are, you know, free of any potential for a lawsuit or any, you know, adverse impact to them because they have been provided a safe harbor.

Another view is that, you know, if you know they're allowed to do something and -- this gets to the functionally equivalent question. If they're allowed to do something and then, you know, that something is vague, then that safe harbor would be hard to enforce, I guess, or not enforce.

So then, in our situation, what a lot of people are calling a safe harbor, we don't view it necessarily as a safe harbor, we view it as a more clear process to achieve water quality standards that provides a transparent process and a transparent understanding of how we will achieve water quality standards. Because at this point, I think everybody acknowledges that the likelihood of violations of the Provision A requirements is actually happening already so, you know, compliance is not being achieved right now.

What we have provided in our compliance option is a very detailed process and set of requirements that we believe is -- sets a very high bar to demonstrate that they will achieve -- in fact, achieve compliance at some date

that is provided to us.

Currently, you know, the MEP standard is what is allowed. And the MEP standard is supposed to, like I said, evolve over time. And it's supposed to get us to compliance somehow. I believe it was Livia who spoke to this a little bit, who said we can have MEP and we can achieve compliance.

Well, the problem is we have MEP right now. We are not achieving compliance. And what we want to do is utilize MEP and push that forward to actually achieve compliance. And actually have a clear understanding of how we will get there versus, you know, just saying we will rely upon the MEP standard and, you know, each permit will tell us at what point MEP is the next step of enough.

We want to make it so that MEP is truly the way we will get to compliance and they will tell us how they will use MEP to get us to compliance. And so the compliance option we have in there kind of details, you know, tell us what you will implement, tell us what you will monitor, tell us what you will assess, tell us when you plan on getting there, tell us what, you know, goals you plan on achieving.

And in my mind, if they were not to comply with any of those elements, and at some point we were to determine that they are no longer implementing that, we

could enforce. And I think anybody from the public who saw that they were not implementing what they said they were going to implement could also, you know, sue because they don't see them implementing it.

And the other aspect of this is, you know, because it is part of the water quality improvement plan, this compliance option is really intended to be something where all the stakeholders do have a say in whether or not that compliance option is acceptable.

All right. So it's not that we're trying to provide a safe harbor that says, you know, as long as you're doing this, you will be free of any potential for enforcement because actually, it creates a lot more opportunities for enforcement if they are not complying with that compliance option.

And it also provides that clear accountability of what they are expected to do because they laid out their plan. So, you know, I think there's just, like I said, a difference of opinion of what safe harbor means. And in this situation, you know, I think you've heard a lot of statements that this is a safe harbor and, you know, it can be interpreted that way.

But I would also say that, you know, it does state a very rigorous set of requirements that does provide an additional level of accountability. And it will, I

believe, push forward the MEP standard much quicker.

That's my opinion.

MR. MORALES: We're going to need to take a quick break because we have got a new court reporter that's going to set up.

MR. CHIU: Thank you.

CHAIRMAN MORALES: I think we have run our first court reporter into the ground.

Thank you.

(Whereupon, at 5:02 the hearing was adjourned.)

STATE OF CALIFORNIA,)
SS.
COUNTY OF SAN DIEGO.)

I, Tammy L. Rampone, a Certified Shorthand Reporter, in and for the State of California, Certificate No. 6511, do hereby certify that the statements from this Public Hearing were recorded and transcribed true to the best of my ability by electronic transcription supervised by me.

IN WITNESS WHEREOF, I have hereunto set my hand on this 4th day of September 2013.

_____

Tammy L. Rampone, CSR
Certificate No. 6511

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

WEDNESDAY, APRIL 10, 2013

ITEM 8, VOLUME 1

WATER QUALITY CONTROL BOARD

BOARD MEETING ROOM

9174 SKY PARK COURT

SAN DIEGO, CALIFORNIA

A-P-P-E-A-R-A-N-C-E-S:

CHAIRPERSON:	TOMAS MORALES
VICE CHAIR:	GARY STRAWN
BOARD MEMBERS:	Eric Anderson Henry Abarbanel Sharon Kalemkiarian
EXECUTIVE STAFF:	David Gibson, Executive Officer
	James Smith, Assistant Executive Officer
STATE BOARD STAFF COUNSEL:	Catherine Hagan
ALSO PRESENT:	Roger Mitchell Chris Witte Julie Chan Christina Arias Kristin Schwall Michelle Mata David Barker Barry Pulver Mascio

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San Diego, California, Wednesday April 10, 2013

5:00 p.m.

(Break while court reporters switch places.)

(Back on the record.)

Chairman MORALES: Okay. Folks, let's get started.

Our new court reporter is queued up and ready to go, so let's go with the next folks in order.

And while we do appreciate all the comments, we also appreciate when those of you that come up give us new information and tell us you agree with previous comments rather than have to reiterate them. We've got a huge stack of cards of folks that still want to speak, so don't feel compelled to take your full three minutes; thank you.

VICE CHAIR STRAWN: I think we're up to Roderick Michener and then Belinda Smith, Shauna McKellar and Mark West.

MR. MICHENER: My name is Roderick Michener, and I have been sworn in. I am Vice Chair of the Executive Committee of San Diego Certified Chapter.

The reason why I'm here, though, is that I'm an avid surfer, long-time San Diego resident and I've been with the same sort of things that -- same as the problem

with ear infections after rains, as we mentioned earlier.

But beyond that, I've been in the hospitality/tourist business in this town for 20 years, and nothing is more upsetting to me than having to explain to tourists who come to see us in January and February during the rainy season, they go to the beach and they want to know what those yellow triangles are and why they can't go to the water. I have to explain to them, that even though the Clean Water Act was passed four years ago, that we still can't manage to keep our oceans clean after it rains.

So what I'm asking, is that I really like this new watershed approach to the MS4 Permit, but the Safe Harbor clause kind of takes out what we see as the enforcement part of it, and I'd like to see it passed (inaudible) with that; thank you.

MS. SMITH: Hi, my name is Belinda Smith, and I'm here as a Surfrider activist, a business owner, local community person. I sit on my local town council and I'm the former Chair of the "Know Your H2O Program" for Surfrider, which is a program we use to educate the general public about how fresh water management impacts our oceans' waves and beaches, and this MS4 Permit is a really great example of that.

We basically look for practical solutions to

integrated water management, and as a grassroots activist, I've talked to hundreds of people over the years, and most people really have no idea why water quality is so important to their health and their lifestyle until they get sick.

Eight years ago I was learning to surf, kind of an older adult surfer I guess, and I kept getting sick after every session. I couldn't understand why and I found out. It's because the water is so polluted. And if you think about it, if it rains, you know, every few days and we can't go in the water until 72 hours after it's rained, that means if it rains every few days, you can literally be out of the water for weeks on end if you have intermittent rain throughout the winter and spring.

So I got involved with Surfrider, because I kept getting gastroenteritis every time I surfed. And, you know, people complain about the cost to implement these higher standards on these permits, this MS4, but think about the costs that are associated with people who miss work or show up to the doctor or the hospital because they're sick. I mean, it's no fun having constant ear infections or gastroenteritis or skin diseases or whatever other disorders people are getting.

I really like the MS4 Permit, because it will greatly contribute to the goals of integrated water

management. If we take a watershed-based approach, we will greatly reduce runoff, which, to this day, is the single, biggest problem affecting our water quality.

Jim Chiu was talking to me during the break. He had to go, but he said he wanted me to emphasize that we should not allow the exemption from hydromodification for concrete channels and what he's really trying to get to, is that we want the ability to be able to restore our creeks and our little streams and our little estuaries, and if we allow that exemption, we won't have the ability to restore those little creeks and channels because none of the NGO's will have the ability to apply for those grants.

I wish he was here, but it is really important that we not keep channelizing and concreting over all these areas and continuing that practice.

Anyway, to get to the end, I support the MS4 Permit, obviously, and I support it without the Safe Harbor clause. I really wish that the enviros had been able to give a presentation about that particular issue so you're in the loop, but hopefully you can hear about it soon; thanks.

Oh, can I enter anything into the record from one of our staff members from our Surfrider headquarters?

CHAIRMAN MORALES: No.

MS. SMITH: Okay; thanks.

MS. MCKELLAR: Good evening, Board Members. My name is Shauna McKellar. I've been sworn in.

I have been a resident of San Diego for seven years now, during which time I've been very involved in water quality issues in our County. I am a volunteer with Surfrider's Ocean Friendly Gardens Program where we educate the community about our three main principals: CPR, which is "Conservation, Permeability and Retention," which is technically what you have in your permit, what is known as "Low Impact Development." I consider Low Impact Development to be one of the more holistic approaches to water quality. I think it can solve our water-quality issues as well as our water-quantity issues in our County, and it's very important to me.

I have been very disappointed in the past few permit cycles how much LID has not been implemented in the County. I think it could have been implemented much better. I am one of those crazy people that run around parking lots, staring at surface drainage on my own time for fun, which it's kind of crazy but that's how much I am into it. I have family in Northern California and I go home to visit them, and I see LID everywhere I go. You can't go to a parking lot without seeing LID. You can't go to a condo place without seeing LID. And I come

home to San Diego and I just don't see it here at all. It's so rare and I just don't want to see that continue.

And so, when I was reading the draft permit and I saw that there was kind of this shift and there was a lot of talk about LID, there's even some talk about doing some (inaudible) projects. I was really encouraged by that, and I'm really excited to see that that will happen under the new permit. I am a little discouraged by the inclusion of this alternate compliance clause, or what you might have heard as the "Safe Harbor clause," that it's going to allow cities to ignore LID and maybe pick an easier or less expensive method to try to reach their water quality goals, and I really don't want to see that happening. I want to see a lot more LID here.

That said, I want to say I'm really looking forward to working with the copermittees during the next permit cycle to try to find ways to increase the LID in our communities and, you know, educate the community as to why it's important and what it can do to help water quality, because, after all, we all want the same thing: We want cleaner water and a healthier environment to live in.

So thank you very much.

CHAIRMAN MORALES: After Mark, it will be Kristin Brinner, Mark Corcoran and Todd Cardiff.

MR. WEST: Good afternoon, Ladies and Gentlemen and general public. My name is Mark West. I live in Imperial Beach, California.

I want to start out and say I do support the MS4 Permit, but I would like to see the removal of the Safe Harbor term. I'm a Surfrider activist, retired Naval officer, surfer, concerned member of the public.

Recently my life journey took me to the University of Colorado where I earned an Executive Master's in Public Administration, and I've been specifically doing a capstone project talking about water quality here in San Diego. Part of the research, actually, was interviewing surfers from Oceanside all the way down to Imperial Beach. It was amazing. All of them knew about pollution issues in their home break, and each one of these guys had stories about illnesses. It was either sinus, ear but two of them actually had hepatitis stories, kind of scary, and they all attribute it to water quality.

I think that when our cities are getting sick, it becomes more then just a public nuisance. It becomes a public policy that really needs to be addressed.

Everybody in the room already knows how important water quality is. Research that I have done on this capstone project shows that 32 million visitors

here in San Diego come to the beaches; thirty-two million, that's eight billion dollars annually. That translates to an economic impact in our County of 18 billion dollars.

Tourism is our third largest industry in the County. If our water bodies and beaches continue to climb like the latest Equinox Quality of Life Dashboard said it did, this eventually will impact our tourism. This is not what we want. We want to make sure stormwater compliance is given top priority now, so we don't regret it later.

Lastly, during my 24 years of Naval service, the term "Safe Harbor" was a term of endearment, a place where weary sailors, after months at sea, could actually go and find a little respite. I'm not going to say what we did. I think we found this Safe Harbor clause, it's not a term of endearment now. In fact, I think it's a term of confusion. If there's confusion about the term now, think when somebody doesn't comply to this and our litigious society gets ahold of that. It's going to cause problems. The environs tomorrow will give a report that will address some of our Safe Harbor concerns, so I think that we should wait and really look at what they want to say.

I'd like to finish by saying, you know, we do

need to press forward. This MS4 Permit is fantastic in many ways. It's the right thing to do. It's the right thing to do now. But we need to make sure that we hold the copermittees accountable; thank you very much.

Thank you for the future of our families and friends in San Diego.

CHAIRMAN MORALES: I do have a quick question.

What were you referring to, that suggested that our "water quality was deteriorating"?

MR. WEST: The Equinox Quality of Life reports, the recent one. It actually said that our beach closure has actually increased from the previous year to this year. I'd be more than willing to give it to you. I've got it on my desktop, if you'd like.

CHAIRMAN MORALES: Yeah; it's a public comment.

MR. WEST: That's fine. Yeah, great; thanks.

MS. BRINNER: My name is Kristin Brinner. I'm a resident of Solana Beach and also a member of Surfrider. I agree with everything that Surfrider has had to say so far, so I just want to share a personal story with you.

My husband and I love our local beaches. He went surfing once after it rained; big mistake. Several days later, we were in Urgent Care. He had hives all over his head. His eyes were almost swollen shut. He

had very bad, flu-like symptoms, of course, a steroid was required. This happens too many times to people who go in the water after it rains. It doesn't have to be like this.

Please don't take the teeth out of this permit, remove the Safe Harbor clause. If that clause is not removed, I oppose the MS4 Permit as it currently stands; thank you.

MR. CARDIFF: Hi, my name is Todd Cardiff. Thank you very much for allowing me to go out of order.

CHAIRMAN MORALES: And who's that with you?

MR. CARDIFF: This is Gregory Cardiff, but I don't know if he's going to make any comments or not.

So I just wanted to make one comment. This is what was prescribed to me this last winter. It's called "Ciprodex." It costs $140 with insurance -- I think it's like $210 without insurance -- for 7.5 milliliters; that's what was required when I came down with repeated ear infections this year. This is a serious, serious problem.

And thank you very much for holding the line. We really appreciate you passing this tough MS4 Permit; thank you.

MR. CORCORAN: Hi there.

I'm Mark Corcoran. I'm a resident of the City

of Del Mar. I'm here in support of Surfrider. I just wanted to thank you for all your hard work on the MS4 Permit so far.

And considering this stated ambiguity about this so-called Safe Harbor clause, I'd like you to revisit it, if possible, and maybe flush this out a little bit better.

And then one other thing. I'd like to ask all of the environmentally-minded folks in the audience right now, to raise their hands and their cards and for you to realize that all of these people are here for no better reason than to see cleaner water in San Diego; thank you.

CHAIRMAN MORALES: Did I call a "Megan Baehrens"? No?

Travis, you're next I guess, and then Sean Karafin.

MS. BAEHRENS: Good evening; thank you.

My name is Megan Baehrens. I am the Executive Director of San Diego Coastkeeper. I am a native San Diegan, a surfer, a swimmer and very pleased to be here this evening.

First, I wanted to applaud the Board and thank you for holding this evening session that gives us more opportunity to hear from a community of people who don't get paid to sit for eight hours in a room like this and

still have very valid and important opinions.

CHAIRMAN MORALES: You mean like us?

MS. BAEHRENS: Like me.

Environmental groups; like everybody else in the community, want clean water and a vibrant economy. We bring to bear powerful but limited number of tools and so, I wanted to address this provision, this thing called a "Safe Harbor Provision," just briefly.

The inclusion of this provision takes away one of those tools that we have. The problem is, that the acceptance or approval of the alternative compliance that it implies is done through a consultation panel that includes only a single environmental representative and that voice, the voice of the water can be drowned out in a reasonably easy fashion.

So for groups like Coastkeeper and Surfrider and others with those concerns and playing that role, we would have no further recourse to help support the objective that this permit is intended to achieve.

So please exclude that provision, in which case, we would be very proud to support this permit.

Thank you for your time.

CHAIRMAN MORALES: Okay.

MS. BAEHRENS: Mr. Chairman?

CHAIRMAN MORALES: Go ahead.

MS. BAEHRENS: I just wanted to point out, Coastkeeper is a member of the coalition that's speaking -- or the group that's speaking tomorrow, and it's perfectly fine for Coastkeeper members to speak on their own behalf, but to the extent speakers are speaking on behalf of the organization, it should be counted as part of the coalition. The group's testimony tomorrow.

CHAIRMAN MORALES: Okay.

MR. PRITCHARD: What does that mean for me?

MR. CHIU: Speak for yourself.

MR. PRITCHARD: Okay. I'll speak for myself.

My name is Travis Pritchard, and I don't know if I can say this, but I am a lab manager at San Diego Coastkeeper, and I actually don't know anything about the Safe Harbor provision or anything, so I'm not going to talk about that.

What I do find encouraging in the permit, is the fact that it encourages corporate entities to work with environmental groups and watershed groups, and other groups have been collecting valuable water quality data.

What we do is -- you know, my program, we have 30 sites around the County -- we monitor monthly, and that data can be used for compliance purposes. I mean, it's good data. It's able to be used and we want to help. We want to not stand in the way of copermittees.

We want to help them figure out how to achieve clean water in San Diego.

So there's too many -- I just got back from a conference with EPA and a bunch of state representatives from other states about utilizing volunteer data, and it turns out, that most of the states really suck at it, and California does a pretty good job. So it's encouraging that this permit encourages corporate entities to work with our group.

Also, I grew up right near Forester Creek, and last year Forester Creek was -- so I'm glad that I don't have any third arms or six noses. I want future generations to play around, splash around in freshwater systems, as well as salt water systems.

MR. KARAFIN: Hello, my name is Sean Karafin. I'm the Economic Policy Analyst for the San Diego County Taxpayers Association.

I almost didn't come today and the truth is, because I know it's rare for significant changes to be made so late in any public process. But I'm here, and I came because I decided that that's -- it's an excellent challenge that I can pose to this Board. So my challenge is to do better.

I really do think we're all here for the same thing: We want a higher quality of life. And I just

heard some really novel ideas, a lot that I can agree with.

And it really frustrates me when people say "Raise your hand if you're an environmentalist" to show one thing or the other, because I wanted to raise my hand. I consider myself an environmentalist. I know a lot of people don't. But, you know, I do, and I think about things and I change the way I live to be more environmentally-friendly.

But I believe that as written, this permit could do better from an environmental perspective and that it can be done without the economy shouldering so much burden, without taxpayers being on the hook for massive monitoring costs. I think the permit can be better on all fronts.

I know that a lot of work has gone into this permit and I know that this Board has a lot of responsibility and that each of you take it very seriously.

But as written, I worry this permit makes improvements on the environmental front, but at the expense of the health of our economy and the backs of taxpayers to unreasonable degrees.

So lastly, I'd like to just remind this Board that when we talk about industry, we should be hearing --

we should be hearing the economy. We should be hearing jobs, you know, I've been unemployed. I know how important the economy is, how important jobs are.

And in putting back on my taxpayers' advocate hat, when you hear copermittees, you should be thinking taxpayers. This shouldn't be such a trade-off between industry, surfers and bureaucrats. That's not what this should be about. We can do better on all these differences.

So thanks for your attention and for your service. I appreciate it.

CHAIRMAN MORALES: The next speaker is Randall Iwai.

I'm sorry, I tried to get you in by 5:30. We almost made it.

He'll be followed by Crystal Carson and Micah Mitrosky.

MR. IWAI: Hi, my name is Randall Iwai and I've been sworn in.

Thank you for allowing me this opportunity to just speak. I am a member of Surfrider, but I'm going to speak from my heart today as a resident here in San Diego since 1985.

I grew up in Hawaii and I love our local environment, everything about it. I surf-and-swim in the

ocean. I was born and raised next to it. I love hiking in our local mountains and even our urban trail areas.

We all pay a high cost of living here in San Diego, some say for sunshine but also because of the proximity to our beautiful water bodies. But those water bodies have been threatened and impaired for multiple permit cycles.

Please act today, act aggressively and only adopt this MS4 Permit if the Safe Harbor clause is removed. We are all responsible and should be held accountable for our local resources.

Thank you for your time and consideration.

MS. CARSON: Hello, my name is Crystal Carson. I'm here from Surfrider Executive Committee. I have been sworn in. Thanks for taking the time to listen to all 80 of us today.

I've been taking full advantage of San Diego's beautiful beaches and incredible waves for almost 25 years. When I was younger, my mom would tell me to soak my scabs in the ocean because the ocean heals everything. And as the population doubles and more concrete is poured, I've seen the quality of the water that I surf in take a big hit. I don't think that moms are telling their kids that anymore. I'm just telling you this story today, to make it known that we do have a little bit more

work to do for improvement purposes, implement more Low Impact Development.

I support everything Surfrider is saying, remove the Safe Harbor clause, and you've got my support for this also. For the people working, thanks.

CHAIRMAN MORALES: "Micah"?

STAFF MEMBER: She had to leave.

CHAIRMAN MORALES: Okay.

Ravi Bajaj and then Natalie Shapiro.

MR. BAJAJ: Good afternoon.

My name is Ravi Bajaj. I work as a project coordinator with the U.S. Green Building Counsel, San Diego Chapter. I'm here to say thank you, first and foremost, to the Board for pushing forward the MS4 tentative order. We support the approach to move our regulations more towards a watershed approach.

In the interim process, I think I'm only going to end up repeating many of the points today. Our goal is to improve water quality.

While many comments have been made about the trade-off between the industry and the environment, we fail to understand why there is a right to pollute. So while this is a stringent regulation, this is a stringent requirement to reduce your pollutants. We take the approach, that if you are not going to mitigate your

pollutants before they enter the water stream and the water bodies here in San Diego, then you shouldn't be creating pollutants.

So with that approach, we support many of the comments from Surfrider, from Coastkeeper and our submitted comments in advance. There is a cost to the development and a long-term cost. So this approach of moving to a watershed-based approach, allows us to look at those long-term impacts earlier on.

So I support all the comments of the enviros and we support the comments of the Taxpayers Association as well, but we do feel that the water quality is the No. 1 goal here.

So everything we're doing in this interim approach, I think moves forward our goal for water quality.

Thank you for your time.

CHAIRMAN MORALES: Natalie and then I think next is a Roger -- I'm having trouble with the first letter -- and then Jonathan Parkinson and Izzy.

MS. SHAPIRO: Hi, I'm Natalie Shapiro and I've been sworn in.

And thanks for having the hearing; accepting comments.

So I spend a lot of time recreating throughout

San Diego County. I'm also a volunteer with Coastkeeper and I collect water-quality samples for them, so I see firsthand, the impact of stormwater pollution throughout all our watersheds, and I have these comments on the MS4 stormwater permit.

I really like that the permit has increased opportunities for public participation. As a citizen scientist, I'm excited to be able to be involved in crafting, reviewing Water Quality Improvement Plans. I oppose the so-called Safe Harbor provision for the same reasons that other speakers have stated, so please remove this. We need strong enforcement mechanisms that citizens can use.

And also, please remove the hydromodification exemption for concrete-lined channels. These are actually streams and their beneficial uses should be protected.

So thanks. I want to acknowledge all the hard work that you've done on this permit; thank you.

And please implement it as soon as possible with the Safe Harbor and hydromodification exemption removed; thank you.

CHAIRMAN MORALES: Roger Kube.

MR. KUBE: My name is Roger Kube. I'm a volunteer activist, Chair of the Surfrider Foundation,

San Diego County Chapter. I just want to thank you first for the opportunity to speak to you this evening. I also want to thank you for all your hard work on this permit.

I've also been a resident of San Diego County for about 12 years now. I'm a surfer, diver, open-water swimmer. I have a son who also uses the ocean. I use our beaches and our ocean on a regular basis.

The Surfrider Foundation's mission is the protection and enjoyment of our ocean's waves and beaches through a powerful activist network; everything we do is aimed at this cause, and as one of the leading organizations in San Diego County protecting our coastline, we see firsthand the negative impact of stormwater runoff. As you know, it's the No. 1 source of water pollution in our oceans.

And while we have hundreds, if not thousands of volunteers that have tirelessly addressed this problem through multiple programs, our "Ocean Friendly Gardens Program," our "Know Your H2O Program," our "Blue Water Task Force Program" and our "No Border Sewage Program," we need your help. That powerful activist network that you've seen here today that I just previously mentioned, members of our community, are here today asking for you to hold the line in protecting clean water in San Diego County.

As most have mentioned, I'm very encouraged in general, by the permit. The new regional structure of the permit provides a uniformed approach in our watershed. I'm especially excited that the new permit moves us away from an action-oriented approach and towards one that is outcome-based. That shift is greatly welcomed.

However, as it's been mentioned, the Safe Harbor clause impacts the enforceability of the new permit. I encourage you tonight to go home, read Page 31 and see exactly what we're talking about. Tomorrow in the formal presentation that you will be given; you'll also hear more information about that Safe Harbor clause.

Without the threat of potential enforcement actions, a high level of accountability -- let's not kid ourselves -- this stormwater affirmative will be largely ineffective.

Therefore, if it's not removed on behalf of the Surfrider Foundation San Diego County Chapter, we're adamantly opposed to the adoption of this permit.

Please, clean water. It shouldn't be a luxury. It's what we all deserve; thank you.

MR. PARKINSON: Hi, everyone. I'm Jonathan Parkinson.

I'm an analytical chemist in the pharmaceutical

industry here in San Diego and I do some volunteering for Surfrider, but all through beach cleanup, originally. But most importantly, I've been a resident of San Diego for about seven years now. I love it here.

The weather is a lot better than Colorado where I grew up. And I'm kind of concerned by the whole issue of ocean water pollution. I don't pretend to be familiar with the terms of the permit. I would hope you are more familiar than I am with the terms of the permit, hopefully.

But from what I understand, the approach has traditionally been action-oriented in terms of copermittees are entitled to measure complaints based on the actions they take, rather than outcomes and to me, as an analytical chemist, that doesn't make any sense. It should be outcome-oriented is the way I would think, you know, in terms of measuring specific levels of contaminants and then setting goals is what you want to achieve.

So I just really want to express my frustration with the ocean water quality situation we have right now and to encourage you to really adopt an outcome-oriented approach to the extent that you can.

And again, I'm not familiar with the terms of the permit, you are; keep that in mind when you're

working on this thing; thank you.

CHAIRMAN MORALES: Izzy Tihanyi and then Cathy O'Brien and Terry Rodgers after that.

MS. TIHANYI: Good afternoon.

I'm Izzy Tihanyi, and I'm the founder and co-owner of Diva Surf School. We're located at La Jolla Shores, California.

We've been in business since 1996. We've taught thousands of women, men and children how to surf, stand up on a board and body board. We employ over 50 surf instructors on a year-round basis. We're obviously much busier in the summer.

But our concern is with the fact, that when there is a rain event, we have to cancel class. I have to send children home and I have to send surf instructors home with no pay, and they rely on clean water to support their family. So when the gentleman earlier said, "Think of the taxpayers; think of the jobs," well, these are the jobs.

And there's many more of me that hire hundreds of kayak instructors, scuba guides, surf instructors, and these people are counting on the ocean, not just as our recreation, our way of life, which it is, but those of us that count on it for employment as well.

The other thing is, I'm the founder of the La

Jolla Shores Merchants Association. We represent 143 small businesses at La Jolla Shores, and when the ocean and the beaches are closed, there's no one in the restaurants. There's no one in the shops. There's no one renting equipment, and it's a big cycle.

So, you know, when people are saying, "Well, think of the jobs," well, yes, there are people that are counting on clean water.

On a personal note, I just got back from a family trip. We were camping and we stopped at the Salton Sea, and I had to explain to my five-year-old why there were dead fish all over the place and why it's green and no one would go in there. If our ocean ends up looking like that, we're all in trouble. We might as well not even live in California anymore.

So I just hope you support this.

Thank you for your time today.

CHAIRMAN MORALES: No "Cathy O'Brien"?

(No verbal response from Ms. O'Brien.)

MR. RODGERS: Terry Rodgers. I know the song.

There he is.

MR. RODGERS: Hi, everybody. I'm Terry Rodgers. I'm on the Executive Committee of the San Diego Surfrider Foundation.

First, I'd like to go back in history a little

bit and remind you, that this Board has been the leader of the pack. This has been the best, most progressive Regional Board in the State of California. You have the toughest stormwater permits in history, and all the other regional Boards look to you. You guys set the agenda on this and you always have. You've always had courage when it counted, and this is another time when it counts.

I'm in favor of the proposed stormwater permit, but I oppose including an escape clause so that folks can slide around these regulations. Polluters, even passive ones, should be held accountable. So no Safe Harbor clause for me.

And what does "hydromodification" mean? It means, that we've paved too much of paradise and now we're paying the price.

So the standard here that you are charged with, is for receding waters to be fishable and swimmable. And so more than just surfers and kayakers, like here, are going to benefit from this place: Fishermen and the fish and everybody else that uses rivers, lakes and streams. This isn't just about the ocean.

So please stick to your guns and support the Staff recommendations. You know the building industry's objective is really to maximize their profits, not to protect public health.

So from my point of view, the only Safe Harbor should be a clean harbor; thank you.

VICE CHAIR STRAWN: Cheap shots about fishing there, Terry.

CHAIRMAN MORALES: At this point, we have a huge stack of red cards.

And I know, Barry Grigg, I'm going to get to you in just a second. But before we -- in fact, you can come on up because you're going to be next.

Rather than me calling out all these names, it just doesn't look like -- we were told most of these people aren't here.

Can I see a show of hands of how many people in this red card stack are actually here?

(Public speakers comply.)

What I'm going to ask you to do, is just after Barry, come up. I think --

VICE CHAIR STRAWN: Actually, you've got a lady that wanted to submit one but was embarrassed to bring it, when it was during --

CHAIRMAN MORALES: Okay. So we'll add that one.

If you'll just come up and identify yourself and you can pick your own order out there and give me a minute to pull your card out of the stack, and we'll go

forward that way, if that works for everybody.

MR. GRIGG: Works for me.

I've been surfing, by the way, just as a byline, since 1959. I get to, on our beaches, surf. Although I don't belong to the organization, with my grandkids and my son, I've been doing it since they've been about 10 or 12 years old. I like it. I want to keep it that way.

I'm going to read something, if you don't mind.

And I'm not a politician or a speaker, so if I get nervous, just forgive me.

The following is a summation of the current state, California, legislation that will financially impact all of California communities, private and public sectors.

"Local community responsibilities and liabilities are to be determined by the second quarter, April to date of 2013. Implementation program shall begin third quarter, June 2013, with full and verified compliance to immediately follow.

Each community will be individually responsible for implementation monitoring and enforcement of watershed runoff within its community's boundaries as directed within the Copermittee Management Program.

Watershed is all land or area that contributes

to or that affects or will affect existing and new proposed stormwater drainage systems through stormwater and designed irrigation runoff.

The permit requires the elimination of all defined pollutants. Monitored compliance and enforcement by each community and reduced total emissions volume, including rainwater into stormwater systems. New and existing commercial and residential private sector properties and public sector property will be financially affected with the approval of the permit."

No matter what happens, it's going to get affected.

"Each California community shall provide all necessary funds for implementation and enforcement of the Copermittee Management Program without exception or excuse to cost. Implementation of the permit commits each community to (inaudible) compliance in meeting or exceeding watershed discharge methods, volumes and contents within its geographical area.

All methods of design, are processed to achieve the watershed's area elimination of runoff have not been determined or defined. Benefits of implementing the reduced volume of water and stated contaminants is not based on any study or research and are not available.

Fund procurement may be obtained and/or levied

by copermittee --" I hope I pronounced that right -- "members without community elected official approval.

Total increase cost within California has been estimated to be over a trillion dollars. A low estimate from San Diego County Supervisors is over 200 million, which does not include the cost of the 30 other communities involved. Total actual or real are not known by those implementing the requirements of the permit and cannot be calculated with any of the information available or yet provided.

As of the date of this summary, local and state elected officials do not have the ability or will to challenge the option of the permit and will have no ability to control public fund procurement or commitment by copermittee memberships."

You called for time out?

VICE CHAIR STRAWN: No; your time is up.

MR. GRIGG: May I ask one question?

VICE CHAIR STRAWN: Sure.

MR. GRIGG: I would ask Mr. David Gibson, as he is the sole authority to approve/disapprove and no matter what happens or suggestions are made, to postpone any approvals, all costs be identified first, publish the beneficial impact, which most of the executive officers use in all of their findings in the methods of which

those beneficial impacts are required, and guarantee that neither the Board or copermittee members shall have or use any authority to levy or determine implementation for excessive fees or funds without individual, local community elected officials' approval.

You have the ability to say, "Yes, I'm going to do this," or, "No, I'm not.

And it doesn't require the input of anybody else to sway your determination.

We ask for you to stand up and answer; thank you.

(Electronic voice activation interruption.)

MR. GIBSON: With all due respect, thank you very much for the promotion. Some of those decisions are quite a bit above my pay grade; that is, in fact, the purpose of the Board conducting the hearing.

But thank you very much.

MR. GRIGG: You're welcome.

MR. FOWLER: That's a hard act to follow.

My name is Brad Fowler. I'm the Director of Public Works in charge of Transportation and Water Quality for the City of Dana Point. I'm also an avid, South Orange County, year-round ocean skins swimmer, and I'm planning for the first time, to participate in the San Diego Triathlon the weekend after this.

Should I be worried? I confess that I don't get sick swimming in South Orange County, but I do, you know, not swim in 72 hours after a rainstorm in the flood control channels. So I take some precautions.

You know, this is a top priority for us as a beach city, and the City and your staff has come a long way. I appreciate the efforts of Staff. I personally think this can be a stronger permit for all parties. I think we're 95 percent there, but we still have a relatively few issues that are significant, and we're asking for an opportunity to work with Staff on these issues.

One is, I most strongly support the EPA Green Street's approach, the Orange County example that was shown earlier on how costly street water treatment can be on a street-widening project. You may not know that same requirement applies to all street maintenance rehabilitation projects on existing streets where dirt is exposed.

All of our streets require rehabilitation maintenance at some point in their repair line. The cost ramification of adding nearly 25 percent on all street rehabilitation projects is huge. Any constraints make these projects unfeasible onsite and Staff suggests the alternative compliance program.

In other words, build new treatment on another street. Isn't that akin to impracticable and not recognizing the map standard? Street water treatment is essentially a wet weather in low peak.

In short, I am pleading with you to allow the EPA-approved Green Street standards as an alternative and balanced approach, as your neighboring Water Board Regions have done with this issue. Please also keep the hydromodification exemption for concrete channels and acknowledge other permanent harboring as well.

The Board wishes to combine the permits and I, as a manager, understand that for all regions. I can observe that in addition to a few several issues that are combined concerns with San Diego, a few South Orange County issues that legitimately differ from San Diego such as split County, cities, existing permit momentum on HMP, ground water and the like on our newer permit, SD Orange County presentation showed.

Just observing, can't you ask Orange County to meet with the Board staff and explore if they can work out a relatively small number of South Orange County specific issues and add a few South Orange County specific paragraphs that recognize these legitimate differences and recognize the time schedule differences, if you want everyone on the same permit?

And then, maybe in the next round of permit in 2017, those differences can be closer or eliminated.

Thank you very much.

VICE CHAIR STRAWN: Thank you.

And if it's okay with you, since Orange County was under their time limit before, I'm going to add your three minutes to theirs, because I think you were speaking representing --

MR. FOWLER: I was speaking as myself with the City. I thought I made that clear. I was told I could do that by our attorney.

VICE CHAIR STRAWN: It won't matter anyway because they had extra time, so whichever way you want me to call it.

STAFF MEMBER: Yeah; it does seem as though you were speaking on behalf of the City of Dana Point, which is part of the copermittees, which is part of the four-hour blocks.

MR. FOWLER: Okay; thank you.

VICE CHAIR STRAWN: They still have two hours and three minutes, so this would make it two hours.

BOARD MEMBER ANDERSON: We may ask you for that three minutes back. We don't know. Let's see what happens tomorrow.

MR. EFIEM: Good afternoon, Board Members.

My name is Efiem Byer. I'm with the San Diego Regional Economic Development Corporation.

The San Diego Regional EDC is a 501(c)(6), nonprofit organization, that works to support economic prosperity and global competitiveness in the San Diego mega-region level which includes San Diego County, Imperial County and Northern Baja.

As part of our work in the environment and water in particular, we understand those are part of the foundation of our economy. Many jobs in our communities are directly tied to the environment, especially a clean one, including a thriving maritime industry that is the forefront of its field when it comes to blue technology and clean technology. It's San Diego's natural resources that are key to attracting the talent we need to help companies continue to be innovative. We know the environment is critical, and we believe we should work together to improve it and protect it.

Within that, we support a comprehensive solution to stormwater pollution and water quality. We support using better data and a watershed approach as well as outcome-based. That just seems smart. It seems reasonable. It seems the right way to go.

However, these types of environmental initiatives do not need to run counter to its best for

economic growth; it can go hand-in-hand. The environmental community and the coalition of businesses can come together with commonsense stormwater regulations that will not create undue regulatory burden and cost for new construction or municipalities and do so in a way that allows the projects that we want to see happen go forward, like in development.

And also, this in a way, that we think about not letting current polluters get through there. We don't focus strictly on new construction. We're looking at a broad approach.

I understand the need to get things done and believe that we should have a smart set of regulations, but I would ask that rather than approve regulations today or tomorrow, that you postpone the approval of those regulations to allow a coalition to get together to develop smart, effective regulations that will both improve our economy and improve our environment; thank you.

CHAIRMAN MORALES: Go ahead and come up.

(Speaker complies.)

But I've got a card here for Vickey and I understand she wants to speak next.

VICE CHAIR STRAWN: Vickey Campbell.

CHAIRMAN MORALES: No? Okay.

(No verbal response from Ms. Campbell.)

MR. VAIKKO: Good evening.

I guess that gives me the distinction of going last. So thank you for your endurance.

I'd like to speak just briefly and hopefully clearly on the 100 percent pollution reduction standard -- oh, yes, you need my name.

VaikKo Allen is my name. I'm the Director of Stormwater Regulatory Management for Content Engineering Solutions. Vaikko is spelled V-a-i-k-k-o, if you're looking for my card there.

So there are a couple of questions that I wanted to address specifically. Those questions being: What is different about the standard as we see it in this permit, and what could be done where the implications of that difference?

So I think looking at both the South Orange County permit and this draft permit here as instructed, I think we can all agree that if you can retain water onsite, you should do so. I think that's the consent around there; it's unanimous.

The question really is, is what happens if you are unable to retain water, even through infiltration or rainwater (inaudible)?

In South Orange County permit, you are allowed

to treat that water onsite with biofiltration. There are some specifics there about how the infiltration system must be designed, but you are allowed to do that without triggering any offsite compliance requirements.

As I read this permit here, we have a very different standard. You must treat, you know, the 85th percentile design storm roughly three-quarters of an inch to remove all pollutants from that design storm. If you're unable to do that, then you can use flow-through treatment devices, but you have to remove the same amount of pollutants, the same amount as 100 percent removal of that 85th percentile.

So what that means, essentially, is that you have to remove 85 percent of the (inaudible) load on an average annual basis onsite. The problem is, that there is no BMP that can actually do that that is, quote, "through technology."

There is no BMP that is 85 percent effective or 100 percent effective -- between 85-and-100 percent effective for all the pollutants that may be present in stormwater. You can look at the International BMP Database or any other sources and you will not find technology like that.

So essentially, what's happened here is that by having that pollutant standard, it forces people to go

outside with their mitigation, which I think is a very fundamental and a very important difference between the South Orange County permit and the draft permit as it is written here. It's also a difference, I might add, between the Ventura Regional Permit, the recently adopted L.A. permit and even the Municipal Regional Permit up in the San Francisco Bay Area.

So that would make this permit unique in California, in that, it would require that if you cannot retain water onsite, then you must do offsite mitigation.

I think maybe what was intended, was that there would be a pathway for the use of biofiltration if retention is not usable, but that's not what this language does.

I would so urge you to delay adoption and give a little bit more time to work this out. I personally would like to be involved in those deliberations as that work proceeds, but I think the language as it is written does not match the intended -- I think I heard stated before about that by the Board staff; thank you.

CHAIRMAN MORALES: Yes?

BOARD MEMBER KALEMKIARIAN: I have a question, if you don't mind, given the hour.

CHAIRMAN MORALES: Sure.

BOARD MEMBER KALEMKIARIAN: So I just want to

follow-up with a question because I may be starting to understand this.

Your interpretation of the current permit would be, that you were allowed to treat it onsite and retain the water and that there was no requirement, and that meant you were going to treat it 100 percent of whatever you had?

I mean, you were going to treat it to prevent pollution, right?

MR. ALLEN: When you say the "existing permit," do you mean the existing draft or the prior permit?

BOARD MEMBER KALEMKIARIAN: No. The prior permit I meant.

MR. ALLEN: So it regulates -- my understanding, anyway, and there may be others who have a better understanding, but my understanding is that it regulates or requires you to retain a certain volume, that's fundamentally different than retaining the pollutants we need contained in that water.

BOARD MEMBER KALEMKIARIAN: Okay.

So to follow-up on that, because I've had this explained to me, and I want to see if you have the same understanding as someone who has to follow these things.

In the existing permit, if you're required to retain it because you were not allowed to pollute, right?

So retaining it, then you couldn't release pollutants?

MR. ALLEN: That's correct.

BOARD MEMBER KALEMKIARIAN: All right.

MR. ALLEN: That's the assumption, anyway, that retention equals 100 percent or that allowed pollutants entering that retained water.

BOARD MEMBER KALEMKIARIAN: Okay.

CHAIRMAN MORALES: Unless it's storm-related.

BOARD MEMBER KALEMKIARIAN: Right. No, I understand.

MR. ALLEN: Sure.

Up to and including the design.

BOARD MEMBER KALEMKIARIAN: We're in the same apples-to-apples here.

MR. ALLEN: Yes.

BOARD MEMBER KALEMKIARIAN: Okay.

So the assumption is, that if you retained it you're being required to treat 100 percent of it because you couldn't pollute. Then you made the comment that you were allowed, under the current permit, to use biofiltration, right?

MR. ALLEN: That's correct; yes.

BOARD MEMBER KALEMKIARIAN: Okay.

So under the current permit, if you couldn't

retain it all and you use biofiltration, what was your understanding about what was happening to the pollutants?

MR. ALLEN: So you would be removing something less than 100 percent.

My understanding, speaking for myself here, is that it would not be the same level of pollutant reduction --

BOARD MEMBER KALEMKIARIAN: Because --

MR. ALLEN: -- if you're treating --

BOARD MEMBER KALEMKIARIAN: -- the biofilter -- okay.

MR. ALLEN: -- oh, sorry -- because the biofilter is less than 100 percent effective for all pollutants that pass through it.

MS. KALEMKIARIAN: Okay.

So your concern -- and excuse me for restating, but it helps me understand, if I do.

MR. ALLEN: Sure.

MS. KALEMKIARIAN: An old trick I learned from a civilian engineer in the Navy, actually, that if you -- that if the language is adopted now, it's requiring you to get a 100 percent results from biofiltration perhaps, which you're saying you can't do.

MR. ALLEN: That is correct.

You can't do biofiltration or any of --

BOARD MEMBER KALEMKIARIAN: Under current technology. I understand that.

MR. ALLEN: Sure.

BOARD MEMBER KALEMKIARIAN: But the current permit would allow you to meet the standards, because if you couldn't retain all of it, you are allowed the biofiltration, knowing that you couldn't get all of it?

MR. ALLEN: That is essentially (inaudible) and, you know, you do the best you can, and if the best that we can do, which is retention, it's technically unfeasible. We're not talking about financial considerations here.

These are reasons of, you know, higher ground water, contaminated soils, sludge, things like that that you are allowed to do something that is less than that standard under the current permit and under the South County Orange permit.

MS. KALEMKIARIAN: And so the problem -- if we look at doing something offsite for mitigation, is cost the main problem?

MR. ALLEN: Yes; cost and complication.

I think Ventura is an instructive example there, where if you have a similar offsite mitigation program set up but there are a lot of difficulties in terms of timing and funding and who's the custodian of

funds that gets paid into a project fund, things like that.

Also, identifying the projects, you know, for example, if you pay into a fund and then there happens to be no funding identified or available or you only have a quarter of the funding that you need, then what happens is essentially you have no mitigation happen for a very long period of time.

It's not an easy thing to manage the offsite mitigation.

BOARD MEMBER KALEMKIARIAN: Thank you.

CHAIRMAN MORALES: Okay.

This isn't a fair question, but since you're the last one, it's something I've been thinking about.

MR. ALLEN: Not anymore.

CHAIRMAN MORALES: Okay.

Then if --

COURT REPORTER: Chairman Morales, may I please interrupt you a moment, sorry. I need to check the ground switch for the battery charger. It's signifying "low battery."

CHAIRMAN MORALES: Sure.

(Brief pause.)

CHAIRMAN MORALES: Yeah; I have heard, I guess, this discussion throughout the day talking about -- I

don't think it should have been characterized as a 100 percent capture, because I think people here are 100 percent and they say it's impossible.

Maybe something along the lines of "equivalent to" would have been a language that's more palatable, but if we don't ask for more in a new permit, how will we ever get more or better? Because it doesn't seem to me that anybody is willing to spend money that, you know, is in scarce supply across the board, whether it's municipalities, governmentalities, agencies, you folks who build.

And how do we get to a better, cleaner water supply and environment, if we don't ask for better?

MR. ALLEN: I will take that question. I think that's a terrific question.

I think the answer is, that any rule or regulation, that's just a bunch of words until it's enforced. I think what we have here in San Diego is a pretty decent rule. It could be improved slightly and I think this permit does that to some extent; maybe does it a little bit far, as we discussed here.

But the place where we have a gap between what we could be doing and what we are doing, I feel like it's on the plan check, really. This is from my own experience. I'm not speaking for the County or for any

of the copermittees but as a company that provides, essentially, rainwater harvesting systems and irrigation systems are permanent, those construction BMPs.

I see frequently that developers come, and depending on the jurisdiction that they're going to punch up with, some are very stringent in terms of what they require for bioretention treatment standards and some are very, very loose. And you really -- there's a wide discrepancy there between the best actors and the worst.

In my opinion, focusing in on the language that has been existing in permits for as long as I've been watching them, which requires that pollutants of concern that are expected to be generated and discharged from the site are treated with BMPs that have at least moderated or preferably a high effectiveness. If we stuck with that language and actually enforced it, we'd be doing the same thing as this permit is requesting.

What has happened, I think, is that they have a series of tables and kind of shortcut tools, worksheets and things that allow a developer to go through the process and essentially drop in, in some cases, catch basin inserts calling them filters, assuming very high removal efficiencies for them because they show up as a, quote, unquote, "filter," and they pass through.

In my perspective, that is the biggest issue

keeping us from achieving better water quality, at least on the projects that I work on, which are in the hundreds, really in the last couple permit terms.

CHAIRMAN MORALES: But do you see our issue? We're not a plan check agency. We don't approve permits at that level.

You know, our obligation is almost a policy obligation. We're here to try and guide the future of water policy in this region. It brings me back to the dilemma. I understand that there are a lot of competing interests. One is cost-associated with things, and another is, you know, jurisdictional almost, you know, where there is a clash. But we are limited by our role in this bigger process.

And my concern is, again, that if we were to say, "Okay. What we should be doing is enforcing more," that's going to change the actions and make people, you know, come up with cleaner water.

I think we would get more criticism for that approach than the approach that we're trying to take, which is collaborative for everyone, and putting mechanisms in place that try and get people to do better because they have to.

And so, I know you can't answer it because I mean, it's too big of a question. I was just putting it

out there, just a flyer maybe, you know, you had the answer.

MR. ALLEN: Well, yeah, I won't take much more of your time here.

But we'll just note, that you maybe cannot prescribe the means of compliance but you can set performance standards that are clearer and they're achievable, to the extent that you do that and then push the burden of demonstrating that the programs of the copermittees come up with, push the burden of proof toward them to prove that they are actually meeting these performance standards that you have full authority to set that's fair.

BOARD MEMBER KALEMKARIAN: So you would be suggesting that maybe a combination of saying, "You've got to meet these BMPs --" am I saying it right? "And whatever --" generally what we're talking about.

But to get to a point that you have -- I think you said, you describe the level -- we describe the level that we're trying to achieve without putting a number on it and then they've got to meet that level by whatever the current practices are, rather than just saying, "I took an action."

It's part of what saddens me is that, you know, I just monitor by their actions that have been taken, and

that's not an effective way to get to the quality of water at the end of the road that we want.

MR. ALLEN: I would love to continue this conversation. I think that these are really kind of fundamental questions that we're asking here. I think when we talk about outcome-based, what I think we're really talking about is receding waters if we're talking about what is the impact on the environment, not so much on a specific project.

Also, I would note, so it takes -- kind of avoids your question a little bit because it doesn't necessarily apply on a specific project. We're not necessarily looking for end points at a specific project, you know, like we would, say, on an industrial permit where we have permanent -- uh -- yeah, maybe I'll just leave it at that.

CHAIRMAN MORALES: That was way more than three minutes.

Thank you for indulging me.

MR. ALLEN: Yes; nice to see you.

CHAIRMAN MORALES: Aaron, you're last.

MR. PORESKY: Do I get the distinction of being last?

Or is someone going to come behind me? You can't go home.

My name is Aaron Poresky, Chairman Morales. I'm with Geosyntec Consultants. I would just like to describe my involvement in this.

I've worked for the County of Orange in developing the Technical Guidance Document that they used to implement the 2009 provisions in the Santa Ana work permit, as well as it was intended to be used to implement the 2009 permit for South Orange County.

I'm a consulting engineer. I also do a lot of other projects related to BMP effectiveness, water quality modeling.

My firm has managed the BMP Database -- International BMP Database for ASCE and for Worth and other organizations for the last ten years; and so, I'm fairly intimate and familiar with pollutant-load analysis.

When I looked at the provision that's currently in the draft tentative order here, I wanted to second (inaudible), read that it is fundamentally different than the LID requirements that exist in South Orange County, and specifically, not with respect to what the first option is, that being retention of that design storm, but rather what happens next and whether what happens next is something that is practicable or not.

And so, I would second his opinion that if

this -- if retention is infeasible, we're then required to do some sort of a pollutant-load analysis, based on BMP effectiveness, based on how much long-term volume that BMP captures in order to say that our flow-through treatment -- or our flow-through treatment plus some alternative compliances achieving the same level of pollutant-load reduction. And that analysis accounts for how much water that BMP captures over a long-term basis, as well as what efficiency that BMP is able to achieve, and we've heard a lot today that a 100 percent efficiency is unheard of.

In fact, looking at the BMP Database for certain constituents, like nitrate, like viruses, certain constituents, I won't say there are hundreds of thousands, but the database contains hundreds, of which many are important here.

But looking at those, a removal efficiency of being even close to 100 percent, is really unheard of with passive technologies today. It may not be necessary to protect water quality in all cases.

So when we do the math on that and we say retaining may capture 80, 85 percent of average annual runoff, and then there's suggestion from Staff that we could just upsize these BMPs and we would take care of the pollutant-load difference. Well, between 80-and-100

percent, you're only going to capture 20 percent more runoff volume on an average annual basis, then your efficiency has to be pretty darn good, your BMP has to be really large and your efficiency has to potentially be very good in order to get that onsite. And so as they could suggest, this is going to push a lot of sites into an alternative compliance program.

In terms of overall water quality, we've heard in our Stakeholder process in Orange County that redevelopment projects are facing the brunt of these more stringent regulations. They may be forced to go off into an alternative compliance program.

However, if there isn't an alternative compliance program yet, that project, which may have an overall benefit to water quality and the watershed, may be put on hold. It may be associated with the Brown Field's cleanup. It may provide treatment for a parking lot that's currently contributing pollutants that would be treated as part of the redevelopment. Those separate projects could be put on hold.

And so, while I understand your argument about pushing things forward, what are we doing if we're not pushing things forward? I think it comes with, again, practicable solutions and also thinking about the overall implementability of the provision as well as this

standard, this retention standard which we should do and we can, but it isn't always achievable.

I'm happy for any other questions.

CHAIRMAN MORALES: Okay.

Folks --

MR. CALLACOTT: Oh, I just turned my card in.

CHAIRMAN MORALES: Three minutes, sir; thank you.

MR. CALLACOTT: I'll be quick.

My name is Bob Callacott and I'm a resident of the North Beach area of San Clemente.

I also consider myself a bit of an environmentalist. I actually have some quite impressive environmental credentials with the development of the upper Newport Bay Restoration Project, amongst a number of others, and I suspect I have a few more up my sleeve before I'm finished with my career.

At my house in San Clemente, I'm probably 250, 300 feet from the water's edge, so I too can hear the waves break, and I spend a lot of time down at the beach.

And in fact, one of my favorite joys is taking my lunch down on the weekends and having a sandwich and beer right by the water's edge. I don't think it's too contaminated. I haven't gotten sick yet.

Anyway, I have the distinction that in 1990 I

put together a delegation of representatives -- well, while I was with the County of Orange -- I put together a delegation of representatives from Orange, Riverside and San Diego counties, and we came to you and proposed development of the first MS4 Permit in this region. We actually drafted it and sat down with your staff and worked through the documents and came up with a really good permit. And we did this proactively months before the final regulations were adopted by the Federal EPA and certainly a considerable period of time before we actually had to obtain the Phase 1 MS4 Permit by the County.

Anyway, in working cooperatively with other counties, we came to your Board, and we had unanimous support for the adoption of that permit. In fact, I remember, since I was the leader of the delegation, perhaps it was your Chairman at the time asked me, "Are you guys sure you really want this permit? You don't need it."

It's like, "Yeah, we do. We want to make sure that we put together a permit that we can actually comply with and, you know, first of all, in support of clean water."

However, what we need today is a tentative order that can be more broadly supported. Today we're

hearing about a tentative order that was developed through this Stakeholder process, that doesn't have a lot of support; every County is opposing the adoption at this point and virtually every city is opposing adoption of this order. We had a situation where the counties and the -- or no -- the tentative order was released, only the eight or nine working days before this hearing, which really didn't -- given the extensive nature of the revisions, didn't really provide adequate time for review. I don't think that's good business. We also have seen an unprecedented letter from the ten members of our legislative delegation on opposing adoption.

What I'd like to request, is that your Board direct Staff to go back and work with all the Stakeholders, both the public and private -- public, private and environmental special interests, to develop a tentative order that can be broadly supported.

Thank you.

CHAIRMAN MORALES: Thank you.

We'll adjourn for tonight and reconvene 9:00 tomorrow morning.

(Whereupon the Hearing concluded at 6:26 p.m.)

STATE OF CALIFORNIA)

COUNTY OF SAN DIEGO)

I, Gloria D. Mazon, C.S.R. No. 9356, hereby certify, that the foregoing statements from this Public Hearing were recorded true to the best of my ability by electronic transcription, and supervised under my supervision.

Dated in San Diego, California, this_____day, of_____,2013.

_____

Gloria D. Mazon CSR No. 9356

ATTACHMENT
31

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

THURSDAY, APRIL 11, 2013

ITEM 8

WATER QUALITY CONTROL BOARD

BOARD MEETING ROOM

9174 SKY PARK COURT

SAN DIEGO, CALIFORNIA

APPEARANCES:

CHAIRPERSON:	Tomas Morales
VICE CHAIR:	Gary Strawn
BOARD MEMBERS:	Eric Anderson
	Henry Abarbarnel
	Sharon Kalemkiarian
EXECUTIVE STAFF:	David Gibson, Executive Officer
	James Smith, Assistant Executive Officer
	Chris Witte, Executive Assistant
STATE BOARD STAFF COUNSEL:	Catherine Hagan
	Nathan Jacobsen
ALSO PRESENT:	Christina Arias
	Laurie Walsh
	Eric Becker
	David Barker
	Jeremy Haas
	Barry Pulver
	Eric Rosenbaum
	Chiara Clemente
	Chris Means
	Ben Neill
	Jody Ebsen
	Debbie Woodward
	Julie Chan
	Sean McClain

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San Diego, California, Thursday, April 11, 2013

9:06 a.m.

CHAIRMAN MORALES: We've got a couple of announcements and then we'll begin directly with the elected officials who were given a time start of 9:15 but before we get there, we wanted to make some announcements about yesterday's proceedings and how we would like to conduct today's.

MS. HAGAN: Excuse me. You need to do the roll call.

CHAIRMAN MORALES: Why don't we start with the roll call.

(Laughter.)

MS. WITTE: Mr. Anderson?

MR. ANDERSON: Here.

MS. WITTE: Mrs. Kalemkiarian?

MS. KALEMKIARIAN: Here.

MS. WITTE: Mr. Strawn?

MR. STRAWN: Here.

MS. WITTE: Chairman Morales?

CHAIRMAN MORALES: Here.

MS. WITTE: Dr. Abarbarnel? Not here.

CHAIRMAN: MORALES: Okay, couple of things about yesterday. We tried to set up the proceedings in a way

that was fair to the copermittees, designated parties, interested speakers. One of the things that did happen yesterday was that I think the term was "rippers," although we won't say that. A number of the groups had folks from their organizations that, while not claiming to be on behalf of the organizations, whether they were copermittees or NGOs, it appeared as if they were, with the exception of the BIA.

By our calculation, there were roughly five minutes of those types of presentations from folks for both the copermittees and the NGOs. We're not going to deduct that time. We'd ask that that not -- well actually, it won't occur today because we're moving on to a different presentation, but we are going to give the BIA an extra five minutes to sort of even things up a bit.

Now, with that, I think I see some of our elected officials and while we're scheduled to begin at 9:15, I think we can go ahead and start the proceedings.

MR. GIBSON: Mr. Chairman, good morning. Members of the Board, we should also do public forum this morning on items not pending before the Board.

CHAIRMAN MORALES: Did we receive any speaker cards from the public for items not pending before the Board?

Okay, so seeing no takers, we will move on to the

speakers with respect to Item Number 8. It's a continuation of yesterday.

So for those that are in the room and that are going to speak, I would like to very briefly administer the oath and if you'll stand and after I say one sentence, just say "I do," I would appreciate it. And then when you do come to speak to state your name and that you have taken the oath.

Do you swear that the testimony you will provide is true and correct? If so, say "I do."

CROWD: I do.

CHAIRMAN MORALES: Thank you. With that, we'll begin with our elected officials and Mayor Filner.

MR. FILNER: Good morning. Thank you, Mr. Chairman. Thank you, Board for allowing us to speak this morning.

I'm here with my colleague, Chairman of the Board of Supervisors, Chairman Cox. Actually we've been working together on issues such as this for I think 25 years since he was Mayor of Chula Vista and I was City Councilman of San Diego. So we know each other pretty well and I would agree on a whole number of things, so thank you for allowing us to speak.

I don't think there's any mystery of why we're here. I think all the mayors of the County signed a

letter to you asking for a little bit more time to discuss these issues further. Each of us as Mayors and County Board has the responsibility for improving water quality and we join you in your commitment for that. We want to make sure that happens and each of us has a responsibility for paying for pollution prevention programs and water quality improvement projects.

We don't absolve ourself of any responsibility. We know this is going to cost us in both energy and money and we are prepared to do that. We're going to do everything possible to make sure that we can increase funding to do what I know the Board and all of us want to do. We all have that responsibility and we take it very seriously. We, too, have a responsibility to protect our residents from any poor policies that come about and this is, I think, why we're here today.

I think we need some further cost benefit analysis on this before it is passed. These requirements have known technical deficiencies and that leaves the taxpayers on the hook to pay for unnecessary, badly thought out goals, laying out nearly six dollars as we estimate for every single dollar of benefit under some calculations.

So please don't implement regulations that will leave copermittees susceptible to third-party litigation

which would waste our money, our taxpayers' money, that we want to spend on actually improving water quality. I think little of the permit has been vented thirdly through the state and as stated in our joint letter from the mayors, the proposed solutions may not even be workable.

Let's work on something better. Without changes, the permit will invite litigation, which is not good for any of us, political turmoil, which is not good for any of us. That's -- some people think that I invite that.

In a hurdle for future investment in water quality improvements in this region, I don't think we are ready yet. We all want what you want on this Board. We all want clean water. We are committed to it and we want to make this permit successful. Let's work together to do that.

Thank you, Mr. Chairman. Thank you.

MR. STRAWN: Chairman Cox.

MR. COX: Thank you, Mr. Chairman and Members of the Water Quality Control Board. It's an honor to be here and to follow Mayor Filner in an issue which is very, very important to all of the 21 copermittees in San Diego County.

The mayor referenced a letter that we have here that I'd like to submit, which is signed by 19 of the 21 copermittees, expressing basically the concern that Mayor

Filner had referenced the fact that we certainly want to work with you in a cooperative vein to come up with the conditions for a new stormwater permit, but we feel that there's a need for more time to sit down and try to work through some of the issues, particularly in regards to the bacteria TMDLs.

I would respectfully request your Board to continue this hearing to a later date because the proposed permit is, in our opinion, really not ready to be adopted. Reasonable time has not been provided to the public to review the final proposed permit language of your Staff's response to the public comments.

We'd ask that you please provide a minimum of 45 additional days for stakeholders to review and comment on the significant changes that have been made from the earlier draft before your Board considers adoption of the permit.

The County of San Diego is absolutely committed to clean water and we are doing something right about it as a region. I'm very proud of the comprehensive and vigorous stormwater program that we have developed in the last 20 years to comply with the Municipal Stormwater Permit.

Between the County of San Diego, our 18 cities, the Port District, the Airport Authority, we currently

spend about 120 million dollars per year in taxpayer dollars to comply with the permit requirements, and that's each and every year.

In the County, our stormwater program costs over 30 million dollars annually. We've seen remarkable improvement in water quality in the last 40 years with the inception of the Clean Water Act. And locally, over the last few decades, water quality at local beaches has improved significantly, particularly during dry weather conditions. This is important because residents and visitors flock to our local beaches during the summer months.

Over the last several years, Heal the Bay has given more than 90 percent of our San Diego beaches "A" grades during the summer months. Even though water quality has been improving and we have programs in place that are working, permit requirements continue to escalate and have reached a point that is no longer sustainable. The costs and benefits of permit requirements must be balanced. It's imperative that mandated permit actions be justified by equal or greater benefits that are likely to result.

We think the biggest unsubstantiated cost in the permit is the bacteria TMDL. The cost estimates in the six watersheds in which the County shares jurisdiction is

estimated to be 2.2 to 4.2 billion dollars over the next 20-year compliance timeline. For the County, TMDL costs alone have the potential to double our existing annual expenditures on stormwater control, taking money directly away from other important public services.

As elected officials responsible for the stewardship of the taxpayers' dollars, the Board of Supervisors takes very seriously its responsibility to ensure that the public is getting good results from its investments. We cannot make that case to the public at this time for bacteria TMDL.

You will hear from our technical experts later today that current technology is not capable of removing bacteria to levels that would meet bacteria limits we're being held to, especially during rain events. As a result, we are setting ourselves up for failure and a failed public policy. That doesn't do anybody any good.

You also will hear that the measurements required to evaluate compliance with the TMDL do not distinguish between different types of bacteria, some of which are known to come from natural sources and pose less risk to public health.

The bottom line is that the cost effective analysis of cost benefit analysis was never conducted prior to adopting TMDL. What we know is there is very

good water quality in our beaches when it's not raining. But over 60 percent of the TMDL costs would be devoted to removing bacteria from stormwater during rain events. There aren't that many rainy days in San Diego. We all know that. So the TMDL is essentially forcing us to spend a great deal of public money to fix a condition that exists only a very small fraction of the year.

We'd like to have a better understanding of the overall environmental and public health benefits of this regulation before we ask our taxpayers to commit literally billions of dollars of additional cost to this program.

I would also like to emphasize the importance of partnerships on this issue. A prime example is the very good -- and I think significant work that has been done in the Tijuana River Valley, which is a part of my district -- which has been utilized over the last few years to approach water quality improvements in a more collaborative manner. And I give a lot of credit to Mr. Gibson and members of his staff that we've had a chance to work with. I think that's a very good example of a positive thing that is happening that is truly changing certainly the water quality and the conditions of the Tijuana River Valley.

This same approach can and should be applied to permit implementation. The County remains very committed

to clean water. With respect to the bacteria issue and ocean water quality, the County has been a regional leader for many years. I've been personally involved over the years in securing additional resources for continued water quality monitoring in the San Diego beaches. This is important work and we will continue to find ways to work with our partners to ensure that it continues.

In closing, please grant a continuance on this matter so that regulated parties and stakeholders will have the necessary time to review the proposed permit language prior to your Board hearing for consideration to adopt the permit. And I urge you not to include the bacteria TMDL in this permit until adequate and appropriate information is available for analysis in order to determine if public health benefits justify the cost.

Again, the County is committed to working with you and your staff to find the best way of tackling the stormwater issues, but it is not good public policy to simply throw additional dollars at the problem when we are not sure what the results will be.

I thank you for the opportunity to speak to you today and again, thank you for your consideration in this matter.

MR. ANDERSON: Chairman Cox, if I could share -- I do share your concern about the bacteria TMDL and there

is a time schedule included in it and I just want to clarify. Perhaps the staff could clarify better than I can because I'm just a farmer. But the bacteria TMDL was a separate process that's already improved and it is included due to the regulations on the MS4s. It's not something that we can change or delay or, I mean, it doesn't -- it's not an MS4 Permit. It's included in the MS4 Permit, but it's not the MS4.

And so all the cost concerns and the time to comply is a separate process. At some point, we may need to reopen the TMDL and address those economic concerns and the way to best achieve compliance with the bacteria. But this is more of a discussion about the stormwater permit, and we really have not much to do with the TMDLs that must be included in there unless we just take it all apart and do it all. It's better addressed as a separate process. Am I stating that well?

MR. GIBSON: Good morning, Mr. Chairman. Thank you, Board Member Anderson. You do have that correctly. The TMDL is a Basin Plan Amendment approved by the Board through sequel in which the Board did consider the cost. We are committed with the language we've offered to include a reopener clause in the permit. Should the TMDL be revised, we would then probably revise the permit itself.

There may be an opportunity during the next triangle review to look at issues associated with the TMDL, particularly where the costs are the greatest with with wet weather quality objectives for bacterial indicators.

The County has indicated that they are interested in pursuing a project with the Southern California Coastal Water Research Project. It is a project that I am also willing to work with, SCCWRP, the acronym for that organization. And on May 2nd, we'll be having a meeting with San Diego County and SCCWRP commissioners and Executive Director, Steve Leisburg to talk about how to move forward on that project.

That could ultimately lead to a proposal for you to consider in the next triangle review to tackle wet weather water quality objectives in such a way that would address the concerns of the copermittees and others in that TMDL.

MR. O' DAY: Mr. Chairman, may I come to the rescue of my client?

We'll be talking in our presentation -- my part of the County presentation, a little bit more about this issue but we think the Browner Case -- and I'll be talking about that -- does give discretion to now go back and look at that, reopen that bacteria TMDL before you bring it

into the permit. And we think there are very good reasons for you to do that, both policy and legal and otherwise, and so I will be talking about that.

I confess I haven't briefed Chairman Cox probably fully on all those legal components so I felt the need to come up and help him with that.

CHAIRMAN MORALES: Thank you, Mr. O' Day, and I look forward to that presentation.

And Chairman Cox, I will say that, you know, we really do sympathize and we're as concerned as you are about cost. So I will make it one of my primary goals once we get through the MS4 process to get us as a Board and staff looking at the TMDL that is in place and see if there isn't a way to arrive at the same solutions more efficiently and for less money.

MR. COX: Well again, I guess our plea today on behalf of the 19 copermittees that signed the letter would be that you not make any decisions today in regards to the TMDL, that you put that off and allow us the time to sit down and work with you and your staff to see if we can come up with a more acceptable manner in which to...

MS. KALEMKIARIAN: Chairman Cox --

MR. ANDERSON: -- I do have one last... I do want to compliment your staff, Chairman Cox, on giving us a very complete set of corrections to the permit, that

are -- they were excellent and did an admirable job in the short period of time that they had and they did give us some really good things to work on for the permit.

So I want to compliment your staff on doing that, and the copermittees for pulling that off in the short period of time.

MS. KALEMKIARIAN: Good morning. How are you?

This may not be something that you should address but your staff, but I'll put it there so it can be addressed. We heard lots of testimony last night from surfers from Surfrider about all of the horrible things that happen to them when they're swimming after a rain event, and I was struck by your comment that we don't get much rain in San Diego. I realize that.

I'm curious whether San Diego County would take the same position as Orange County seemed to take yesterday when we were told, "Oh, we're doing so well. It's getting much better. Don't change what we're doing." Does the County -- San Diego -- believe we do need to do better, or the rain events are so infrequent that we can live with it and wait for the 72-hour period to pass?

And I'm not saying that facetiously. I really do want to know.

MR. COX: I think we certainly want to work in a cooperative vein to continue constantly trying to improve

what we're doing in regards to measuring water quality and trying to make sure that we provide good, accurate information and that we try to deal with the sources of pollution that's getting into the water. There's no question about that.

In fact, the County -- I had a Board letter a couple weeks ago which the Board -- they adopted, which would be focusing on trying to come up with a newer type of technology which is allowed by the EPA. But unfortunately, the State of California does not allow us to use that technology that would allow us to determine whether there are pollutants in the ocean within four hours as opposed to putting up signs waiting 48 hours to determine whether it was polluted 48 hours before.

This technology exists. We actually started on April 1st using this technology at some selected beaches, and we are continuing to use the technology that we have to use right now. But we're going to run a parallel test for a year to determine -- and hopefully be able to zip in information, which I think in talking with Mr. Gibson, I think he's very familiar with that technology -- and it would take a change in state law to allow us to rely on that type of technology.

That's something we're incurring at our cost as a way to better serve the public so that in realtime, or at

least within four hours, they will know whether a beach is clean or not.

And obviously for a lot of communities, particularly Imperial Beach suffers a lot from their beaches being closed through no fault of their own, will be able to hopefully get those beaches opened up in a much quicker timeframe and letting the public know that the beaches are safe to use.

So yeah, we're constantly trying to figure out how we can better serve the public, ensure good water quality for our beaches and our creeks and our rivers, and we are committed to continue to do that. But we want to do it based on good, sound science and technology and unfortunately, I think the bacteria TMDL does not allow us to do that at this point.

MR. STRAWN: I'll be real quick. I really appreciate -- first off, I want to second the comments about the professionalism of your staff, but specifically your comment about the technology for measuring bacteria near realtime.

I sat in on a meeting at the airport where you discussed that with us, and just like to say we have pushed the State Board a little bit on that issue and we'll continue to that because I think that is part of the answer, is getting better technology.

MR. COX: We'll probably need your help. I look forward to that, assuming this test goes well, which we think it will, to get a change in state law that would allow us to use it throughout the State of California.

CHAIRMAN MORALES: I agree. And we will -- I'll be sure to bring that up at the Chair's meeting and any time I meet with the State Board in the future. And I hesitate to say I'm really excited about DNA testing because it makes me sound a little geeky.

(Laughter.)

MR. O' DAY: You and me both.

CHAIRMAN MORALES: Thank you very much, appreciate it.

MR. STRAWN: Supervisor Bates from Orange County.

MS. BATES: Good Morning, Chairman Morales and honorable Board Members. It is certainly a pleasure and an honor to be before you this morning to represent Orange County.

I am Patricia Bates. I'm Vice Chair of the Orange County Board of Supervisors and I supervise the 5th District, which our cities -- there's 11 cities and about five unincorporated communities that are covered by this permit.

Having completed your first full day of this hearing, you have received input from, I'm sure, a broad

array of speakers expressing their opposition to some aspects of the permit.

Many agencies including the County of Orange and the cities of South Orange County have weighed in with comments and expressed concern that this permit hearing is premature. As you may know, Orange County has developed a robust pollution control program and I'd like to add that with the passage of our sales tax extension, Measure M2, 200 million dollars was submitted to water quality improvement programs and we've had a robust involvement from our cities in that program submitting projects and those are underway.

Water quality has improved significantly over the past 23 years as a result of our concerted and consistent efforts. We continue our education in Orange County with the Coastal Coalition, which I also chair. It's taken over 100 years to build the urban landscape that provides our homes, jobs and aminities of water and life, which we all enjoy.

In hindsight, we all now know that building practices that were standard in the past caused impacts on our water quality.

Our stormwater program has made great strides and continues to be successful as we learn from our data and refine our approach. We need to continue these programs

in order to mitigate the hundred plus years of development practices that need change, and you're at the forefront of that. We certainly respect that and certainly your efforts in that direction.

Orange County respectfully requests that you listen to the speakers who have come before you and take their comments to heart. Your staff initiated a great stakeholder process last April that improved the proposed permit through discussion and consensus. At the end of October, unfortunately those stakeholder discussions were terminated much to the disappointment of many participants. The result of that action is that the proposed permit being discussed in these hearings has received opposition.

Therefore, in my most heartfelt terms, I respectfully urge you to postpone this hearing and reconvene both stakeholder's discussions with the intent to adopt a permit that has the broadest support. Then we can all declare victory -- and certainly with our residents, our constituents, knowing that we're all partners in this effort -- we'll work together to ensure that going forward we do correct the practices that have impaired our ocean.

In conclusion, I would like to mention that the Board of Supervisors, my Chairman, Sean Nelson, was not

able to be here today. He's actually in Washington doing a little lobbying to get us some money for our beaches and these very programs. But we did send a letter and unfortunately it didn't get included in the record, but we'd like to forward that to you subsequently, especially if we have some additional time for discussion on these very, very critical issues before you.

Thank you, again.

MR. STRAWN: Thank you. And Jerry Kern, Deputy Mayor of the City of Oceanside.

CHAIRMAN MORALES: I'd like to make a request of all of the future speakers. Like most of our hearings, this one is being transcribed and for the sake of our court reporter's fingers, if we can keep the pace of our presentations to a normal pace, it would be much appreciated.

MR. KERN: As elected official, I feel your pain. I understand and hopefully I'll do that.

(Laughter.)

MR. KERN: I was supposed to remind you I was not here for the oath, because of traffic. Is there something I should do or not do? I'll tell you the truth anyway.

(Laughter.)

CHAIRMAN MORALES: Good enough.

MR. KERN: I thank you for taking the time to do

this. I am Jerry Kern, Deputy Mayor of the City of Oceanside and I'd like just a couple things. We do need sensible regulations that meet the four basic goals: Reasonable, scientifically based, attainable and financially feasible.

These new regulations as proposed do not meet all of these goals and I urge the Board to review these regulations before there's an attempt to implement them. At the very least today, I'd like the Board to grant a continuance to a later hearing date, to provide a minimum of 45 days for all the stakeholders to review and comment on the significant changes from the earlier draft. We should all be more compelled doing it right than doing it quickly.

Specifically, I'd like to address a few critical issues. First is the onsite retention of 85 percentile volume. Retention at the 85 percentile has potential of negatively impacting the habitat located adjacent to our streams and rivers, creating a permanent drought condition. Over time, this will create a permanent habitat change along those waterways and more than likely severely reduce the size of the habitat area that is currently supported.

The City of Oceanside has worked closely with the Army Corps of Engineers to build a sustainable habitat for

the final four miles of the San Luis Ray River. In fact, our bacteria count has been significantly higher because of the bird population that now inhabits the mouth of the river. So we're doing a good job and it seems like we're being punished for it.

Secondly, the application of naturally occurring predevelopment conditions to a heightened modification management plan calculations. Hopefully everybody understood what I just said.

This requirement will remove the incentive to develop existing sites by significantly increasing the development cost that is not consistent with the heightened modification plan in place. It will not foster improvements in water quality and conflicts recently with the implemented five-year HNP monitoring plan.

By removing the disincentives from redevelopment, we can implement low-impact development practices and improve water quality. If this regulation is implemented, the receiving waters will remain subject to unmitigated development. It will also constrict funding sources that subsidize the stormwater programs.

There continues to be a significant concern with the proposed permit due to the unreasonable cost without a scientific base. The City of Oceanside currently spends about 3.2 million dollars per year for permit compliance.

The new regulations would more than double that cost. This is an unfunded mandate that the City of Oceanside cannot absorb without affecting other basic services like police, fire and other basic services.

I thank you for your time. I really would like to emphasize -- and I think the other speakers have said it -- is the 45 days, that all the copermittees and the stakeholders have a real hard look at this and do this the right way and something we can all agree on.

Thank you.

MR. STRAWN: Cheryl Cox, Mayor of City of Chula Vista.

MS. COX: Good morning. As the mayor of the second largest city in San Diego, I appreciate the time that you've given us. The City of Chula Vista joins the County Board of Supervisors, and particularly Chairman Cox, in its call to action to protect the water quality while controlling the mounting and unreasonable costs of increased regulation on local governments, business and industry.

You and your staff have spoken throughout the permit issuance process about soliciting and incorporating stakeholder comments during the development of the permit. To date, our staff has worked productively with your staff and made suggestions on early drafts.

If this permit moves forward as written, the tentative order will result in a significant and unprecedented level of regulation and cost to local municipalities and significant costs passed along to businesses and the developers.

Given that major sections of the permit have been rewritten and can have substantial impacts on our stormwater programs, eight business days is an insufficient amount of time to review and analyze the significant revisions in the tentative order prior to today's hearing.

I urge the Board to grant a continuance to allow more time for our stakeholders to review the significant changes in the draft, seek clarification from Board staff, and make recommendations that will improve permit effectiveness.

Some of Chula Vista's larger concerns are the additional and costly requirements for development projects. First, implementing the requirements of this permit represents at least a 30 percent increase in the cost of Chula Vista's stormwater program during the transition, followed by millions of dollars in costs expected when the watershed and jurisdictional strategies mandated by the permit are developed and implemented.

Second, the tentative order will impose

significant hardships on new development and redevelopment, needlessly requiring almost all development projects in the region to comply with expensive hydro-modification requirements regardless of whether the projects contribute to assuring water quality.

Third, the requirement to return urban infill projects to conditions that existed under predevelopment conditions would be a significant hardship to making redevelopment projects pencil out. Despite the state legislature's actions, local governments like ours encourage, not discourage, redevelopment where possible.

Although the City of Chula Vista is not directly impacted today by the bacteria TMDL, the overwhelming cost to implement this requirement will impact funding for watershed and regional efforts. In addition to the costs I just described, Receiving Water Limitation requirements unnecessarily expose copermittees to third-party lawsuits and regulatory fines. That drives up costs for regulated parties and for development in the region.

Local governments in San Diego worked together with your staff and a host of technical experts for over three years to develop a hydro-modification management plan that makes sense. The Board approved that plan in 2010 and we're currently in the second year of a five-year study to assess its effectiveness. Findings of the

hydro-modification management plan, including exemptions for major river reaches, were the result of extensive modeling and geomorphological studies endorsed by top experts in this field.

This permit would ignore that good work and the significant cost to develop it. Unfortunately, it would prematurely establish new standards which have no technical backing.

In summary, the result of the proposed new requirements for development is that the structures required to mitigate its impacts will expand exponentially in number, will need to be bigger, and significantly more costly. Implementing these requirements would be an economic burden to the region, might not improve water quality, and could result in undesirable effects such as mosquito breeding or infrastructure damage.

Additional thoughts is that Prop 218 singles out potable water, waste water, and solid waste fees to require a protest vote rather than a positive vote to increase fees. Props 218 and 26 make it very difficult for local governments to raise the revenue needed to comply with the permit.

If legislation allowed this exemption for stormwater fees, it might enable us to advance water quality efforts without jeopardizing other programs.

Local governments must manage taxpayer dollars while making policy decisions for the good of our residents. Granting our request for a time extension gives local governments and the Board a better chance of crafting final permit language that can result in programs that make sense from both environmental and economic standpoints.

Thank you for giving me the opportunity to speak.

MR. STRAWN: Gary Felien from Oceanside City Council. I hope the got the name right.

MR. FELIEN: You got it right and you're one of the few so you got good points, too.

Also, I wanted to say that I'm impressed that you make the speakers take an oath of office to tell the truth, and I think if we adopted that in Oceanside, we'd cut down the amount of speaking considerably. I commend you on that.

(Laughter.)

MR. FELIEN: There are plenty of people up here with far more technical knowledge on these issues than me so I'm not going to try and outdo people far more qualified than myself on that. But I do just want to say that economics do matter and that's my background. Regulations need to be made with some thought as to their economic impact.

California still has an extremely high unemployment rate, well above the national average and it's easy to see why. California has or is just short of having the highest sales tax, the highest income tax, the highest cost of electricity, the highest cost of water, the of highest cost of gas, the highest workman's comp insurance and above average property tax. And now on top of that, this Board is considering an extremely expensive set of new regulations that simply adds to the burden of doing business with no commensurate improvement to the environment.

Good weather only goes so far in creating jobs. In many respects, the proposed regulations are poorly drafted. They don't explain how we're supposed to know what pre-Columbian water conditions are or how we'd ever be able to measure that. They don't allow in the case of for our City of Oceanside, they don't allow for natural causes of bacteria, and they don't allow for us to adjust for the condition of the water that comes into our city and so we're stuck with suffering the impact of what happens upstream.

And so for that reason, I -- one last point I'd like to point out that Oceanside has a huge program that we're investing in to create alternative sources of water that will reduce our reliance on Metropolitan Water

District which will help the environmental impact on the delta as well as the Colorado River.

All these programs will be placed in jeopardy by the extremely high cost of these regulations. And so I, too, would urge you to have a delay so the stakeholders and people far more knowledgeable than myself have a chance to hash out all the fine print in these regulations to see if we can get a better balance between cost benefit of improving the environment, which we all want to do, while doing it in an economically, less painful way that won't destroy business and continue our high unemployment in our state.

Thank you.

MR. STRAWN: Ron Morrison, National City Mayor.

MR. MORRISON: Mr. Chair and Board, thank you so much for allowing us this time. I'm going to do you a big favor and forego my prepared speech because basically I'd be repeating what so many people just before me already said. But let me approach it maybe from a slightly different way.

I am a lifelong resident of San Diego region and I can remember on San Diego Bay when I was working my way through college there was a lumber mill on that bay, which is now where the convention center is. And that's how I worked my way through college, working that lumber mill.

And during the summer it was hot. So what we would do is during lunchtime, the best way to cool off, we jumped in the bay and we swam out to the San Diego Rowing Club, which is now Joe's Crab Shack.

In hindsight, the way that bay was at that time, maybe that was not such a good idea. And some people when they ask me why I got into politics, maybe I should say maybe I swallowed some of that water. That might have caused it.

But you look at San Diego Bay now, and you look at the difference, and to answer your question are we satisfied with what we've done? No, there is still a huge amount of progress to be made, but we have made huge strides in this area.

To be honest with you, if you look at San Diego Bay in those days, you look at it now, you talk to the surfers. I used to surf up and down this coast. In those days -- it was the longboards in those days, and not these short, light ones now. But it is a world of difference. But do we have a long ways to go? Yes. But are we doing things? And that is yes, also.

I know within my community, which is from southern San Diego Bay, we've taken an area that has the discharge into the bay that takes the stormwater -- it's called Paradise Creek. Ten years ago, you could not go

near it because of all the chemical discharges and everything else that was going into that, was going directly into the bay. It was immediately next to an elementary school, which had the highest disease rate and asthma rate in the entire county.

Now that has been turned into a park that is being used by people constantly and we're building upon that. The water has been through a huge purification process. Everything is -- big changes are being made.

I'm saying this to say that we are doing a lot of things and do we need regulation? Yes, to make sure that we continue to do that good work. But at the same time, we want to make sure we don't overregulate so that we're to the point where we have to divert the funds that we have to overregulation to keep from doing the good work that we are doing. So there's that balance.

So that's the one thing that I would want to state, and say I'm in agreement with all the things that the speakers have said before. But I would urge upon you and plead upon you that the one thing that we need in this is the balance between the regulations and the good work we're doing, so that we can continue to do that good work, but at the same time, protect our community with good and healthy regulations.

Thank you very much.

MR. STRAWN: Thank you. Steven Weinberg, Mayor of Dana Point.

MR. WEINBERG: Good morning. I'd like to thank the Chair and the Board for allowing me this time to present.

I'm Steven Weinberg, Mayor of Dana Point and I'd like to make a couple of comments. I'm going to try to summarize my speech as I go through since I've had to sit on your side of the diest (phonetic) too many times and I'd hate to see glazed over eyes hearing the same thing over and over again. And one thing I will not say is "babies will die."

My staff has indicated that the NPP permit process has been more than open and productive than permit renewals in the past. That said, they indicate that there are remaining important issues that have our concerns, some of which recently surfaced in the final draft. And we'd like to resolve those.

Some of the issues also are very specific to Orange County. And we'd like to see if we can -- how would you say "parsh" Orange County so we can have maybe a slightly different permit than the whole region has.

We appreciate the Board's trying to consolidate the three and existing permits inti one region permit, but please understand we have just spent considerable time and

money developing and executing the fourth term permit, and I find my staff spending significant amounts of time in San Diego County working on major new changes with this effort.

Please note that we are six square miles and we consider ourselves six square miles of paradise and have spent over 20 million dollars in the past 10 years on 19 diversions, two ozone treatment facilities, catch basin filters on all public roadways, and have been rewarded with 303(d) delisting for bacteria on our three beaches in Dana Point.

We are now focusing our efforts jointly with the state park, fellow copermittees, sewer districts, Caltrans, South Coast Water District, and on South Coast San Juan Creek and Doheny Beach State Beach as our sanitary surveys are continuing. Please remember that although we understand our role as a copermittee is improving water quality, we share that responsibility with state parks, as I said before, Caltrans, water districts, school districts, independent sewer agencies, who all reside within our city limits.

Please remember that it is not the city's discharge that are the major contributors to pollutants that are so reaching recreational waters in diminishing amounts. People in vehicles are probably the major

polluters and I got to say with Committeeman, Commissioner Anderson, I'm a poor dirt farmer from the Central Valley so there are some times I was not made to be a politician. But we are able to control these behaviors as much as we'd like.

It's been a real journey. Please remember that with each new permit interpretation of Clean Water Act by this state, the burden of financing these improvements is not borne by the State, but by the cities and private developers in the municipalities. And as a local municipality, the State of California and the Federal Government have been taking funding away from us in the last few years, not to mention the recession, which has reduced our revenues by about 50 percent.

In that light, we continue to ask the Board to consider the comments that our staff and our copermittees have provided. Please allow us to sit down with your staff one more time to help us resolve the finalizing language.

In one area that is, I guess, critical with the City of Dana Point, is to allow our Public Works Department to use the USEPA approved Green Streets guidance for roadway rehabilitation projects in south Orange County as this is the most single expensive new addition to the permit for municipal budgets.

Justification of adding nearly 25 percent, which I understand you heard yesterday, to every roadway rehabilitation project is simply more than we can afford while EPA Green Street plans gets the majority of benefits at a reasonable cost of around five percent.

I respectfully request that you give us some time to work this out and I thank you for your service on this agency. I know what it's like to sit back there and listen to a bunch of politicians gravel before you.

Thank you.

MR. STRAWN: Supervisor Bill Horn. I know he's running a little late. Has he arrived? No. James Knott from City of Orange? Oceanside. City of Oceanside, that's right.

MR. KNOTT: Good morning. Jimmy Knott, 127 Sherri Lane, City of Oceanside Utilities Commission. Yes, I come to you today. You've had many people bring forth technical issues and all sorts of things like that including our staff here and also our council members. But what I'm going to bring to you is a human impact.

In your proposal, you have no consideration of our most vulnerable people in Oceanside- children and seniors, our disabled and low-income. What your proposal is doing is being onerous, burdensome and an action that could lead for those few who are hanging on by their

fingernails economically to life and to homelessness.

This is what your plan will do. I cite the facts that 23 percent of the children in Oceanside exist in poverty. Twenty-one percent are seniors. Twelve to sixteen percent, depending upon who you cite, of our adults are having economic troubles, in poverty or low income. Forty percent are technically capable in a -- basically can be applying for low-income status. Ninety percent of those who are low-income live in rental housing.

What happens if you're a homeowner or a business owner of, let's say, an apartment complex, mobile home park or something like that? They pass along any type of increase to those who rent from them. What you're proposing and what the levy will do will be all those homeowners, apartment complex owners, mobile home park owners, and it will be just passed on to these low-income folks.

My question to you is very simple. I need your help. I need your help very dearly. Where in your proposal will you make an exclusion to help those low-income people? Where?

Any increase is going to affect them. Tell me, which meal are you going to tell me for them to cut out if you don't? Which medication are they going to have to

take a quit for a day out of the month to pay this? And also which trip to church or to a friend's house are they going to have to cut out?

This is a dire impact and a human impact that you're going to basically cause to the people in Oceanside. Let's be real with this. Let's get down to real-life impacts. I'm sad to come up here to actually ask you all these things because the situation we should be thinking about that when we make proposals. I try to do it every time I make a decision and when I do, I cringe and I hurt and I actually sometimes weep when I do. I ask you, do you?

We should stop and think about what our decisions do and have real-life impacts. I ask you to consider these things when you do make a decision.

Thank you.

MR. STRAWN: Jesse Gipe, representing Senator Anderson. Not here.

Kristen Huyck, Legislative Assistant for Riverside County Supervisor, Kevin Jeffries. There you are. Sorry I butchered that.

MS. HUYCK: Happens all the time. Good morning, Chairman and Members of the Board. My name is Kristen Huyck and I'm here on behalf of Riverside County Supervisor, Kevin Jeffries.

Riverside County residents expect livable communities and healthy lakes, rivers and streams, an obligation that the County takes extremely seriously. In much that has already been mentioned and touched upon by previous speakers, there are some intervening factors and competing directives such as prison realignment and the pending integration of affordable healthcare at the State and Federal levels, that are all pending or striving to take a piece of the resources that the County has and takes in.

Therefore, the new MS4 Permit must provide flexibility to allow the prioritization of resources so that we can solve problems, merge problems to address multiple regulations where appropriate, and balance environmental protection with the broader needs of our residents.

The County wants to be partners in protecting the environment and serving our citizens. Please give the County the opportunity to work with you and your staff to focus on the permit and to protect water resources and the concern of making sure that we have clean water.

To that, we respectfully request that an extension be provided and that regional Board Members ask to work with staff and the copermittees on significant outstanding issues brought to light with the release of

the new tentative order to ensure the concerns of staff that is adequately addressed.

Thank you so much.

MR. STRAWN: The only other elected official card we had was for Supervisor Horn. So when he arrives we'll fit him in as soon as we can. Did I miss anybody?

So I guess that puts us to Riverside. So Riverside County, do you have an order for your speakers that you want me to follow?

CHAIRMAN MORALES: Do we need some time to set up our PowerPoint? Okay, let's take a short break while we get it set up and ready to go.

(Recess taken at 10:00 a.m.)

CHAIRMAN MORALES: Ladies and gentlemen, please have a seat. We're going to let Riverside begin their presentation.

MR. UHLEY: Good morning Chair and Members of the Board. My name is Jason Uhley. I'm the Chief of Watershed Protection for the Riverside County Flood Control and Water Conservation District and I have taken the oath.

And I guess I want to lead off by noting that one of the presenters yesterday noted that he had a buttery, smooth voice and it put people to sleep. My confession is that I tend to talk fast, and sometimes I talk soft so I'm

sort of the vein of court reporters. So please feel free to slow me down if you need to. I'm going to work very hard to avoid that.

Our district serves as the principal coordinating permittee for the Riverside County stormwater program which includes the County of Riverside as well as the cities of Temecula, Murrieta and Wildomar. And I will be leading a joint presentation on behalf of our co-committee group.

Our presentation will be led off by myself, followed by David Garcia, District Staff and then we will be -- the final speaker for our group will be Patricia Romo, the Assistant Director for our County Transportation Department. I'm hoping to go about 45 minutes in total today.

Today I'll be leading -- I would first like to join in the technical and legal comments of San Diego and Orange County so I don't have to necessarily repeat everything they said. I don't want to waste your guys' time today. And I'd like to lead off by simply stating that we support the vision of an outcome-based permit, a permit that replaces the prescriptive programs that we've been using today.

I think everyone that has spoken so far does. We have common purpose. And I guess what I'd like to lead

off with is talking about what this vision means for me and my program.

Riverside County has been in a state of permit renewal since 2009. We're regulated by three regional boards. I spend about 30 percent of my time haggling with staff on the details of prescriptive permit requirements. Why we should do something, whether it's legal to do something, how we should do something, whether it's going to work.

Once the permit gets adopted, I spend another 30 percent of my time trying to adapt our permit programs to address the new goalposts. Richard had the vision yesterday of the goalpost constantly moving. That's another 30 percent of my time is adapting our programs to meet the new requirements in the permits.

Then I get to spend about 30 percent of my time working with our residents, our businesses, and our communities and our plan checkers and our maintenance workers and trying to explain to them why they need to adapt their practices to the permits. And I find more often than not, is that it engenders confusion, it engenders frustration, it engenders resentment, and it engenders resistance.

And the whole process sort of works against the goals that we're ultimately trying to achieve. And so

when I hear this vision, what I hear is an ability to shift from that model to a model that allows me to bend our programs to fitting the needs of the watersheds and the communities to achieve our goal, which I think will engender support there.

The other thing I hear from this process or this vision is that it will move away from the micromanagement of our programs every five years, or in Riverside County's case every year and a half, and allow us to focus on the long game. I've talked about 30 percent of my time here. I got five to ten percent of my time that can be really spent on solving problems. I want to reverse that.

I want to be spending my time, and my staff's time on solving problems. And the current structure of how we're doing things prevents that. I am vested in the vision. I want this to succeed. And I think everyone else does here, too because Riverside probably feels it more, but I think San Diego County and Orange County and others would agree.

And I think if you listen to the vast majority of the testimony that was provided yesterday, it wasn't arguing against the vision. It wasn't arguing against what we're trying to do with the permit. It was arguing against the specific actions that are contained in the permit, those thousand musts that Richard was talking

about. We expected that a lot of those musts were going to be replaced by the WQIP, by this outcome-based program. And I think what we've found is that's not what's happening.

We've still got some areas of this permit that remain very prescriptive, the new development programs, even the WQIP itself is probably two to three times as long as it was, a lot more prescription and a lot more detail.

And that's where the rub is. And that's where the frustration is. And that's ultimately what concerns me because the vision is outcome-based, but the permit still contains a lot of prescription and those prescriptive requirements, we have to comply with them. They're legally binding upon us.

And so, you know, when I was listening to your testimony -- or not your testimony. When I was listening to the questions from the Board, I sensed there was a lot of questions about: Aren't we focused on outcomes here? And it's because there's a lot of problematic details still in the permit, and that's what we need to work out. That's what we still need to solve. And in order to succeed, that's what we need to do.

And that's why for the reasons I spoke about earlier, that's why I think that we need to take the time

to do this right because I see that there is a huge potential for a win down the road. And I'm very concerned when I hear, "Well, we want to get this done by May."

What I would recommend is let's commit to the outcome and then let's raise our expectations to success. I do think I also need to concur with some of Orange County's comments yesterday.

You know, Richard had the nice vision of the train coming off the tracks with the public participation process. I do think that happened and our perception of the public participation process is similar to Orange County's. It was uneven. And we need to put it back on the tracks. That's really what we need to do and that's what I'm hoping you're willing to provide directions for, is to direct staff, to direct the stakeholders' to success. We want you to do this. Find a way to meet in the middle. Find a way to bring a permit back that can be more broadly supported.

And I hope what I can do today is ultimately convey to you not only why I think this is important, but why it's worth taking the time to do it right, and what some of the overarching issues are that we have with the permit.

I first -- you know, I think it's clear from what I stated that we're not ready to explore the permit today.

And because of that, I do need to state that we are not not bound by this permit until we submit a report of waste discharge, and we would expect that when we submit the report of waste discharge, if we have any remaining issues with the permit that they be taken up at that time by the Board and that we would be able to present those issues, and hopefully have them addressed.

But having said that, I truly believe it's in everyone's interest to get it done right now, to take the time to do it right now. I want to get to the point where we can voluntarily support the permit. Yesterday during the staff presentation, they said, "We don't think it can be done."

I've worked with other regional boards. I've seen consensus on permits. I have testified in support of permits. I can tell you that it can be done. And I'm hopeful that it can be done here.

And I also think it's important to know --

CHAIRMAN MORALES: Can I ask a quick question? Sorry to interrupt but I don't want to lose a train of thought. Say we did get back to the process where Riverside gets together with our staff and there's an agreement or a permit that you feel comfortable with. Say that happened in the next month or the next two months or next six months even. Even if that were the case, would

you still take the position that you're not bound by it until you submit a report of waste discharge?

MR. UHLEY: Legally, that's true.

CHAIRMAN MORALES: Okay.

MR. UHLEY: But, you know, we have an option to early enroll. And whether we do that or not depends on whether we think this permit is actually going to do better for our County and that's what I want to get to.

And I also want to point out the cities and the counties kind of get vilified with dischargers a lot, but I'd like to remind you that we are all subdivisions of the State of California. We all serve the same public. And we recognize that that public expects livable communities, and they expect clean water, clean lakes, clean rivers, clean streams, healthy receiving waters and they have a lot of other expectations, too.

We should be working together more than we are. Riverside County has exerted a significant amount of effort to try to meet our residents' expectations with the resources we have available to us. We're not made of unlimited money. But we don't use that as an excuse. We really try to look at how we can integrate multiple regulatory requirements and ingrate the expectations of our residents and try and come up with regional solutions because we really believe that when you do that, you can

create things that are better than the sum of the parts, and you can do it in a more cost-effective manner.

And that's another reason we support the vision, is because I've seen it work in other regulatory programs and I want to adapt it to work more here.

You know, and we want to succeed. We really do. But as I stated earlier, we're not there yet. And I think what we're seeing ultimately is that, you know, the vision was for a program that was really WQIP-based, that allowed the WQIP to drive the programs forward, allowed us to present different ways to do things to you and then let you approve them and say "Yeah, we think this can work."

But what we're seeing is we still got the prescriptive permit with the WQIP kind of sitting on top of it. It's kind of the dual permit now, and that's got to get fixed. We do think that staff made a Yoeman's effort to try to address concerns. They definitely addressed many of our comments and we're thankful for that. But at the same time, I think they did take some steps backwards.

I think they took some steps backwards on new development. We heard a lot about that yesterday. I think they took some steps backwards on the WQIP, and I'm going to talk about that more and why it's important to fix that.

I also feel that I have to say that, you know, we really feel that the public process was insufficient. Nine days, you know, there was holidays in the middle. That wasn't -- 61 pages of comments, 200 pages of response to comments. I haven't been able to educate my managers. The managers haven't been able to really fully educate our electives. I haven't been able to educate our permittees. Our permittees didn't see this presentation until Tuesday. It's not adequate. And I'm concerned about that.

CHAIRMAN MORALES: Imagine how we felt having to read it and your comments.

(Laughter.)

MR. UHLEY: I understand.

MS. KALEMKIARIAN: Can I just clarify something, Mr. Uhley? When you say that, you're referring really to the revised tentative. I mean, would you have felt that way if there hadn't been a revised tentative issue with the changes because you'd been reviewing it for a long time?

MR. UHLEY: Well, if there hadn't been a revised tentative with the changes, then that would have been indicative that staff weren't listening to us and I think would have made the situation worse.

Part of what our issue is, like I said, we want this to succeed. The Executive Officer stated that this

is the most important action that your Board is going to take this year, maybe for longer than that.

This action is going to represent an investment of hundreds of millions of dollars by the cities and counties within this region. This action has the potential to have significant positive environmental outcomes. And so, you know, when we get nine days to review the revised draft and trying to absorb what it's telling us? It's not right. I just feel that way.

You know, this is important. Let's do it right. Let's take the time to achieve the goal. And I think if you tell us that's what you want, it's more likely to happen. I just go back to Board staff's statement that said, "We don't think it can be done." Is that a self-fulfilling prophecy?

So let's talk about why it matters. I mentioned earlier that the WQIP has gone through-- there's a lot more prescription in it and we're not sure it was necessary. We actually liked the WQIP in the last draft for the most part. There's a lot more detail. And in one of the new components is receiving water limitation compliance option.

There was a lot of testimony yesterday in the public session about no safe harbor. This permit does not -- should not include a safe harbor. We don't want to

see a safe harbor. I just want to point out if this permit had a safe harbor, my testimony today would have been "thank you."

This is not safe harbor. What this is is an expression of the goal of the vision of the permit. This is the ultimate expression of compliance. This is what we're expected to achieve. This is where we're setting the bar and defining MEP, and this is new. This is the first time we've seen this. And this is the center, in some ways, of the vision.

And one of the goals that have been set for the vision particularly concerns me and that's the new merit goal that focuses on attaining water quality standards. And that goal bothers me for a couple of reasons, one of which is that the permittees aren't the only dischargers to the receiving waters. There's probably thousands of dischargers to the receiving waters who are all equally responsible for that. And I don't necessarily see the recognition of that here.

And secondly, and more importantly, is that there's an assumption, at least in the way it's written as I read it, that attainment of receiving water standards can be achieved at all times. But the reality is we're working the natural environment and there's weather, and there's storms. Like the storms that happened in 1993 in

Old Town Temecula that put the city three feet underwater. Businesses. Homes. We can't guarantee receiving water compliance in those conditions.

As a matter of fact, I believe that's why the Clean Water Act has an MEP, maximum extent practicable, standard for stormwater. They recognize that we can't control the weather. We can't control Mother Nature. There is a maximum level of effort that can be exerted. But we maybe can't get there all the time with stormwater.

It's also the reason I think the L.A. permit had a similar receiving water limitations compliance option and they put a design storm in here. They said there's a limit that we think you can reach. Now, I'm not saying the design storm is the right solution. I haven't had time to think about it. I haven't had time to confer with our council or with the other counties, but it is the kind of recognition that we need to think about what MEP means relative to the vision and the goal and how we express it.

And this is really the center of the permit and this alone warrants taking some time to discuss what is this receiving water limitation? What is the goal that we ultimately want to express here? How does the receiving water limitations relate back to the WQIP? And making sure that all of this relates back to Provision A so that if we do achieve this, it is compliance. And I think the

goal here with the bar is to design a metric that pushes us forward but that we can achieve and that will motivate us to deliver.

CHAIRMAN MORALES: You know, it's funny you that you reference that L.A. standard and you say that you would need to take a look at it. A lot of people that are subject to the L.A. MS4 permit and municipalities and governments, their copermittees vehemently object to it and say that's not the way to go, and say there are problems with it.

So I kind of feel like from our end, the goalpost keeps moving on the other side. If we make efforts to meet and come up with something that's acceptable, it never seems to be acceptable. Well, and it's just a general statement because I know folks are going to talk through the remainders of the day, but I asked you the question earlier about the ROWD because my concern is it's almost no matter what we do, somebody is going to object to it or everybody is going to object to it.

I wish this were a perfect world where the collaborative process ended up and we're all singing Kumbaya, but I'm not getting that sense that it's going to be the case. So do you see my concern?

MR. UHLEY: I do. I do, and from our perspective what we're seeing in the latest draft is the goalpost

moving a little bit, too, and it's on both sides. And the rub in my mind, ultimately, is that we're talking about stormwater. We're talking about MEP, maximum extent practicable. And there's a lot of flexibility in that. And so the who, what, where, when, why questions, they get debated. And they should be debated. And it takes effort on both sides to be willing to hear each other and listen to get to the middle.

I've seen it done. I've seen where we have been able to support permits. I've stood up and testified and supported permits. Santa Ana. Colorado. But it takes Board direction sometimes to explain that's what you want and even if you do, I'm not guaranteeing success. I can't. There's a lot of people here. This is a big permit. Three counties. I see that.

But I think we can do better. I think we can build more consensus and we can get a more broadly supported permit. All three counties, all the cities, I think actually I could say all the cities, are in opposition. I think we can do better. I think it's worth the time to try.

CHAIRMAN MORALES: And I think all the NGOs are in opposition. So if we just get one of you to agree with it, we'll be doing better.

MR. UHLEY: That's true.

MR. STRAWN: Just a clarification. You're really speaking in favor of going back to MEPs as opposed to the numeric -- I talk about complex numeric requirements of the receiving water?

MR. UHLEY: When we're talking about stormwater permits, we're talking about an MEP-based program. And what we're talking about here is setting outcomes and those outcomes may be expressed numerically. We're trying to find a way to express those in a way where we can measure and show success.

The point I'm making is that on that measure, the one that says "attain water quality standards," that's beyond what we can achieve. And if we can't achieve this, then we don't have compliance and that's the purpose of this section.

So what I'm recommending is that we need to go back and talk about how to tweak this so that the bar is set at a sufficiently high level to motivate the people to move forward, but that it's set at a level that's also attainable.

This is ultimately --

MR. STRAWN: So if that had "MEP" at the end of it, you'd be okay with it?

MR. UHLEY: That would be a start. We haven't had a chance to talk about this with our electives, with

our managers, with the other copermittees. This is a brand new provision of the permit.

So one way to solve a lot of the problem is that, you know, I think the intention was to let the WQIP ultimately be the center of the permit and let the WQIP really drive the programs forward. And then have the WQIP focus on how it's going to achieve the outcomes that we establish.

But right now, the WQIP kind of sits to the side a little bit. It doesn't drive the entire program forward. There's still provisions that are prescriptive, like I mentioned earlier. If we made the WQIP fully drive the program forward, allowed it the flexibility to allow us to propose alternatives to Provision C, Provision D and Provision E, then a lot of the noise about the details would be lessened because it would give us the opportunity to propose something better to you.

We support the other comments by Orange on the WQIP, and I also want to reiterate that we don't have opposition to the water quality consultation panels. I personally believe that a lot of times the most effective input comes from the people that are closest to the problem. I've learned more from farmers and maintenance workers, I think, with regard to water quality issues than some of the scientists and the engineers I work with.

So we support public input. We're okay with that. But what I'm not okay with is letting the WQIP panel have an approval authority over our programs. The permit gives us compliance deadlines that we have to meet and we can't have our programs held hostage by the Water Quality Consultation Panel. They can advise, they can give recommendations, you can make us respond to those recommendations, but they can't have approval authority.

So I guess now I'm going to take my swipe at the 100 percent pollutant load reduction issue, even though we heard so much about it yesterday. And I think yesterday we heard a lot about can or cannot. I want to focus a little more on why or why not. Why is this a bad idea? Why do we not want to do this?

And to start with that, I want to try to make sure I explain how the existing permits work, our 2010 permits, our 2009 permits. The Riverside 2010 permit says the most effective BMP, the most effective way to reduce pollution on the development is to retain runoff onsite because if you retain the runoff onsite, you're probably going to retain most if not all of the pollutants. So that is set as the default bar.

The permit then goes on to say, "We recognize this, in some cases for very valid reasons, that it is not possible to infiltrate or capture onsite." In those

cases, what we want you to do is use the next most effective technology for treating runoff. It's a technology-based approach, and the next most effective technology is widely believed to be biofiltration.

And so the permit has a standard in there that says basically take a portion. Make sure that this biofiltration BMP can store a certain percent of the design capture (inaudible), 75 percent. It's very simple. It's very understandable by our plan checkers, and development community.

And then it goes on to say that we also recognize in some cases biofiltration may not be possible because you might have (inaudible) into a development, downtown San Diego, or whatever. And so in those extreme cases, which are really relatively rare, you can do other things. And the permit talks about what those other options are, but it's another level of technology.

So that's how the current permit is based. It's not based on a pollutant load reduction kind of scientific mathematical analysis. It's based on implementing the best technology that's appropriate to the site. And what's important, why we support maintaining that current standard, is that this basic approach has been incorporated in every stormwater permit that I'm aware of that's been adopted since 2009.

In 2009, the Orange County Permit, the 2010 Riverside Permit. It's in the Santa Ana Permit. It's in the Phase 2 permit. It's in the recently adopted L.A. Permit. And what we're starting to achieve here is consistency. And you have to remember that developers don't work locally. A lot of developers work across county lines, even statewide, the really big guys.

And so for -- I believe for development that a certain level of consistency is appropriate because if we can foster consistency, then we can start to educate. They'll start to adapt, they'll start to accept, and then they may even start to innovate. And now we've got all these permits kind of aligned along this kind of basic best technology approach. And to change that now would be problematic and I would think it would reverse this thing that's happening.

And that's exactly what's happening with this permit. That's why we have a problem with this pollutant load reduction language. And I understand it sounds simple. It really does. Just figure out how much pollutants are coming off a site, and then I don't care what BMP you use, just design them to capture that level of pollutants. It sounds simple.

But you have to figure out what the pollutants are. They're specific to the development type. They're

specific to the receiving waters. And then if you have to capture 100 percent of the pollutants that would have been captured by the design, by a retention BMP, do you also have to kind of predict acts of God, spills, illegal activity, other things that might happen at the site to achieve that standard?

And then even if we can do that, which is actually the easier part, you have to know what are the wash off rates for the development. And there are hundreds of different development types. We have three to four hundred land use codes in the County that we use to describe different types of development. You would have to have an assessment of what is the wash off. What types of pollutants are generated? At what level? How do they wash off?

And then you have to be able to do the scientific analysis to show that you can implement a train of BMPs that would effectively capture the same amount of pollutants. There were some speakers at the end of the day yesterday that said there's no BMPs that can do this. And so it's not like you're going to implement the best technology available for the site. You're going to be doing these complex studies to figure out what the appropriate mix of BMPs are for the site.

And it adds a level of complexity and a level of

expense and it changes what we're doing statewide and that's a bad idea.

And the other reason it's a bad idea is that our 2010 permits, Orange and Riverside County, their 2009, 2010 permits, we just invested millions of dollars in a design manual in a process to implement the standards that are in those programs. We're just ready to roll those programs out. Actually in Riverside, we already have to some extent.

I want to address a comment that you made yesterday about how are we going to move forward if we don't push? I want explain how I think David's vision of being bold, how we're doing that now in Riverside County. We recognize Riverside County's got a lot of green field development potential. I recognize, our program recognizes, and our managers recognize that we've got one shot to get those developments done right so that they're not causing downstream pollution. If we don't, were going to deal with it at the back end with TMDLs and more regulation. It's in our interest to do it right now.

And so we invested hundreds of man hours and hundreds of thousands of dollars in a development of a design manual and we researched everyone who had to design manual from here all the way out to Maryland. Not everyone, just all the major players, the ones that kind

of have statewide or national significance, to try to make sure that our manual was state of the art and state of the science.

And then we went a step further because I wanted to make sure, or we wanted to make sure, that we weren't only doing the state of the science but that we were maximizing the benefit that we could get out of these BMPs. So then we went on to spend two and a half million dollars on retrofitting our headquarters in Riverside County for the flood control district to incorporate the very technologies that we put in our design manual so that we could demonstrate them and show them to the public. This is how this is going to work. This is how this fits into your site. This is how you would design it, and incorporate that.

And we're including BMPs here like permeable pavers, permeable concrete. And these are statistics from the site. And I would like to -- I think we invited it before but we would open an invitation to have the Board or staff come out and visit the site. We'd really like to show it to you. Permeable concrete. Permeable asphalts. Biofiltration, really the BMP that's kind of at discussion here today. Planter boxes the tree grew from. Infiltration bases.

And we didn't stop just with the demonstration of

these technologies based on the design manual that we just wrote, but we put another million dollars into testing them so that we could figure out how to optimize them and make them work better. And we actually, in some cases, have multiple iterations of BMPs because we wanted to test different design alternatives. So that as soon as we could -- we're hoping within five years, we can collect data to help us understand how these things are functioning and figure out how to do them better so that we can incrementally move them forward.

I think this is very consistent with what David is ultimately expecting with the vision for this permit that people are going to step out, take responsibility, and do the things that are necessary to move the bar forward. In this --

MR. ANDERSON: I'm still not sure I understand what the permit precludes, this handbook approach on the implement. If this works what would -- how would we change what you're implementing, because this is for new development, right?

MR. UHLEY: It is for new development. And this site is intended to help educate developers and plan checkers by how they can put this technology into their developments.

MR. ANDERSON: And this permit prevents that from

happening?

MR. UHLEY: Well, the concern is that the new language that's been put in the permit changes the standard, and the current standard ultimately is based on best technology. This is the best you can do onsite, you're doing this. If you can't do that, here's the next best thing. It just keeps going down the line.

What the permit proposes is kind of a scientific study-based approach. This is going to be much more complex to implement. We're going to have to completely rethink our design manual. The types of BMPs that might be recommended are going to be very different than what we're proposing now to achieve what the Board staff is asking us to do.

And I guess the last point I want to make is this project that we implemented has received over a dozen awards and it's local, state, national level. And I think part of the reason it's getting so much recognition is that there's recognition that what we're doing here has value beyond Riverside County. This data we're collecting, and information we're collecting, can be used to feed back into these other permits that have similar requirements and similar standards.

MS. KALEMKIARIAN: How will you know when you're doing this like with your monitoring, what are you testing

for? Are you testing for the pollutants?

MR. UHLEY: We are. We're testing for the pollutants that are most problematic in Riverside County.

MS. KALEMKIARIAN: Using the basin plan TMDL as a guide as what to test for?

MR. UHLEY: We're using the 303(d) list initiatives we see that are concerning to us. More importantly, we're also focusing on volume. Because the best thing we can do is try to capture as much runoff as we can onsite. Because if you capture the runoff, you don't have the pollutant discharge.

But in some cases you can't capture onsite. In some cases you have to discharge. But maybe there's ways that you can still maximize the amount of water you capture onsite. Biofiltration BMPs have been shown that they can retain potentially, in very poor soils, 40 to 50 percent of the runoff. Can we do better? That's what we want to find out. That's what we're trying to test.

MS. KALEMKIARIAN: Is there any -- and bear with me because I'm still learning this stuff. Is there a relationship in your mind, or or have you figured out -- and Riverside is way inland, I realize that. But when you look at receiving waters, what are you looking at?

MR. UHLEY: We're looking at particularly the receiving waters in Riverside County. That's what we're

talking -- Temecula Creek, Murrieta Creek. All the tributaries thereof. But, you know, we also discharge to the Santa Margarita River --

MS. KALEMKIARIAN: -- Okay, so looking at those receiving waters with the stuff, which is impressive and gee, looks really good, are you able to see whether -- or is there anything you're doing now that can show you whether what you're doing at your test site is having an impact on the water quality of the receiving water? Is that even in the picture?

MR. UHLEY: Well, it's not. What it's going to show is how well these BMPs are doing at pollutant removal, which we could then extrapolate based on how well they are doing at pollutant removal, if they're going to be successful in addressing our concerns in the receiving water. I mean, ultimately, the simplest test is does the outflow meet the standards? So I guess basically, yeah, we could.

We just completed this project basically this year. Kind of just coming online and of course this is an extremely dry year, so we don't have a lot of data yet. But we're collecting the data and we're going to have the data.

MS. KALEMKIARIAN: But this is the connection the staff is trying to make as I understand it, that what are

you doing with the stormwater that's going to have some impact on the receiving water? If we test the receiving water for standards, can we back it up to see what you're doing that's having that impact?

MR. UHLEY: I think the short answer is "yes." What we're trying to do here is design the BMPs to optimize their performance so they minimize impacts on receiving waters and help us to attain standards.

And so, you know, the simplest solution for this is just -- what we would ask is just restore the permit language that was in the 2010 permits. Just drop that in this permit. We provided edits and handouts to show how that could be done. That would protect our investment. That would kind of help to maintain that statewide consistency that we're starting to see.

I'm really concerned that if we go to this pollutant load reduction standard, it's not that simple approach that the development community understand, that our plan checkers understand. Calculation of DCB, you need three variables: You need to know the area of the site, you need to know the impervious area of the site, and you need to know what the rainfall treatment volume is you're trying to do.

If you know those three things, you can calculate DCBs, you can sign BMPs. We go to a pollutant load

reduction, we're now talking about a new scientific study to try and document that we would have achieved the equivalent pollutant load reduction standard. It's much more complex. It's going to cause confusion, frustration and resistance.

CHAIRMAN MORALES: I have, I guess, a question.

I spent some time back East. I made friends with people from all over the country and they used to say stuff about California. And I came up with a candid response. I would say, "We're not crazy in California, we're just first." And turns out that eventually, yeah, most of the rest of the country and a lot of things where they thought we were crazy followed.

I don't know what will happen with the state's standards going forward, and I don't think anybody in this room does. But if I had to guess, I would say they will be changing more towards what we're talking about here over the long run.

Now, when you were talking about your examples of water retention, biofiltration, it looked wonderful. You mentioned that if we adopted the permit as written, you would have to rewrite your manual. And I guess my question is why? If that is the best you can do, do we know whether or not that would be sufficient for what we are asking in the permit as currently drafted?

MR. UHLEY: I think there were a couple guys that testified at the end of yesterday, they were the guys, the scientist and then the other guy was the technical -- the BMP manufacturer guy. Vago. (Phonetic.)

They said no, that we don't have the technology to do this. And my understanding is that biofiltration will not remove 100 percent of the pollutants that would have been captured if we would have been doing infiltration or onsite capture. There is a discharge of pollutants.

The advantage of biofiltration is it does capture some volume, maybe even a lot of volume. So it does get a lot of the pollutant loads reduced. But there's a discharge, and there is still pollutants in those discharges.

The other reason people slight biofiltration is that the biological and chemical processes that kind of occur within the BMP, kind of do add another level of pollutant capture, but there's still a discharge. There's not 100 percent removal.

CHAIRMAN MORALES: But doesn't the -- as currently drafted -- the permit account for that and suggest that if there isn't the ability to take care of the volume or the pollution onsite, that alternatives within the watershed are available to deal with an

equivalent amount of pollution, if you will. And then I guess the question is is that really the beef? That it will cost a little more because you have to do something else in another part of the watershed if you can't do it onsite?

MR. UHLEY: No, the -- you're right. The permit does say if you can't do it onsite, you can do it offsite. But here's the rough with that.

We support regional programs. We think they're the way to go. But for a developer, they don't make sense unless there's something kind of out there ready to go that they can opt into most of the time.

And so I see the real benefit of regional BMPs. In order for that program to really work and be successful, what will end up happening is the cities and the counties are going to have to make a significant investment in really thinking about how to manage the watershed, the watershed scales, identifying where we can incorporate regional BMPs that are multipurpose, multi-benefit, and then making those available to the developer to participate in, because the developer is going to have to -- if he can't do it onsite, he's got to go offsite, right?

And if he has to go offsite, he has to find land to buy. He's got to go through environmental primitive

processes. He's got to go through another level of review and regulatory process and it's going to delay the developments. And we think unnecessarily so.

We think that they shouldn't have to go offsite, that the standard that we have has just been adopted in 2010. This is what the Board directed us to do two years ago and we just developed a design manual. We spent millions of dollars to develop a design manual and approach based on that standard that you directed us to do two years ago.

And you know when I started to lead off, one of the things I said is what is this process -- what does this outcome-based vision do that benefits me? It allows me to focus on the long game and on the outcomes, and stop the micromanagement of the details of the program every permit renewal.

Give us the ability to figure out what the right thing to do is and the flexibility to do it. I think you will be surprised.

MR. STRAWN: And to that, I'm a little surprised at that answer because I thought you were going to come back and say the problem with it is calculating what that hundred percent number really is and how much you have to do offsite as opposed to the issue of actually doing it offsite.

Am I missing something there?

MR. UHLEY: No, it's both. In reality, it's both. The issue is that it makes the WQIP approval process much more complicated, by default, automatically, and unnecessarily so.

I keep coming back to the key to success with these programs is ultimately simplicity and repetition. It's engraining the practices into the communities. And when we keep moving the bar, it never happens and it just makes people frustrated and it makes them resistant. And they throw up their hands and say, "We're never going to succeed." That's what I deal with and that's what I'm concerned about.

The other thing we heard -- and so why would we make the process more complex? That's the first question I'm asking you. Is it necessary to do that, especially when I've tried to be bold. We've tried to do the right thing and take ownership of the problem and develop a system to move the science forward faster so that we can protect the water quality sooner.

And what I'm hearing is, "Well, yeah, that's fine. But we're going to tell you to do something else." Is that the message that you want to deliver?

And the other thing is do we want to make the process more complex? So, I missed the first part of that

because you asked kind of a two-part question originally. Going back to your comment, Mr. Strawn.

But, yeah, the second part of it is that offsite isn't as simple as it sounds. Offsite, in my mind, as a professional that is going to have to deal with this, offsite is going to depend on a huge investment by the cities and the counties to identify these locations to make them available and to make them reasonably linked to the development schedule. The developers will look at the offsite when it kind of fits within their timeframes. That's going to require us to have stuff ready to go.

So we need to do that forward planning and I want to do that forward planning. That's why we support the concept here. At the end of the day -- I'm just going to come back to what I said earlier -- is that we want to succeed. We really do. We want to do the right thing. I want to go home and talk about my victories, and I've got victories that I can talk about now. But I think if we restructure these permits, we rethink how we're doing things, we can do more and we can do it faster.

And this variation that we're talking about, which is well, should we push forward more now? Should we change the bar, move the goalpost? It ultimately tells us that if we step out in front and we try to do the right thing that we're going to get bit. That's what I'm taking

away from this discussion and please, don't. Help us. We want to succeed. We want to achieve the vision.

MR. ANDERSON: When you get a chance, could you let me know what page the fix that you were suggesting is?

MR. UHLEY: It's on page 93.

If there are no other questions, I'd now like to introduce David Garcia of our staff who's going to talk about a few more technical issues we have.

MR. GARCIA: Good morning. My name is David Garcia with the Riverside County Flood Control and Water Conservation District. I took the oath. Thanks for giving me the opportunity to speak on the proposed regional order.

I wanted to concentrate on three items of concern. First item is sediment transport. The second item is the alternative compliance program. And the third item is we would like to propose a flood control projects exemption.

So our first concern. This concern was touched a little bit by Mr. Taylor representing Orange County yesterday. So we'd like to propose language, and the changes to the permit to ensure that the permit properly reflects the intent that receiving waters are protected and not the critical sediment yield areas themselves.

So concern number two. I don't expect you to

read this. I don't expect anyone to be able to read that. I'm just trying to show that serious revisions went into the alternative compliance program, a program which is one of the most important programs in the permit. In the alternative compliance program, the goal is to provide an opportunity for effective multipurpose, multifunction regional projects.

We support and believe these projects can move water quality protection forward faster than what is possible through regulations of individual developments. It allows us to leverage other resources from other entities to achieve common goals, and it facilitates watershed scale solutions. We're concerned that some of the new requirements will negate the potential benefits of these projects.

Specifically, we have two issues. The first is the alternative compliance program allows for alternative hydro-modification programs for flood control but not for management of critical sediment yield areas that may impact receiving waters. So we need the flexibility to look at both. There's an issue -- excuse me.

The second is temporary mitigation is required. So we'd like to note that the alternative compliance projects are required to provide a greater benefit than onsite mitigation. However, the permit also requires

temporary mitigation for developments.

Now there's an issue of fairness here as well as a concern that dual mitigation will effectively discourage developer support for projects that could provide a greater good. So our recommendations for this concern. The following text is recommended to address both issues that I just noted. The first allows the permittees to develop alternative compliance programs to manage hydro-modification impacts from both flow and sediment by appropriately referencing both provisions.

The second recommends the removal of temporary mitigation requirement and a provision that we don't believe is necessary.

So our third concern is the need for flood control project exemption. Now, with regard to this concern, it's important to emphasize our mandate from the legislature, which makes up the mission of the Flood Control District. And I'd like to thank staff -- they mentioned it yesterday -- that they are important projects. And our mission is typically misplaced in this form as we're categorized as a discharger. Our mission is to protect people, property, and watersheds from damage from stormwaters, conserve, reclaim and save such waters for beneficial use.

Now, flood control projects are watershed

protection projects. They consist of projects that provide the following listed up there. Protection from environmental disasters, erosion mitigation, stream restoration, slope stability, water reclamation.

Now, subjecting flood control projects to development requirements is inappropriate as development requirements are designed to protect receiving waters from upstream and adjacent land uses, where flood control projects are the receiving waters themselves. Now there's something lost in translation and we would like to clear the language.

Further, these projects are already regulated by this Board, which includes the 401 process. Now, the Board staff did address this concern in the response to comments and Board staff noted that it may be suitable to relax the structural BMP standards for, or exempt flood control projects but not before projects are evaluated on a case by case basis. However, we don't see the flexibility contained in the permit and we have recommendations.

So our recommendation is that the following text be incorporated into the permit to provide an explicit mechanism for flood control project flexibility. Additionally, we're requesting an alteration to the definition of redevelopment to clarify that flood control

maintenance activities are not redevelopment projects. Maintenance is critical to public health and safety. We're asking to allow us the flexibility to implement our mission and protect our communities without additional complexities.

This language was taken from the L.A. permit, and it clarifies that normal flood control maintenance and repair activities, which are time-sensitive, are not subject to development requirements. And it clarifies that emergency work is not subject to new development requirements.

So I appreciate your time letting me talk about these issues. If you have any questions? Thank you.

I'd like to introduce Patricia Romo, who is the Assistant Director of the Riverside County Transportation Department.

Thank you for your time.

MS. ROMO: Good morning, Board Members, staff. My name's Patricia Romo. I'm the Assistant Director for the Transportation Department in Riverside County. I have taken the oath.

I'm here today to talk specifically about public works road projects and I'll be focusing on the redevelopment of the existing public roads in southwest Riverside County.

Riverside County Transportation Department is responsible for the maintenance and safety of several thousand miles of road within Riverside County. Our obligation to the traveling public is to provide safe, efficient, and reliable roads to travel on. Our motive is not profit-driven but as public servants, we strive to maintain and improve as many roads as possible within our budget each year.

Each year, we prioritize our capital equipment plan with safety projects being our top priority. The primary source of our revenue comes from gas tax or sales tax, which never really is enough and over these past several years has been even more challenging as we struggle to fund routine maintenance activities such as pothole repair, guardrail repair, refreshing pavement markings, responding to incidents, storm damage, and tree trimming and at the same time trying to budget for pavement preservation projects and safety improvements to provide a safe and reliable transportation system for the public.

To give you an example, the County of Riverside receives about 20 million dollars a year for roadwork from the State Highway Gas Tax Account each year. Yet our need is really about 50 million dollars per year just to keep up with the maintenance of our existing roads.

We do take advantage of state and federal safety grants as often as we can. However, these come with funding moments and time constraints.

As can be seen from this slide, public roads are -- for the most part, linear. They're constrained on both sides by private property, both developed and undeveloped, and even the slightest take of private property for public use can be challenging when you have an unwilling property owner.

I'd like to make note of what I see as a discrepancy within the draft permit. It refers to "retrofit" rather than "redevelopment." And I just wanted to clarify that we recommend that Provision E3 B1, which addresses exemptions for road projects from development requirements, be modified from the term "retrofit" to "redevelopment" and that that more lines up with the definition of redevelopment as it includes road projects.

We believe that the intent of the permit as it refers to road projects was meant to be redevelopment and not retrofit. So when we talk about redevelopment of a public road the definition is the widening of a shoulder, the addition of a turn lane, improvement of an intersection, or the correction of a sharp curve to the road or a dip in the road.

These projects made corrections to roads that

were built when Riverside County was a rural community and when few drivers traveled these roads. Today we have hundreds of thousands of residents in southwest Riverside County and many of these rural roads see more daily traffic than ever imagined. Theoretically, for future widening was never preserved when these roads were built.

But today when we develop new roads, of course we consider future development and we purchase adequate (inaudible) for future expansion. With these projects, we often purchase mitigation land to offset our impacts and we also incorporate water quality BMPs to mitigate the impacts of the new road, and again, that's for new projects.

For redevelopment projects, we're faced with constraints, like I mentioned, with the limited right-of-way available within the existing public right-of-way, a network of utilities which also share the same corridors as the roads, finding restrictions and deadlines and that limit flexibility, and in general, demands from the public and our obligation to provide safe, dependable roads.

However, within these constraints, we do continue to provide BMPs to the maximum extent practicable using the USEPA green street's guidance and that is our practice today.

The County does strive to be good stewards of the environment by protecting water quality and we believe that we have come up with a plan that satisfies both the needs of the Transportation Department and the San Diego Regional Water Board. Two years ago, the County worked closely with the Santa Ana Regional Board to develop guidance specifically for public works road projects. This guidance, approved last year, is substantially similar to the guidance being developed in Orange County and also the guidance being considered by Los Angeles County for their road projects.

The guidance is developed around the green street's concepts and those guiding principles that the County will develop all projects with. It ensures that all projects incorporate water quality BMPs and address impacts of the maximum intent practicable using the principles of the green streets principles.

We request that the new permit recognize the existing green street's road standards as approved by the Santa Ana Board and this permit, and by using these principles the public is able to rely on us to provide a safe road to travel on. We're able to get these projects out to the public in a timely manner. We're able to take advantage of grant funding to meet deadlines and the County reduces its liability exposure due to potentially

dangerous road conditions.

MS. KALEMKIARIAN: May I ask a question just about this green streets issue at this point, and perhaps Wayne's staff can answer? I don't know who should.

It came up yesterday and I did a little Googling on green streets last night just to understand what it was. What is it about this permit that doesn't appear to approve green street as an approach? It's an environmental approach right, to try to deal with pollutants?

So what is it -- and maybe Wayne needs to answer this -- and why isn't it acknowledged, or is it something that did not meet standards or is it just an omission?

MS. ROMO: Well, it's to the extent and we go back to what everyone's been talking about, treating 100 percent of the pollutants, and it's very difficult for a public works road project to do that because they are linear and they're bound on either side by runway constraints. So it's near impossible for me to be able to treat 100 percent of the road runoff and capture all of those pollutants within the limited right-of-way that I have.

So if the requirements are imposed on simple projects, something as simple as shoulder widening, if I add more than 5,000 square feet of impervious area and I'm

bound by having to treat all of that, I'm going to have to go and condemn a property owner to build a basin or some sort of facility to treat that water.

MS. KALEMKIARIAN: Okay, so basically you're saying the green street's approach for your situation is a BMP is the best practice that you would want to have acknowledged?

MS. ROMO: Right, so that would include tree planters, swales, things that I can incorporate within the existing roadway.

MS. KALEMKIARIAN: Wayne, is there anything you want to add to that so I understand it better?

MR. CHIU: We do actually have something within the provisions of the permit that allows for green streets to be utilized for retrofitting of streets and roads. In the previous version of the permit, we had an exemption but limited it to streets or roads that are no larger than two lanes. We removed that limitation so it can apply to any street or road that is retrofitted.

I think there is maybe some misinterpretation or misunderstanding of what that word retrofit means. In the case of the widening of a street, he may not necessarily consider that a retrofit, but if that widening of the street resulted in the use of green streets for the purpose of also improving water quality, I think that

would fall under this exemption. But perhaps that's not fully clear in the language of the exemption or even in the fact sheet.

As far as new roads, there is no exemption for new roads to be allowed to just utilize green streets. We would expect that green streets would be utilized as the foundation to meet the design and performance standards, but it may not get them all the way there. So then that's where the alternative compliance options would probably play a role if they could not fully meet it within a project footprint. But that's why we have that alternative compliance option, so that they can meet the performance standard somewhere offsite.

MS. KALEMKIARIAN: So this much-discussed 100 percent issue and the retention of water, when it talks about a priority development, that would include major street widening or the building of a new street and then this issue of this green street is enough? I mean, I'm simplifying it, but that's kind of the crunch of the issue here?

MR CHIU: We've provided green streets kind of as the off-ramp from the full 100 percent pollutant removal requirement but that is limited to just the redevelopment, in her terms, of an existing street. But for a new street, we believe that there should be enough planning --

upfront planning -- that can take place in order for them to be able to meet the full requirements of the priority development project. And if it can't be done within the footprint of the project, then they can use some other alternative compliance option.

MR. ANDERSON: My question is almost the same thing, is if we fix the permit with Mr. Uhley's suggestion, then the retrofitting provision here allowing for existing paved allies, streets, or roads that are designed in accordance with the USEPA industry's guidance, would that be -- then would it work?

MS. ROMO: It probably would not. If you go back to the original permit as it was -- the tentative order that was drafted way back, I think it was over the summer -- there was language in there that allowed for the copermittees to develop guidance specific for public works road projects because we still do have constraints. There are situations where you're doing minor widening. There may not be an option to incorporate the swales or the parkways that are in the green streets. So that wouldn't necessarily cover every situation.

So then in the original permit, it did allow that opportunity and the guidance that we developed with the Santa Ana region, it does talk about that we would follow green street guidance but it does go through a series of

checklists on making sure that we incorporate to the best of our ability to the maximum extent that we can BMPs, swales, infiltration basins and so forth.

We go through and we take a look at the different soils, infiltration rates, right-of-way available. We make sure that we go through all of those steps to make sure that we incorporate everything that we possibly can within the existing right-of-way. So my fear is that the piece that's missing is giving me that opportunity to continue to work and provide those within the limited right-of-way that I do have. And I just want to mention that I am specifically talking about redevelopment here.

I do want to point out that in the tentative order on page C9 there are definitions. And there is a distinct definition -- difference between the definitions of redevelopment and retrofitted.

Redevelopment -- "examples of redevelopment include the expansion of a building footprint, road widening, the addition to or replacement of a structure, or certain conditions of impervious surfaces, where retrofit is specific to develop the areas with intent to improve water quality."

So there is a difference between the definitions of those two and that's why I was suggesting that it may have been an inadvertent error to discuss -- or when

you're talking about roads -- to shoulder widening and simple improvements, to refer to it as retrofit. So the purpose isn't for improving water quality. The purpose is to improve the road by widening and so forth and that is the definition of redevelopment.

MR CHIU: May I speak to that? There is a difference between the definitions of redevelopment and retrofitting in the definitions portion of the permit. Retrofitting -- the intent of retrofitting, is for the improvement of water quality in an area of existing development.

So if you're looking at a road that is existing and it has been retrofitted with at least one of the purposes to improve water quality, I would say that meets the definition of retrofitting. If it is purely to redevelop and just replace or add additional impervious surface to an existing area of impervious surface without trying to improve the runoff conditions or the pollutants that might be coming off of there and even potentially increasing the amount of runoff or pollutants that might be coming off of there, I would not call that something we would want to accept.

MALE SPEAKER: Chairman Morales, I'm sorry I have to object on behalf of the Riverside County copermittees. If the question is addressed to Mr. Chiu, that's fine.

But I think he's engaging in sort of preliminary response to comments. I would hope that his comments would not be taken off our time. Thank you.

CHAIRMAN MORALES: Your objection is noted and in fact, the timer was stopped.

MR. ANDERSON: Thank you for the clarification. That helped.

MS. ROMO: If that is indeed the definition, the language will need to be clarified within -- the definition that's in the tentative permit because it is not clear.

MR. GIBSON: Mr. Chairman, if I could interrupt briefly to note that Mr. -- Dr. Abarbanel has joined us now and rollcall will be adjusted to show that.

CHAIRMAN MORALES: Thank you.

MS. ROMO: So I'd just like to say that the public does look to us, both of us, all of us, as public servants to ensure that funds are spent in a way that protect not only the environment, but the public as well.

And yesterday we heard from quite a few folks that enjoy going to the beach and the lake and the rivers as we all do. I think they have that expectation that they have nice, safe, reliable roads to get there as well so that they can get to those locations to enjoy them.

So I would urge you to allow for the development

of transportation and road guidance for public works projects in the new MS4 permit as what was originally in the original tentative order. These projects are very different from all other non-road development projects and we urge you to reconsider and allow the development of guidance that address these unique needs.

I look forward to the opportunity to work with Board staff to develop guidance that is fair, reasonable, equitable, and compliant through an approach that developed practical standard practices and policies specific to public works road projects in lieu of the typical project by project WQIP approach.

In closing, I'd just like to request that the permit does include this additional language to allow for the guidance of specific guidance, specifically for road projects. It's been successful in the Santa Ana region. It's working well. Everyone understands it. Like I said, we do include BMPs to the maximum extent practicable within the right-of-way and we will continue to do so. This allows us to deliver these projects quickly.

We do have many projects in the County that we're doing, hearing minor widening to improve the safety of an intersection or slightly widening the shoulder in locations that have frequent accidents occurring. So these are projects that we certainly don't want to delay

and which would be delayed if we're forced to go offsite to find a location to treat water runoff. And this is the reason that I'm looking for alternatives, which could be generated from guidance given the additional time to work with staff.

Thank you.

MR. STRAWN: This goes back to Mr. Garcia's presentation but any of you could answer. Can you give me an example of a critical sediment yield area?

MR. UHLEY: It's critical course sediment yield area and I think the idea is that we have land forms in the watershed and some of them are more likely to erode and provide sediment to the streams, which helps to maintain stream stability. In some cases, the streams are naturally unstable and it maintains the rate of change of the streams.

So I think what the permit asks is that we -- well, what the response to comments said was you need to maintain these critical sediment areas such that they don't have an impact on the receiving water. But then what we read in the permit was that you just need to simply maintain all critical course sediment yield areas. There's a difference there and the difference is focusing on the impact to receiving water.

We would like the language to clearly reflect

what the intent was, as we understand it from the response to comments, is keep the language focused on the impacts of those course sediment areas and the changes to those on receiving waters.

And then the other request we would make is that you allow us -- (inaudible) is an issue that involves both flow and sediment. But the permit -- this is one of those areas where the permit bifurcates it. And it says you can deal with flow to the WQIP. But you can't deal with sediment. You have to follow our prescriptive requirements for sediment.

We would request that both the flow and the sediment pieces be allowed to be addressed to the WQIP together so we can have a whole solution of (inaudible). They're two relatively simple changes.

MR. STRAWN: So you and our staff could sit down on a map or a picture and point out where all these critical sediment yield areas are?

You know where I'm going with this. Is there some difference of opinion of what is included in that definition, or are you guys all clear on it?

MR. UHLEY: Exactly. And I think that's the point is we need to define what's important. What is course sediment yield areas? I think the concept is understandable and I think Orange County's done some work

along this front already.

But I think the goal here is what is the impact on the receiving water? Let's make sure we're not (inaudible) receiving water. Just want to keep the permit language focused on the goal and allow the WQIP to allow us to find better ways to achieve the goals. That's what we're after. We want to succeed.

Some of our preliminary sediment yield maps that we're doing for the existing permit hydro-modification plan shows that the entire region will be subject to sediment yield. So without a more detailed study, we could dig into the course sediment.

MR. ANDERSON: I do have one comment for the transportation agency. In reading her letter, it seems like staff captured the intent of the January letter of the Department of Transportation and included a very succinct little different version but pretty much by the intent, and I'm kind of surprised that now she's asking us to go back to the previous tentative order and asked for originals.

MR. UHLEY: Well I think, if I may, I think there's an issue of semantics here. I think we're all agreeing to the goal of we want redevelopment. We want road projects that are in existing urban areas, that are widenings, that are working within the constraints of the

existing urban environment to be able to use green streets.

The question is whether the word "retrofit" is the right way to characterize that exemption, or whether the word "redevelopment" is the right way to characterize that exemption. I think what Patty was trying to ask for is just can we add the word redevelopment and then we know that we think that meets what we want to do.

MR. ANDERSON: I think what she said to us was she wanted to go back to the previous tentative order, right?

MS. ROMO: No. Let me clarify. Not the previous tentative order, but the previous draft of this tentative order. Their original draft included language to allow us --

MR. ANDERSON: The one we heard at the workshop?

MS. ROMO: Pardon me?

MR. ANDERSON: The one we heard at the workshop in November?

MS. ROMO: Yes, but when we went to the workshop in November that language was already stricken. It was stricken before we got to the workshop in November.

MR. ANDERSON: Oh, okay.

MR. UHLEY: I'd just like to close right now. I'd like to thank you for your time. I'd like to thank

you for your excellent questions. I'm very glad to see that you're engaged. It is helpful. And I would like to reiterate that the goal's important. I think we can develop a more superlative order with time. I think we can work out some of these details and it's worth our time. It really is.

And I would like to reiterate our invitation to come see our facility that we've constructed. We're very proud of it. Maybe it might help to answer some of these questions. That's another reason. We can go show you what we're doing and maybe that will help clarify what the issue is.

Then finally, coming back to this issue of the 100 percent pollutant load reduction, I think at one point in staff's testimony they stated that we don't see a difference. This is what we're doing before. If that's the case, then why don't we just go back to the language that was in the 2010 permit and make it clear?

With that I'd like to thank you guys for your time and we'd like to end our presentation.

MR. STRAWN: So we're away from Riverside now and we're working on the total four hours for the copermittees.

CHAIRMAN MORALES: Let's take a short break. We'll get you a time count. Just so the folks know, my

intent will be as soon as you're done with your 30 minutes, and if you want to go less than 30 minutes that's fine, we'll break and then I will have to go take care of what I have to go take care of and we'll reconvene at 3:00. But you will go for your 30 minutes.

And my intent is as soon as we come back, we'll begin with the NGOs and if I could get a couple of representatives from the NGOs to come up. There's one thing we need.

MR. STRAWN: I do have a card here from the Port. I believe I didn't have it in that pile but I'll move it over. And the answer to your question is we show you to have one hour and 14 minutes remaining; is that right?

(Whereupon, at 11:38 a.m., a recess was taken.)

CHAIRMAN MORALES: Okay, let's take our seats. We're going to have our next speaker for San Diego County.

MS. KALEMKIARIAN: I think I need to procedurally say something before we start. Apparently, I need to tell everyone when I said I Googled "green streets," I looked at the EPA definitions. I did see a picture of a swale, which I will disregard and it will not influence my decision. I'm getting used to these rules.

CHAIRMAN MORALES: For the record, the EPA's definition of green streets is part of the record in this matter.

MR. CROMPTON: Chairman Morales and Members of the Board, I'm Rich Crompton, Director of Public Works for the County of San Diego and I have taken the oath.

I'm here today with the County of San Diego to reiterate the County's remaining concerns on the revised tentative order. There are many significant changes to the order. So the County's first request is to urge your Board to grant a continuance to allow at least 45 additional days for your stakeholders to review the significant changes in the draft permit and to seek clarification from Board and staff.

Also as a public works director who deals with the issue of the County streets that we just discussed, the County of San Diego and the San Diego copermittees do concur with the recommendation for priority development project exemptions to make the switch from retrofitting to redevelopment.

The issue of numeric limits or backdoor the bacteria TMDL is so important to the County that we traveled to Sacramento and Washington D.C. earlier this year to meet with our state and federal representatives and to meet directly with both EPA Region 9 and with Nancy Stoner the Acting Assistant Administrator for Water at USEPA.

The crux of the problem is that USEPA issued a

2010 memo, that is cited by your staff in its response to comments, as supporting the incorporation of TMDLs as numeric limits in this permit.

The 2000 memo states, and I quote from the memo, "EPA recommends," and I emphasize the word recommends, "that where feasible the NPDES permitting authority," that's your Board, "exercise its discretion to include numeric effluent limits in permits."

USEPA has clearly indicated in our discussions that the controversial 2010 memo is strictly guidance and that local authorities have the discretion to draft permits based on local needs. Not only has the 2010 guidance memo not been reviewed or accepted by the Office of Management and Budget, which is standard practice, but Nancy Stoner herself told us that the state has ultimate discretion to decide how TMDLs get worked into permits.

So Board staff's argument that their hands are tied and that they are obligated by federal laws and regulations to incorporate the TMDL as is just doesn't seem to hold water because we find ourselves in the position that nobody's taking ownership of the issue where we have the state pointing at the feds and then we have the feds that are pointing back to the state.

The numeric limit based bacteria TMDL is the single biggest cost driver in the permit. We've estimated

these costs to be between 2.8 and almost 5 billion dollars over the twenty-year compliance timeframe of which 18 years remain. So this is billions of dollars, billions of taxpayer dollars over the next 18 years.

The County of San Diego's portion of the bacteria TMDL compliance cost is estimated between 286 and 567 million dollars over these remaining 18 years. So this works out to about 16 to 31 million dollars per year, and again this is taxpayers' money.

And I remember Chairman Morales, you asked the question, you said, "These are just dollars. What does this mean?" At the last meeting you asked that question so we listened. And what is an additional 30 million dollars a year?

Well to the County, our entire parks program -- we have great parks. I encourage you all to come to County parks. Our entire program for all our citizens is a 30 million dollar program. To put it into perspective for public works -- I mean, I have to scrape to find six or seven million dollars a year to do pavement resurfacing.

So 30 million dollars to the County, that's a significant additional sum, and that's on top of the 30 million we're already spending for stormwater compliance. So it's basically doubling our compliance

cost.

CHAIRMAN MORALES: Actually, since you mentioned that, I would like to clarify that I don't want anybody left with the impression that I was implying I didn't care about dollars. My question went to what made up the dollar figures that you all were throwing at us that were across the board to use the phrase very concerned about cost and efficiency.

MR. ABARBANEL: I wonder if I may? Comparing parks to clean waters is apples to persimmons in my opinion, at least in the City of Del Mar when MS4 permits demand required the ratepayers of the water system and the sewer system were quite happy to pay for that product and to pay for parks because they got something that was extremely important to them.

Are you telling us the County of San Diego is not willing to ask its ratepayers to pay for clean water?

MR. CROMPTON: Well, I think there's a couple things. One is we can't ask ratepayers to pay for clean water because it's not a utility.

So to raise money for clean water, as some of the speakers said previously, would require a vote of the people. If we wanted to go out and do a fee for clean water, that would be a Prop 218 Prop 26 vote of the people. There's not a rate we could just go out and

impose. And I think that's probably the best way I can answer your question. Right now this is a general fund obligation.

MR. ABARBANEL: I am, of course, a victim of Prop 218 in my history but that doesn't stop you from doing good things. It gives you a little threshold to cross.

MR. CROMPTON: So while the revised tentative order allows some BMP-based compliance options, the biggest problem remains that the bacteria TMDL targets are unattainable and the potential benefits of spending significant additional resources is not well understood.

We've spoken with Dr. Wilma Wooten, who is the County of San Diego's Public Health Officer, about where stormwater-borne illnesses during and after rain events fall on the hierarchy of priority public health issues that she deals with. And Dr. Wooten shared with us the County's top 15 public health issues including things like heart disease, diabetes, mental disorders, cancer, lung disease, pneumonia, asthma and the flu. And stormwater related illnesses, they're not on the list.

There's simply not good information available that quantifies the actual public health burden resulting from bacteria-borne illnesses in creeks and beaches. The proposed permit with the costly bacteria TMDL is in effect a forced reallocation of local government taxpayer funding

from proven problems to an unproven one. There's still more work to be done on this permit.

Again, I urge your Board to grant a continuance to allow enough time to evaluate the latest draft, and for your staff to work with the copermittees and stakeholders to resolve the outstanding issues. I'll now turn this over to Jim O' Day from County Council.

MR. ANDERSON: Just a quick question. Whether we incorporate that bacteria TMDL or not in the stormwater permit, it's still a TMDL that needs to be complied with or revised. Are we agreeing?

MR. CROMPTON: And I think this will hold well into our county council conclusion.

MS. KALEMKIARIAN: I think I have a question. Not part of your time, right? I'm sorry, I didn't catch your name.

MR. CROMPTON: Sure, I'm Rich Crompton.

MS. KALEMKIARIAN: Crompton. Thank you, Mr. Crompton. What you just said raised a question in my mind that I thought I'd ask Chairman Cox.

And I think he kind of answered it and kind of didn't, and that is that it appears from your testimony that the County's position is that stormwater runoff that would cause, in this case, water-borne diseases in the ocean is really not high on the hierarchy of health

priorities for the County.

MR. CROMPTON: I think it's a different -- I'd state it differently. The County has many competing priorities and so the fact that this issue was framed as a public health issue, it was framed as a public health issue back at the November meeting. And your Board asked staff to come back with some proof of that and they brought a 2006 report that showed hey, this is a public health issue.

What I'm saying is -- I'm not saying it's not a public health issue at all. What I was saying is as a County we have many competing public health issues and according to our public health official, this isn't even in the top 15.

MS. KALEMKIARIAN: Okay, so -- and I picked that up a little bit from Chairman Cox's testimony when he said, "Hey, there's a three-day time when you can't use the ocean and we just wait for it to blow away and we'd like to be able to notify people sooner." Okay, good. That would be nice. But that doesn't deal with preventing the problem. And I thought, okay. Well, he seems to be saying that we can live with those three days.

From the County's economic perspective, because we heard testimony yesterday about that, not just from the environmentalists but from folks from government. You

don't see that times when the water's not swimmable as an important business issue for tourism and use of the recreational facilities?

MR. CROMPTON: No, I definitely wouldn't say that. Our concern -- and we're going to talk to it -- is there just hasn't been a cost benefit analysis done. There are costs, definitely, but how do they compare? We're going to talk to that.

MS. KALEMKIARIAN: Okay, and would someone please, when you address that -- because this is beyond what my knowledge base is yet -- is whether that cost benefit analysis is permissible under the Clean Water Act. So I imagine Counsel will address that at some point.

MS. ABARBANEL: So as a resident of the County of San Diego, thank you for working for me.

How much did it cost to go to Sacramento and to Washington?

MR. CROMPTON: Not sure what those costs were.

MR. ABARBANEL: Would those costs possibly have been better spent doing a cost benefit analysis of the problems that you're addressing here?

MR. CROMPTON: You know, I'm not going to answer that. I'm not sure how I should answer that.

MR. ABARBANEL: Well you shouldn't. I do. You should have done the latter. For me.

MR. CROMPTON: Okay. Thank you.

MR. O' DAY: Thank you Mr. Chairman, Board Members. I was hoping to escape the watchful eye of our late arrival Board Member but I haven't done that so I've got my work cut out for me.

And I have a slide about procedural objections but I think we covered all that yesterday. And Mr. Chairman, you kindly made all the rulings that we needed on that.

Just to cover one point that Miss Hagan mentioned, I just want to reaffirm separately on behalf of the County of San Diego that we are aware of and we have read and seen and heard and are going to be hearing all of the comments and objections and issues raised by the copermittees, and without having to necessarily repeat and reiterate all of those, we would ask that there be an acknowledgement that we are not waiving any of those issues.

I think that was our discussion yesterday, but I recall Miss Hagan saying that we should specifically reserve that for the record and that's what I'm doing.

I'm here to talk about the two big issues. I know this is no surprise in a legal sense and those are, of course, the receiving water limitations language and the bacteria TMDL.

Provision A, and I'm responding here in a way to the legal one response from Counsel and the part of that response is that LGL 1 asserts that nothing has changed as a result of the NRDC Ninth Circuit opinion. And as I understand it from reading it, Miss Hagan is saying we knew all along that all of these provisions were separately enforceable in this permit, and that you might be in a position where you might get sued about any one of them at any particular point in time.

Now, maybe we were in denial over that or it had not happened to us certainly. But the reality for us now is that a court has issued a ruling with the result that unless there is compliance with the receiving water limitation language, and that it's linked to the process, copermittees can be sued for receiving water language violations at any time. That is the holding in the NRDC opinion.

We believe the tentative order as issued using Provision B to link the alternative compliance process to the receiving water limitations and the Water Quality Improvement Plan process to the receiving water limitations language is not adequate and it does not give us the protection we want.

And I want to emphasize we've endorsed the water quality improvement process and one set of comments that

we heard throughout the workshops from, I think particularly Wayne, was this is an adaptive management process. We want you to fail early, fail often.

Now, we didn't take that that you really wanted us to fail. We took it as you wanting us to engage in creative ways to design programs that would work. And in our fear with the receiving water limitations language and the threat of third-party actions, we don't have any fear from this Board and from staff. Part of your job is to control and regulate us, and we believe you've always done that and we might disagree occasionally, but mostly in a reasonable way.

But this is about accountability and control. If we have the language in the permit the way that it is, there is going to be a problem because when we go to design a program, if a third party says, "We don't like the way you're designing your program," they can just say, "Well, we're going to sue you over it."

And then we have a dilemma for our Board. What are we going to do? Are we going to redesign the program and do it another way? And at that point, we really have no choice but to perhaps cow down or to go ahead with the program they want us to do it. And who is responsible if that program fails? Not the third parties who have imposed their will on us.

And that's what this is about. We want to be accountable but in being accountable, we also want to be in control. And I don't think that's unreasonable and that needs to be addressed. That's what everyone has been pointing to the State Board about.

We really seek what Congress intended in 402 of the Clean Water Act. That was enacted, really, to set a completely separate standard from MS4 permits. We want you to get back to that separate standard for MS4 permits and I'd like to kind of take on the safe harbor issue.

Safe harbor to me is a marketing term. It's a rallying cry. It's what is shouted when we really ask you to get back to the original intent of 402 of the Clean Water Act. We're not asking for a get out of jail free card here. And so we think safe harbor is really a misnomer.

Everybody knows that what's going on here is we're taking what is an open system and really an add point source system that ends up becoming a point source system, if you will. And that has its unique challenges, its unique management issues and those are very difficult to manage because of the nature of the system.

That was recognized by Congress in 1987 when they enacted 402 P of the Clean Water Act. It's a separate standard, the MEP standard. It's intended to be unique

and I've had regulators even with your State Board administration say to me, "Well, we kind of realize that it's morphed into something more akin to a traditional point source system regulation standard, but it is what it is," and they blame it on EPA.

So we're not looking to eliminate citizen suits. If we're violating our permit, citizens have a right to sue us. Requesting the changes or elimination of the receiving water limitation language provisions would not change that. It would just change who is going to be accountable and who is going control the way we design our programs and the way we run our programs.

So solution: Remove the receiving water limitation language. Did he really say that? I can feel the eyes rolling behind me. Please don't tell me how many people's eyes are rolling and people will be saying to me seriously, Jim? Is that really seriously what you're saying?

I'm suggesting it as a serious alternative. You have the discretion under the Browner decision to apply the MEP standard in such a way as it's intended in our mind and this would solve the problem. Now, I'll admit it's radical. Some people asked you yesterday to push the envelope and I'm asking you to push the envelope. Remove the receiving water limitation language.

You'll still have the Water Quality Improvement Plan process in place. You will have solved our concern about accountability and control over our programs and we'll still be subject to citizen suits, or threat of citizen suits, over doing what we're required to do in the permit, but not over how we design and run and control our programs.

I'm not seeing a lot of traction on your eyes on that but in the alternative -- there is an alternative and that's been suggested by other parties -- define compliance in concrete terms in Provision A. That's probably the more traditional approach, which will link the Water Quality Improvement Plan and iterative process to the receiving water limitation language. We don't believe that the way it's been prepared in the current tentative order accomplishes that.

I'll move on now to the bacteria TMDL --

MR. ABARBANEL: I wonder if I can comment. I haven't thought one way or another about the specific suggestion but when you come up here and talk about if you have to be accountable, you want to be in control, in my mind you're flying in the face of the core of the democratic process itself.

Once the Board of Supervisors, in your case a group of elected officials, take the responsibility to go

down a certain path, responding to their constituents and their citizens, they are accountable. If they choose not to take that response and go down a different path, they are accountable for the other paths.

It's not as if they're a different body than the people who came and asked them to take the path. They're the same bunch of people, some of whom have been elected to take responsibility and make decisions and the others are still citizens.

And you're asking us to think about the Board of Supervisors or a city council or, God forbid, a United States Congress that it is separate from the individuals who ask them to govern them?

MR. O' DAY: May I respond? That's not what I'm saying. When I say accountability and control, I'm talking about accountability and control for designing and implementing our programs within the context of the Stormwater Permit regulatory apparatus.

Perhaps I gave you the wrong impression. I apologize for that. I did not mean to say we want to be in charge of everything. We recognize this Board's authority. We recognize Congress's authority. We have some opinions about what we think Congress's intent and authority are. I've already spoken about those. Thank you.

The second issue of course is -- and you've heard a lot about this, the bacteria TMDL numeric effluent limitations and legal response number four.

The reason we're focusing so heavily on this November 12, 2010 EPA memorandum which talks about the strong recommendation to bring numeric effluent limitations into stormwater permits as opposed to the earlier 2002 memo which talked more about BMP-based approaches for MS4 permits, is we heard a lot about this in the workshop and processes over the last 12 months. The word that we got was that that created a lot of pressure for this to be how the permit would be designed.

And as Mr. Crompton said, and I will confess I did go on those trips, I did meet with USEPA. In D.C. I met with Region 9 representatives David Smith and Mr. Kemler and I met with Jonathan Bishop and the State Water Board and it was all to discuss these issues. And there was a lot of this. There was -- the Region 9 people say well that's -- they wrote that memo and they're ramming that down our throats and they got Region 9 saying no, no, that's California. They're always out there. The way they implement it is something that's a little ahead of the curve.

And so we're very concerned about the applicability of that memo. That's what I wanted to

address. That memo has not been reviewed for propriety yet by the US Office of Management and Budget and I did meet with them. And they also acknowledged that memo is sitting there. It's not yet been approved and they don't know when it's going to be approved. But I want to give your staff some solis.

There's a recent case, Court of Appeal decision Iowa League of Cities versus EPA that says a memo like that constitutes improper rule making and cannot support analysis. And I want to read that language very quickly.

"If an agency acts as if the document issued in a temp court is controlling the field, if it treats the document in the same manner as it treats a legislative rule, if it bases enforcement actions on the policies or interpretations formulated in the document," and here's the operative part, "if it leads prior parties or state permitting authorities to believe that it will declare permits invalid unless they comply with the terms of document, then the agency's document is, for all practical purposes, binding." We think that that is the impact of that November 12, 2010 memo and under this case law, we think that it's to be ignored.

We've said a lot about we believe you have the discretion not to bring the bacteria TMDLs into the permit at this time and we're urging to go back and revisit all

of the waste load allocations and the assumptions based on some science we think you're going to hear and find compelling in a moment. And we believe you absolutely have the discretion to do that, and we think that you should do that.

I'm going to jump ahead and I put up on the screen -- this applies to State Board Order, Water Quality Order 2000-15. This applied to a decision about a designated use within a basin plan, but I think the principle here applies to the argument that we're making. And as you see, in general, the Board agrees that where a regional Water Quality Control Board has evidence that its designated use does not exist and likely it cannot be feasibly attained, it is unreasonable to require a discharger to incur control costs to protect that use.

And that particular quote comes from a recent case, California Association of Sanitation Agencies versus State Water Resource Control Board. And the principle there is that unreasonable costs for an infeasible result should be reviewed in the context of this bacteria TMDL. And what it's really about -- I understand the argument from staff and the responses from Counsel about 40 CFR 122.44d. I understand that.

I think it's really a timing issue, and our concern is once you bring those numeric bacteria effluent

limitations into the permit, and if you do that in this round of the permit renewal, it's very hard to modify them although it sounds like there's some intent to look at the basin plan and to look at the bacteria issue by the Board or staff. I think I'm hearing some possible rumblings about that.

But once you bring those numeric effluent limitations into the permit, then there's going to be a problem potentially with backsliding claims, anti-backsliding provisions. And the better policy -- the better public policy at this point, we think, given all these concerns and the large cost, is to not do that, not bring them into the permit. Start a basin plan amendment process to go back and look at it in light of the science as well as we think the science that might be coming and avoid being in a place where your hands are completely tied.

And as we mentioned, the cost of compliance is about anywhere from 2.8 billion to 5.1 billion over time. The assertion in response to comments that we failed to factor in costs is not implemented in the TMDL, it's misplaced. And I know you're going to hear a lot of that later on today that we're not factoring in the costs of not implementing that. However, there is no reliable evidence on that and that's acknowledged in your staff's

fact sheet, fact sheet 19, that there has been no reliable study that has quantified the economic value of the TMDL.

We have requested that a recently released study, that I believe the City of San Diego recently released and I understand it was transmitted to your Board prior to today. There's a Point Loma Nazarene University study -- it's dated April 2011 but it was released to the public I think about a month or two ago -- that's relevant to this issue. It shows that cost outweighs benefit. I'm not going to --

MS. HAGAN: We haven't determined whether that document will be allowed into the record yet. We've asked other parties to review it to see if they object or feel that they'll be prejudiced by its admission into the record. So if you could keep your testimony as to it general at the moment.

MR. O' DAY: I'm not going to testify about it at all, about the contents. I'm not probably qualified to do that.

I would like to state that we believe it should be included in the record. It was evidence that wasn't available until very recently. It's relevant on the issues in this proceeding and if the determination is that it is not going to be received into the record, I would just like my objection noted at this time for the record.

CHAIRMAN MORALES: That's fine. Your objection is noted. And I think for my benefit, I would like clarification as to exactly when this study was first available. You mentioned it hadn't been available until the last few months but if you could just provide clarification, after the break is fine.

MR. O' DAY: So our proposal is, at this time, to not incorporate the bacteria TMDL numeric effluent limitations into this permit. Open a process. Look at the basin plan and look at the science and let's try to get this right. We think that's the right way to go.

MS. KALEMKIARIAN: I have a question going back to the Ninth Circuit case and these are concerns about strict liability. And I'm assuming it's permissible for us to have read the case, which I was just glancing at.

What did the previous permit say about RWL and whether you could discharge or not? I don't imagine it said oh yeah, you can discharge and we don't worry about the standards.

MR. O' DAY: No, the previous permit has the Provision A and Provision B language the way that it is now, I believe. That's only been modified to bring into -- in Provision B, to bring in the WQIP process as an alternative compliance option.

MS. KALEMKIARIAN: Okay, so A2 has been there all

along?

MR. O' DAY: Yes.

MS. KALEMKIARIAN: So the concern that San Diego County and I believe other copermittees have is that after this Ninth Circuit opinion, there's now some kind of strict liability and you would like to have some help in the permit not making that even worse or not making that more onerous than it needs to be. I mean I'm being very general when I'm saying it --

MR. O' DAY: Well, the nature of the stormwater -- if you went out today, you would find violations of receiving water limitations and everyone knows it. Everyone says it. And you've heard a lot of comments yesterday "don't take that loaded gun out of our hand."

So the threat is very real for us. This is not theoretical. This is not legally theoretical. The threat is very real and it's voiced often. And we're asking you to you look at the impact and we've asked the State Board the same thing and they have that under review.

But this Board has always been out front in a lot of things and this is an opportunity. But we're asking you to take that problem for us with having control and accountability for our programs within the context of the permitting process away from third parties. Not

compliance --

MS. KALEMKIARIAN: I understand that. Would this have been your request before this court opinion? Was that request made when the last permit was under review?

MR. O' DAY: I don't know. I wasn't in this domain at that time. Probably not. I don't think anyone expected that a court was going to make each and every of those provisions independently enforceable. That was really when the light got shone on. I know staff and Counsel is saying we knew that was a risk for you guys all along. But it became a real risk and is a real risk for us now and it's significantly going to impact our ability to control and manage our programs.

I'll turn it over to Todd Snyder with the County.

MR. SNYDER: Thank you, Jim. I understand we have six minutes left. So we had very extensive comments on sort of the technical flaws and our concerns about the scientific foundation of the TMDL.

I am going to make a couple points and then defer to Ken Susilo with Geosyntec to discuss a couple examples of our concerns. I think that's about as much as we can do. All of the information that Ken will be presenting is part of the written record. We did submit comments by the January deadline. We did not receive adequate responses to those comments or the criticisms of the TMDL.

One thing I would add to Jim's suggestion about the County's preference of excludeing the TMDL from the permit at this time, if you choose not to do that, please direct your staff to follow through by the deadline to reopen this TMDL because we're concerned with the resource limitations and constraints on the Board staff to actually use the reopener. So please direct them to do that.

With that said, I will hand it over to Ken Susilo. I was going to go through his qualifications, but trust me, he's highly qualified to speak to this.

MR. GIBSON: Mr. Vice Chair, just as a procedural matter before the gentleman begins speaking, I wanted the record to note that Chair Tomas Morales has excused himself at 12:25.

MR. SUSILO: Good afternoon, Members of the Board. As Mr. Snyder indicated, I'm Ken Susilo, and I'm principal with the firm Geosyntec Consultants. I'm a professional civil engineer in the State of California, a diplomate water resources engineer and certified professionals stormwater quality.

Mr. Snyder outlined three major areas of technical concern that relate to the inclusion of the bacteria TMDLs for beaches and creeks. Given the time, I'll be limited to give you one example on this. And I apologize, I'm going to have to go move up and advance to

certain slides because I'm not going to be able to go through the entire presentation.

MR. STRAWN: Don't rush to the point that we take our court reporter into --

(Laughter.)

MR. SUSILO: Understood. The first point had to do the with the reflection of the state of science and recently collected data and so the one example I wanted to discuss was with respect to the referenced watersheds.

Back in 2002, TMDL was developed and there was an establishment allowable exceedance frequency of 22 percent. Since then, a significant amount of data has been collected for those referenced watersheds. This is a plot that shows you on the vertical axis exceedance frequency and then the years on the bottom. And you can see three bars for every year.

The bar to the left is the wet weather single sample concentration. It's sort of a brownish color and that bar should be compared to the solid black line. So what you can see as you look at those bars relative to the one that four out of eight years, that reference watershed exceeds the 22 percent threshold.

The second thing to look at is on the far right, it's sort of a very light blue bar, and that is the dry weather single sample, and that would be compared to the

dashed line at the bottom, which is a zero percent allowable exceedance. And you can see that it's about -- there is one year that makes it, but over 85 percent of the time, the dry weather sample does not comply.

So if you were to take a look at this timeframe, you would conclude that a 28 percent allowable exceedance frequency would at least be representative of a reference watershed noting there is variability there as well. For the dry weather, same example. You can conclude that you have about a ten percent annual exceedance frequency. And again, instead of 20 and 10, we're looking 22 and 0.

This is for small watersheds. This is on a relatively small watershed compared to a lot of the coastal San Diego watersheds that we have here. SCCWRP in 2006 did a study and looked at (inaudible) and another large watershed and concluded that 30 percent was the appropriate number for wet weather single sample exceedances.

So that's sort of the point. The last point on this is the definition of wet and dry and it seems like a trivial point, but the Los Angeles Regional Board defines wet and dry as .1 inch of the 72-hour emptying period. The TMDL defines it as .2, which may seem trivial but if you're thinking about what happens between a tenth of an inch and two tenths of an inch, and if you're putting that

up to the two tenths of an inch into that zero exceedance frequency category, it does become significant. So that's the point in terms of the state of the science.

Next point I'd like to talk about has to do with attainability. So I wanted to make a statement that there's a significant amount of variability and uncertainty and I guess I should preface this. When I'm talking about attainability, it's the ability to hit a specified target number. So it's not that you can do BMPs and not get a benefit, but it's to actually hit the number that's in the permit.

So that's what I'd like to discuss here. A number of conditions sort of factor into attainability. Some include the loading conditions of the watershed, hydrology, frequency of rainfall in storm events, you know, saturated conditions, high groundwater tables, direct loading, direct sources into the the receiving waters. A big thing is concentrations.

So this is a plot that shows you a distribution of four different types of BMPs. Again, on the vertical axis you have enterococcus concentrations. To the bottom you have four different types and they're paired. So the box on the left is the influent. It's paired with the effluent and you can see there are a couple that get there. And in fact, retention ponds and wetland basins

have a probability of getting there. Am I going too fast?

MR. STRAWN: I'm going to give you an extra minute just to ask you to talk a little bit slower because I see our reporter is shaking in her boots.

MR. SUSILO: I apologize.

So a big factor in terms of attainability is how it is concentrated and what this shows is that you got a couple BMPs that can get close and there's some feasibility of crossing the line of that, I think that's a 35 MPM line there for enterococcus. Manufactured devices. Disinfection. You send it through a wastewater treatment plant, it can get you to that level of disinfection. But if we're looking at natural treatment systems, it's very difficult to get to that and you can see this from the data itself.

The last question, there's been a lot of talk about costs and benefits. And there was some discussion about 2006 study that looked at regional public health cost estimates. I actually -- in the presentation, which I think you have in your file, there is a significant breakdown of costs that were developed in the comprehensive load reduction plans. And those costs included wet weather and dry weather types of BMPs, structural and nonstructural BMPs. And the key difference here is the CLRPs that comprehensive load reductions plans

talk about it in terms of wet weather and dry weather because those are the regulatory guidelines that we're looking at in terms of wet weather and dry weather criteria.

This study breaks up it in wet season and dry season. So there's useful information here in terms of the health cost and the percentage of the total cost over the course of the year between the two seasons. What I've attempted to do here is to extract the number of wet days and dry days within the wet season so that we can actually do a comparison now saying what is wet weather cost, which is the far column there to the left versus wet season, wet weather. 360,000 dollars to 1.8 billion to the dry weather costs and you can see that 20.5 to 47.4.

The thing to take away here obviously is the bottom line, which is 2.4 percent of the cost apply to wet weather and about 97 percent of the cost apply to dry weather conditions.

And this will be my last slide. There's been some discussion about that relative comparison. So as we look at wet weather, and again, there's more detailed information in your presentation, the wet weather costs are about 63 percent of the total cost and the net benefit is about three percent.

And with that, I'll give it back to Todd Snyder

for closing.

MR. SNYDER: We have a lot more we would have liked to say, but I think we've met our time limit. So again, I really encourage you to either exclude the TMDL from the permit or direct your staff to reopen the TMDL.

MR. ANDERSON: So a quick question. So you now feel you have sufficient evidence to reopen the bacteria TMDL and take it on?

MR. SNYDER: I think we have suggestive evidence. We're collecting addition evidence now. For example, we're in the middle of a four-year study to understand the natural levels of bacteria here in local San Diego watersheds. We need a couple years to finish that study and there's other things I could go into, but the TMDL requires a reopener by 2016 and we would want to stick to that date at the latest.

MS. KALEMKIARIAN: I have a question for you and maybe of the gentleman who likes to speak too fast. The benefit cost public health benefit slides, if we could go back to that one. Twenty-four I think it is.

I'm not understanding it. So these are health costs of the public health system, is that what it is?

MR. SNYDER: Well, this is a sort of benefit statement as it's tied into costs associated with some studies that were done in 2006 by I think it's Gibbon with

Pendleton and Bain (phonetic) and it looked at gastrointestinal illness with respect to water quality.

MS. KALEMKIARIAN: Okay. So these aren't budget numbers. This is their estimate of what are the costs of health during a wet season or during the dry season?

MR. SNYDER: Correct, and that's in Los Angeles and Orange County.

MS. KALEMKIARIAN: So they're looking at what are hospitals incurring or whatever they're using as their reference data -- which Henry will tell me later why that's important -- but anyway, the data that's going into each box is trying to show gastrointestinal illness you're saying?

MR. SNYDER: That's right, and to predict the cost.

MS. KALEMKIARIAN: Okay, so during the wet season supposedly 1.6 to 8.5 million dollars in cost. During the dry season, a much higher amount?

MR. SNYDER: Right, and they had to run a couple analytical models -- and this is not my study. But they had to run some analytical models because there wasn't a complete data set and so they needed to fill some of those data and come up with these estimates, which is why you have ranges of numbers.

MS. KALEMKIARIAN: So your point in presenting

this is that during the wet season it appears there was less cost for gastrointestinal illnesses than during a dry season?

MR. SNYDER: During the wet season and the wet weather condition. So that's going to be the -- in order to try to compare the apples to apples, we developed a necessity in the comprehensive load reduction plans. We had to do wet weather and dry weather types of measures. And so we have two sort of pots of budgetary costs and those estimates, and so the attempt is to try to convert those to equivalent cost here with wet weather and dry weather.

MS. KALEMKIARIAN: Okay.

MR. ABARBANEL: Catherine, are these studies referred to here in the record?

MS. HAGAN: I don't know the answer to that.

MR. SNYDER: This study in particular, the 2006 given study, I believe, is in the record and the written record. It was also addressed during the November and December workshops. It was brought up by some of the NGOs as a good example of how there are costs incurred as a result of not implementing this TMDL.

MR. ABARBANEL: You mistook me for a lawyer. So your answer is probably correct or in the record. I want to know whether I can read them. Do we have them?

MS. HAGAN: I don't have them but we can I'm sure get them.

MR. SNYDER: I believe they're referenced in the record. I'm not sure.

MR. O' DAY: So that's my answer to you, Sharon. I have no idea whether they're fantastic or not.

MR. SNYDER: The other thing that will help to answer your question is you see the bottom of each of these slides? We actually put up -- created a website for this presentation that contains all the source information that contains the data. So if you jot down that website you'll find those particular studies.

MS. HAGAN: You may read any document that's in the record even if we don't have a copy as something that you may look at. We can get a copy for you.

Mr. Vice Chair Strawn, I don't know where you are if you still have questions, but I've been told that Miss Witkowski on behalf of the environmental group, would like to ask a few questions at the appropriate time of the San Diego County copermittees.

MR. STRAWN: Okay. Just to be clear, when we were talking about their 30 minutes for San Diego, that was an internal split done between the copermittees. Our count as far as your total for hours is about an hour and 12 minutes left. How you split them up between you is

really your choice but I would ask how much longer you want to go so I can answer Jill's question.

MR. BROWN: Well thank you, Board Members. I'm the next one up. I'm Bill Brown. I represent the Port of San Diego. We only have about a ten minute presentation. If we could fit it in now, it's meant to work with Mr. O' Day's presentation. It will make a lot more sense if we try to do it before lunch.

MR. STRAWN: Okay. Jill, you okay if we wait until the end of that or do you want to sandwich in between?

MS. WITKOWSKI: If Mr. Brown doesn't mind, my question will probably take one minute.

MR. BROWN: I can live with that.

MS. WITKOWSKI: To follow procedure from yesterday, if this will be preferable, I have four questions that I ask in quick succession if that's how the Board would like to proceed. I think they're easy enough to remember that they shouldn't have to be repeated but I'd be happy to repeat if that works for you.

This is to the County. Since 2001, how many receiving water limitation lawsuits has the County defended? How many have they defended since the Ninth Circuit NRDC decision? How much notices of intent to sue have they received since the NRDC decision? And finally,

what's the total amount of money the County has spent defending receiving water limitation lawsuits?

MR. O' DAY: I don't know, I don't know, I don't know and I don't know. That's not meant to be flippant. I don't have those statistics. It's never been asked of us before in the context of this proceeding. I assume the questions might be slightly rhetorical.

MR. STRAWN: My guess is your answer is probably the one that Jill is expecting.

MS. WITOWSKI: Yes, I would just like to ask the County if they have anyone who actually has that information and could find it during the break. I'd be more than happy to take an answer over the break.

MR. O' DAY: I'm not going to find that information during the break. It would require a fairly extensive search of our County Council records and also on the financial aspects of it, that would take certainly some time.

Miss Witkowski has served the County with a number of public records acts for requests over the years and I'm sure she could serve us with another one and we would respond in that context and I think that would be the appropriate way to handle this.

MR. ANDERSON: Can I make a brief comment about this?

I think, Jill, are you trying to make the point as the Regional Board has the authority to find at a certain level that is fairly (inaudible) when an agency creates a sewer spill?

And we really don't ever -- I've always been tempted to just do it once to make the point and then -- but that fear is still out there that someday I might get cranky and convince other Board Members to go along with me. And so we know that the sewer agencies do keep that in the back of their mind and behave much better than they may normally behave if we didn't have that authority. Is that kind of adding to --

MS. WITOWSKI: Yes, Mr. Anderson. The County has raised significant information about different costs that it faced. And I just wanted to know what costs they have incurred on this since this is something they're asking for and they're worried about our loaded gun.

MR. STRAWN: Okay, that took a little longer than we probably expected. Bill, you're up.

MR. BROWN: Thank you again. That was a California minute. We want to appreciate and we thank everybody for their time and attention today.

I represent the Port of San Diego. We have our own individual block of time and that's because we have our own individual problems. We have three sets of facts

that are special to us.

First, for the Bay of San Diego we are the end of the watershed. We only have a tiny portion of the land associated with the watershed, less than one percent, but we are at the end of the watershed. Another way of putting it is that we are at the wrong end of the pipe and that causes us a lot of concern.

The second thing is we have dug into this a little bit. We found that we don't own the pipes or operate them. For the majority of this, for the big arteries that come into the bay, our upstream cohorts have easements and ownership of the pipes. And so we have no control over what's going on with those pipes, at least not to the extent where we could remove them or somehow alter those pipes.

To top it all off, our third concern is that we are one of the environmental stewards of the bay and work closely with this Water Board all the time to try to make sure the bay is as healthy as it can be. So trying to balance all those things I think will put into context what our slides are about.

First, we have something a little bit different. We're going to actually congratulate staff over taking one of the comments. One of our comments is that you need to have more jurisdictional monitoring. In other words, the

watershed has to be tested in more areas.

We heard about the NRDC case that went to the Supreme Court. The real problem with that case when we got back to Washington was that that Supreme Court was mystified that the watershed had only been tested in two places and nobody knew what to do with the whole thing because the testing -- although there is robust testing of the watersheds in many regards, there's not a lot of testing as to where there are problems in the watershed or where the problems start to occur.

So we ask that that be added here and your staff has done that. They've also thrown in the bonus that we get to do our own voluntary monitoring if we want to. And we really appreciate the staff going through -- they have hundreds of comments of course. They took this one to heart and we really appreciate it and we want to make sure that this does get into the new draft.

The next -- do you have a question?

MR. STRAWN: Yes, we remember from the bay cleanup, sediment cleanup, this whole issue of who owns the pipes.

MR. BROWN: Yes, I was right there in the middle of that and we'll talk a little bit about that bay cleanup as well just at the end here.

So this is all about who owns the pipes. I think

that the problem is that this got a little blurred in the NASSCO sediment cleanup provisions.

There's a lot of talk about accountability based on jurisdiction but the law is very clear that the party responsible is the party who operates the MS4. We really can't understand how we operate an MS4 that we don't own, or pipes that we don't own, that somebody else has an easement for, that we can't remove, and we have requested that there would be clarification language put in here to explain that just because a pipe goes through our jurisdiction, our very tiny jurisdiction, that that does not make a liable. And this has been a huge contention and cost the court an awful lot of money and it's still going on with this one single issue.

Okay, and then we'll move to the last issue. We agree with the County and Mr. O' Day that the TMDL should not be incorporated in the MS4 permit. We believe that you have the ability to do that if you want to. We don't think it's a good idea. We think the law is clear that you have discretion.

The way that we look at it is you heard a lot about the economic problems. You heard a lot about the technical problems. We as lawyers look at it as a third problem. My partner has told me that TMDL stands for too many damn lawyers and from a legal point of view, I think

that is one of the problems. We're concerned that if the TMDLs are written into this permit, that it will create a legal morass that will be huge.

The legal problems with TMDLs if you write them into the MS4, it's not one and one is two, it's exponential growth. Also, for this Board it has another problem that if the TMDLs are legally attacked and found to be wrong not on an economic or a technical basis but on a legal basis, then that may derail the entire MS4. And there have been recent legal attacks on this, including a case in Virginia where they pointed out that modeling is not a substitute for actual effluent checking.

We think that the TMDLs may suffer from the same problems here in San Diego and if that's true, you're looking at a situation where all the lawyers who specialize in TMDLs, and all the lawyers who specialize in MS4s are all going to end up in the middle of this single proceeding.

And then lastly, we do believe that putting TMDLs in here will cause an explosion in actual litigation as well. I have represented the Port in the matters and we have spent millions of dollars in litigation where receiving water limitations is an issue. You've all heard that. You've been at the NASSCO hearings. You've seen the parade of lawyers. I also played a minor role in the

County of Los Angeles case that went all the way to the Supreme Court. That, again, was a legal morass that defied anybody's ability to believe how big that would get.

I think it's really a problem that if you write TMDLs into this permit, that you're going to have an exponential growth in the legal problems that are going to be before this Board on a regular basis. I think this is a perfect example of something that you may put off for a few months to see if there's some way that we can speak to your staff and see if there's a way to disengage TMDLs from this process legally.

We understand that TMDLs will still go forward. We understand that MS4s will still go forward. But if you don't have them joined, it might make life a lot easier for all of us.

That's my presentation. Thank you very much.

MR. ABARBANEL: So thank you very much. I didn't realize it this morning until you spoke this afternoon that the Port of San Diego and I have something in common. I don't run an MS4 system myself. I live in a city that does have one. If there's a violation that is caused by the action of one of my neighbors, I'm responsible for that because I'm part of a community that has decided that water quality is very important. I can't order my

neighbor. I don't know if the City could to cease and desist but I believe that because I am responsible and am part of the community, I can go speak to my neighbor and cooperate with my neighbor.

I think this Board, through primarily the leadership of the Executive Officers, has shown us through the Tijuana River Valley Cleanup, how one can do that when the barriers are infinitely higher and international. And I recommend that the Port stop complaining about being part of the copermittees and work with them, including my own city. Thank you.

MR. BROWN: We understand that. We are not complaining about being part of the copermittees. We understand that. We just want to see that the people at the end of the pipe have a chance to state in a fair manner. But we are not complaining about being part of the MS4 permit.

Thank you.

MR. STRAWN: Thank you, and by my count, I think I misspoke earlier, we're looking at 37 remaining minutes for the copermittees. I think I did some math wrong earlier. So --

MR. O' DAY: May I approach? I got the impression that the Port time was being charged against the copermittee time. If I'm incorrect about that, I

apologize. If it has been, I think they were listed as a separate party and having their own time on the agenda; were they not?

MR. STRAWN: The list was given to me had them as a separate party under copermittees.

MR. O' DAY: I'm saying they had their own block of time --

MR. STRAWN: It wasn't though.

MR. O' DAY: No?

MR. STRAWN: I don't think I was given that separately but we can consider that. We're talking seven minutes here.

MS. HAGAN: I don't know that they were given -- they asked for a separate block of time. But the hearing procedure didn't provide one. But whether the Chair granted it, and I don't recall that, I'm not sure. I can double check.

MR. STRAWN: It's not on the notes the way I have it and I suggest--

MR. O' DAY: Perhaps I'm mistaken. I just wanted to make sure.

MR. STRAWN: I'm going to suggest we plod on and get it done as expeditiously as possible, and we'll deal with any shortcomings at the end.

MR. BURHENN: I guess we're Mr. Vice Chair at

this point. David Burhenn, again representing the Riverside copermittees, and with me the other County Council.

At this time we'd like to reserve our remaining time. I believe all presentations have been made for potential rebuttal. And I don't know that the Chair has yet indicated when rebuttal would be appropriate, but we would like to reserve that time at this point.

MR. STRAWN: We will leave you 36 and a half minutes. I think that decision of just how we'll do rebuttals hasn't necessarily been made yet, but unless there's some complaints from anybody we're going to allow that.

And we were kind of waiting to see if Supervisor Horn came before we broke. The other option would be to --

MR. O' DAY: I guess Supervisor Horn is not here of course, but he might be here around 3:00. We're tracking him down.

MR. STRAWN: That's fine because we'll reconvene at 3:00. My question is do we want to go any further here or should we go ahead and take a two-hour break and when we start back up, I think we start with the NGOs.

We need a break. Thank you all. We'll see you at 3:00 o'clock promptly. Promptly 3:00 o'clock.

(Recess taken at 12:58 p.m.)

MR. STRAWN: I apologize. I asked you to all be here by 3:00 p.m. promptly and you all obliged. But we are waiting for Supervisor Horn, and Chairman Morales so we probably will be another five minutes if you want to move around a little bit. I will give you a few minutes' warning before we start.

We're going to delay this for 15 minutes so I apologize. It's kind of unavoidable without having to take a chance of having to repeat stuff. So we're going to take a break until 3:30 and I'm sorry for having you all holstered like this.

Okay, if we can work our way back to our chairs we're going to be ready to start here in just a couple minutes.

I will call us back to order. We'll make a note that Chairman Morales is absent at this time. We'll make a note as soon as he arrives. The next on the agenda should be the NGOs.

Jill, are you going to start that or -- and I show that you have 58 minutes. You were dinged a minute or two for some cross-examination and I would remind everybody as you come up to speak be clear, slow and give us your name and state whether you have been sworn in. Thank you.

MS. WITKOWSKI: Thank you. Two things. We do have a PowerPoint but also I spoke with Miss Hagan before the break and we did want to discuss the exhibit that San Diego County is seeking to enter into evidence and we'd like to address that if it is appropriate at this time, I'd be happy to do so or to do so later.

MS. HAGAN: Do you want to take that on, Mr. Vice Chair, or do you want to wait for Chairman Morales?

MR. STRAWN: My inclination is to go through with the normal testimony and at the end of her testimony she can come back to that. Hopefully, Tomas is here by then. If not, we'll consider it at that point.

Will that throw you off if you do your whole presentation first and we'll save the other comments for the end?

MS. WITKOWSKI: Not at all. Thank you. My name is Jill Witkowski. I'm the Waterkeeper for San Diego Coastkeeper. I'll be presenting with Noah Garrison from NRDC and Colin Kelly representing Orange County Coastkeeper and Inland Empire Waterkeeper.

I was approached by someone in the audience who also was at the shipyard hearings and had a request to repeat the Jaws theme that I sang in my closing argument there, and I thought that wasn't quite appropriate but if I were to do the same thing here, I would probably sing

the Titanic theme and say this permit should be like Titanic and have no safe harbor.

We heard a lot of testimony last night about people saying that the opposite of what our elected officials have said and many of our copermittees have said and it's so expensive. People spoke from their heart about why water quality is important to them and what the cost is to them. Dr. Abarbanel in November had a really astute question which was: What is the cost of not adopting this permit?

Not only did we hear about people getting sick, we had testimony last night from the Izzy Tihanyi who is the owner of Surf Diva and she talked about the cost to her business. We also had -- Board Members were not privy to the focus meeting process, but we had several passionate advocates from South Orange County including the South Laguna Civic Association and our friends from Clean Water Now who talked about Aliso Creek and the severe erosion damage there and how that impacted water quality and how that not only impacted the creek, but some of the sewage services and other utilities and the massive costs that not only have been spent but are continuing to be spent.

So those are -- and if you have more questions about that, I'm sure some of the staff -- Board staff

could tell you more about this because it's been an issue in front of the Board for over a decade.

I'd also like to say at this time that I've been asked by Leslie Reynolds of Ground Work San Diego and Penny Elia from the South Laguna Civic Association to say that this testimony is also on their behalf as well.

I'd like to talk about some of the things that we like from this permit that have been changed since the last go-around. We really appreciate that the staff has taken into account our feedback on enhanced public participation in the water quality improvement process. They've added some really great things in including having a schedule for public participation so that the public will know when they will have a chance to speak, and also for groups who cover more than one watershed to be able to allot our time effectively.

We also like the consultation panel process. We think that this is a good process. We encourage the copermittees to select their environmental representatives wisely and to pick those who really do have knowledge. And San Diego Coastkeeper is looking forward to participating in some of those groups as well.

The copermittees have expressed some reservations about the independent consultation panel, and that's actually only in relation to the Safe Harbor Provision,

and the Alternative Compliance Provision we'll be talking about, where they have a sort of veto process throughout the rest of the permitting Water Quality Improvement Plan process. They have an advisory capacity.

San Diego Coastkeeper, we like the idea that the off-ramps are incorporated into the Water Quality Improvement planning process. We hope that copermittees and the watersheds actually do take this option because we think that this is the best way to plan for really rebuilding our watersheds and using our money wisely to get the best water quality improvement.

We also like that there will be official public notices on each aspect of the Water Quality Improvement Plan that will be submitted by Board staff. We think it's very important to involve the public throughout that process and we hope that that process is staggered as much as possible to get the most public comment.

We also like some of the development requirements that there is a standard, a bar, to be set that applies to all of the copermittees. We've heard from folks at Riverside that they like everything, get all the standards to go away and that each watershedder can have its own standards and we actually like that there are certain standards that apply everywhere. We think that's important.

In the last version of the permit there was an alternate infiltration design that was retaining the volume the same as undeveloped conditions determined through modeling. That provision has been removed and we agree with that. The USEPA also opposed that provision as well and we're happy that it was removed.

We are also happy on the predevelopment versus pre-project. We've heard some of that today. We believe that the staff got it right that it is important to do predevelopment instead of pre-project. And one of the reasons that that is really important is because the language isn't exactly predevelopment. It's no more than ten percent worse than predevelopment. So if that language is changed to pre-project, it's no more than ten percent worse than pre-project. You continue to get worse and worse runoff conditions.

Another thing that we also liked is requirements within these alternative compliance provisions that developers set aside sufficient money to make sure that they mitigate for their impacts. That wasn't in a prior version and we are glad that we were heard.

However, there's one big, big problem that we have. We call it our poison pill and it's the alternative compliance section for what we call the safe harbor. I'm going to turn it over to Noah to discuss some of the legal

aspects of the problems that we have with this section.

MR. GARRISON: Thank you very much, Members of the Board. My name is Noah Garrison. I'm with the Natural Resources Defense Council. I have taken the oath as well.

So I want to start with this version and say it's interesting. I believe it was Chair Morales earlier who said, "Well, we've got all the permittees opposed to this and now all the environmental groups are all opposed to this, so we're right on target here."

We're not really opposed to the majority of the permit. We definitely have concerns that we would like to see addressed. We have a couple of other topics that Jill and I will speak about. But quite honestly, our opposition really stems from the safe harbor that was inserted into the permit in the last two weeks. That is the primary concern we have. And if you were to strike that provision, it really eases the vast majority of our concerns with this permit at this point.

MR. STRAWN: If I can ask a question? I hate to see what color cards, but you changed your cards from green to red from yesterday to today. Was that because of the safe harbor?

MR. GARRISON: I would attribute that to a clerical error yesterday as opposed to any indication that

we had switched our position overnight. But the red card is primarily a result of the safe harbor. I apologize for any confusion that may have caused.

MR. STRAWN: And I apologize for using the term because I don't like the "safe harbor" term. It's not very descriptive. Even though it's fair, I have the same concerns that the City had yesterday.

MR. GARRISON: On behalf of the Los Angeles Superior Court system on using that term I apologize as well. We're keeping that in terms of the way the courts have described this previously, and then trying to -- continuing that wording so there's no confusion.

So what I want to describe is the compliance option, safe harbor or whatever term it is, it is attributed to it, is in a legal provision under this permit and under the Clean Water Act. The reason being that it is something that is being proposed and used for this permit that would relieve compliance requirements from the previous permit, and this sort of relief was not available previously.

It violates anti-backsliding considerations under the Clean Water Act, which I'll discuss. It also violates anti-degradation. It also violates anti-degradation requirements under both state law and under federal law.

Finally, one of the concerns we have outside of

just the pure legality of this term is that from an actual practical implementation standpoint, this is going to require on effectively a watershed by watershed basis, review analysis, participation by the environmental groups, by your Board staff and any number of other stakeholders, on incredibly complex technical material that I would submit these groups simply don't have the time to properly do the job to be sure that you're meeting water quality standards.

The proposals that would be required by this are absolutely enormous in terms of their scope to do them right including the modeling that's required, analysis of the BMPs and whatever practices will be put in place. And from a time commitment standpoint, it becomes incredibly unwieldy. From that standpoint alone, let alone the legality, it really should not be included in the permit.

So I'm going to start --

MR. ABARBANEL: I'm sorry. I would appreciate it if you would elaborate on your last point with an example that is slow and illuminating. I find this to be interesting but I'm a little confused about it.

MR. GARRISON: Absolutely. What's required under the new provision that's in place, this alternative compliance for receiving water limitations or discharge prohibitions would be several levels of analysis that

include modeling to demonstrate the pollutant load that is being contributed to receiving waters, to determine what BMPs and practices will be put in place, where they will be put in place, the pollutant removal efficiency of these practices, all through a final analysis that demonstrates that TMDLs will be met, for water quality standards will be met.

These are incredibly complex technical undertakings. And so this isn't sort of a -- even trying to put together a guidance manual for something where you're trying to come up with specific BMPs to implement, not to meet a set specific numeric standard is an incredibly difficult process.

I've sat on technical advisory groups in Orange County and Ventura County, and that alone is a multi-tier, incredibly time-intensive task. When you're looking at this watershed by watershed to meet specific numeric standards through modeling and other BMP efficiency discussions, that is an overwhelming undertaking.

MR. ABARBANEL: That helps a great deal. I understand your legal arguments. Is it a sense of lack of confidence?

I mean, suppose the modeling and analysis of BMPs and so forth could be made free and instant, are you arguing that they are insufficiently accurate or precise,

that they shouldn't replace the alternative?

MR. GARRISON: That is certainly a concern and the potential for that and the issue being that in the event that that modeling or BMP efficiency or whatever other parameters are in place is not correct and the pollution is not abated to the level necessary, then they're in compliance.

MR. ABARBANEL: I just wanted to separate your thoughts about the quality of the outcome, which of course changes over time, and the cost. That seems to me those are two different issues. As I said, if it were free you still have a concern about it.

MR. GARRISON: We do with current approaches, yes, we still have a concern. It would certainly be reduced to a degree in that we would be less concerned about the time and resource needed.

MR. ABARBANEL: Right. I'm trying to separate that.

MR. GARRISON: But the outcome would still be a concern.

So just taking a backtrack under the Clean Water Act, these are very background materials, but effectively the State is required to develop water quality standards, which are a scientifically derived maximum level of pollution that is sufficient to protect beneficial uses

whether they're public health, aquatic life, other recreational uses. The State determines these water quality standards.

The water quality standards are set in order to, as the Supreme Court has put it, to prevent water quality from falling below acceptable levels. And I think that's an important consideration that when waters aren't meeting water quality standard, or we're not protecting waters to the point that they meet water quality standards, then effectively by definition you're not protecting the public health. You are not protecting aquatic life. You're not protecting the environment. And that's why for all permits under the Clean Water Act, the base premise is that they are in place to meet water quality standards or to attain water quality standards.

We've heard a lot about the MEP Standard and that stormwater permits are a different breed and there are some different standards. But overall, for all MEP permits, the ultimate goal is meeting water quality standards.

Now, this Board, in 2001, because of the pervasive pollution problems that were in this region and the need to clean up the waters and protect the waters that were meeting beneficial uses, rightly determined that the proper standard is just to set a -- dischargers must

meet water quality standards. There are a series of specific practices they must undertake. There are any number of BMPs or provision that's they must implement. But ultimately, the absolute standard of the permit is simply they must meet water quality standards.

And the EPA supported this and it's also been upheld by the Appellate Courts of California, which I'll talk about in a second.

So the question is what's different about this permit? And under section 2B 3C there is a provision now that was inserted in the last two weeks that states that the copermittees may utilize implementation of the Water Quality Improvement Plan to demonstrate compliance. For each copermittee in the watershed management area that chooses to utilize this option, the copermittee will be in compliance with provisions A1A, A1C and A2A. That includes the receiving water limitations, which state you must meet water quality standards.

Now, that is the definition of a safe harbor. There are certainly varying degrees of them. But the Ninth Circuit Court of Appeals stated no such safe harbor is present in this permit, referring to the Los Angeles permit. There is no textual support for the proposition that compliance with certain provisions shall forgive noncompliance with the discharge prohibitions.

That is exactly what this is. Compliance with this alternative process whereby you conduct modeling and come up with a BMP solution or a slate of projects or approaches you will take, as long as you implement those approaches or those practices, you are then in compliance with the discharge prohibitions and receiving water limitations. By the Ninth Circuit's definition, that is absolutely a safe harbor. So that's why I refer to it that way.

I understand your objection to that phrasing, but under the Court's determination of what this really means, it's a safe harbor. And this is where our concern lies is that this removes the water quality standards as the backbone of this permit, as the end all, this is what you must do to be in compliance with this permit.

Now, to the claims that the Ninth Circuit case has suddenly changed the landscape, and that the determinations by that Court, suddenly everyone is now aware that they can be potentially sued and third-party litigation can occur. The Ninth Circuit case hasn't changed anything. Your Board Council has reiterated that in their own response to comments.

The Ninth Circuit case, all they did was draw on and actually reiterate the findings of California courts from far earlier. So in 2001, it was understood that the

permit required compliance with water quality standards. That permit was litigated by the building industry and in 2004, California Appellate Court held that the permit's water quality standards are proper under Federal law, that the Board could enforce numeric, specific, stringent requirements for meeting water quality standards.

In case there was still a confusion, the Los Angeles County Permit, also adopted in 2001, was litigated shortly after and the trial court in that case, where numerous permittees sued on the receiving water limitations which said you must meet water quality standards, the trial courts said that the Regional Board included parts 2.1 and 2.2, which require compliance of water quality standards in the permit without a safe harbor. These are independently enforceable requirements that were prohibited discharges that caused for contribute to a violation of water quality standards.

At this time, it was clear that these permits could be enforced and the requirement to meet the water quality standards was an independent, completely wholly self-enforceable provision.

Now, just to sort of bring this full circle, the Ninth Circuit actually referred back to these cases. The Ninth Circuit said in determining that of course, you could go forward with a lawsuit in order to enforce these

water quality standard compliance requirements, the Ninth Circuit stated "we do note as did the District Court that when the validity of this permit was challenged in California State Court, the argument that the permits discharged prohibitions were invalid for not containing a safe harbor was rejected."

The Ninth Circuit basically just reiterated what the California courts had said and said that the lawsuit could proceed. It then became an issue of compliance, not an issue of whether there was any question over whether you could enforce these provisions.

So at least as of 2005, and I would argue as far back as 2001, all parties have known that these were independently enforceable standards. So it's not that this new permit with these new provisions will suddenly put them out of the compliance. They've been out of compliance for seven years. We're as far back as when it was adopted for 12 years. There is nothing that this permit changes or the Ninth Circuit changes in that regard.

So moving on with the new provision, I'm going to discuss the concern and why it's actually an unlawful provision in the permit.

The Clean Water Act requires that permits cannot allow for backsliding. And anti-backsliding requirements

state when a permit is renewed or reissued, interim backflow limitations, standards or conditions, must be at least as stringent as the final effluent limitations standards or conditions in the previous permit. These are regulations on the Clean Water Act. I know that some of the permittees stated that the receiving water limitations are not actually effluent limitations.

I would point that the Clean Water Act defines an effluent limitation incredibly broadly and courts have similarly described them broadly as any restriction established by the State or the Administrator on quantities, rates, and concentration of chemical, physical, biological and other constituents which are discharged from point sources.

This is absolutely an effluent limitation. Even if it wasn't, as you can see in the Federal regulations, it's certainly a standard or condition in the permit. So it's not a concern. But these do constitute effluent limitations.

So sort of summing up to this point, and then I'll show the specifics here, we have receiving water limitations that have been in the permit since 2001 and that California courts have upheld in similar language since at least 2005 as being independently enforceable.

The 2001 and 2007 permits in San Diego certainly

did not contain any kind of waiver or safe harbor from the receiving water limitations. The Ninth Circuit decision hasn't changed that. But this permit would go ahead and say well, even though you've been required to do this for the past 12 years, we're going to come up with a system that relieves you of compliance if you are implementing a plan that's been approved by the Board, and at a minimum would extend time. It would say that while your putting your plan in place, you don't have to be held accountable for the water quality standards.

The Third Circuit of -- excuse me. Of the Third Circuit, the EPA Region 3 has stated that backsliding in NPDES permits is prohibited. I point that this actually refers to an MS4 Permit. So backsliding requirements absolutely apply in a stormwater context. But backsliding is prohibited and allowing additional time to complete a task that was required by the previous permit, constitutes a less stringent condition and violates the prohibition against anti-backsliding.

So by saying you're going to allow further time while I implement these plans and work through to try and eventually achieve water quality standards, and during that period they're not required to meet the standards, it violates the anti-backsliding requirement.

There's a -- this is a chart that shows how

backsliding works and effectively what it states is the first question that's sort of hard to read off the top -- I apologize -- but is the effluent limitation based on a state standard? And in this case they absolutely are. These are State water quality standards.

The next question is are water quality standards being met? And if they're not, you can follow the path on the right. If they're not, then you cannot revise the permit to allow for a change. If they are, then you run up against two different problems.

First, it has to meet anti-degradation requirements. And in this case, the permit has not provided any anti-degradation analysis, and I'll get to in a second. But even still, the revision still has to be compliant overall with meeting water quality standards. And again, in this case, because it would potentially relieve compliance for meeting water quality standards, it doesn't meet the backsliding requirements.

Similarly again, under regulations in the Clean Water Act, if it's a standard or condition not an effluent limitation, it still cannot backslide from the previous permit.

So I want to talk a little bit about anti-degradation policy and this is a fairly complex area of Clean Water Act law, and State law, but I'll try to sum

it up fairly quickly, which is anti-degradation protects uses and water quality necessary to meet uses for a variety of waters ranging -- three tiers including high quality and it's lower tier, all waters of the State. So effectively, anti-degradation protects all water statewide.

The catch to this is that water quality can be lowered only in very limited circumstances and there haven't been analyses performed here that would allow for that. And in no case, under any circumstances under federal law can water quality be lowered to a level that would interfere with existing or designated uses meaning it can't allow waters to become impaired.

MR. STRAWN: Can you slow down?

MR. GARRISON: Sorry, I apologize. I'm a New Yorker and it's taken a lot of training to get me to this point.

MR. STRAWN: Clearly you're the vein of all court reporters.

MR. GARRISON: If it were just court reporters I would take that as a compliment. And I apologize.

The problem with, again, the provision that is in the permit now is it says that even for waters that aren't impaired, that don't currently have the TMDLs, we're going to relieve compliance with water quality standards and you

can come up with a plan that will attain them and while you're implementing that plan, you're relieved of meeting water quality standards. So if that water then becomes impaired as the plan is being implemented, they're relieved of compliance for it. And that would violate anti-degradation requirements.

Effectively, the point being where a TMDL doesn't exist, you can only lower the water quality in very certain circumstances and you absolutely cannot lower the water quality to the point that it fails to meet quality standards and that's what this permit would allow.

So just a quick sidenote on TMDLs. The one thing that I can say about this provision is that there's a point that we sort of uneasily may agree with and that is where a TMDL actually is in place for a particular water body pollutant concentration, we do agree that there should be a provision or at least would be allowed for a provision to be in the permit, that relieves compliance with meeting the receiving water limitations as long as the TMDL is being implemented properly.

For example, say, for the bacteria TMDL, as long as interim limits and interim milestones and numeric requirements are being met along the way through the TMDL, even if water quality standards are not being met, so long as the TMDL is being complied with, we agree that it makes

no sense for us to say but you have to meet water quality standards for bacteria. That's a process that EPA, this Board, the State Board, have all been through to lay out a schedule in order to attain water quality standards. It doesn't make sense that the permit would then say you must meet them on day one.

So we do agree there is room for somewhere in the permit a provision providing a safe harbor or a waiver from compliance or a relief from compliance would make sense in the case of TMDLs. But elsewhere, where there is an impaired water and there is no TMDL in place, or where waters are current meeting water standards and are not impaired, this provision allowing for a waiver from an alternative compliance with receiving water limitations is unlawful under the Clean Water Act.

With that, I'm going to turn it over to Jill Witkowski. She's going to talk a little bit more about the problems with the provision as it's currently written.

MS. WITKOWSKI: This provision that was added on March 27th is two pages long starting on the bottom half of page 31. And I'm going to walk through very briefly some of the problems with it just to show that not only is it illegal, but the problem is this is an irreparable provision. You cannot fix this.

And first, in spirit, the third to last speaker

yesterday, one of the engineers, really said when we're talking about outcome-based, we're really talking about receiving waters. And that to me is the heart of what this permit is is focussing on outcomes in the receiving water.

What this provision does is say we're going to focus on process and not care about the outcome, not care about the receiving water. And so this provision to me not only is illegal, it violates the spirit of this permit.

So going to walk through some sort of technical stuff on problems that I picked out just in my two weeks of looking at this. So we're focused on this watershed model or other watershed analysis. There aren't any standards for this model. No peer review, no data on which it's based. As a wise man once said, "All models are wrong. Some are just more right than others," or "less incorrect than others" shall I say. So models can be garbage in, garbage out. They're very extensive.

The lack of standards here is problematic. I'm concerned there's not enough data for a robust analysis. As we heard the County yesterday, they're lobbying for less monitoring and I have yet to see that we have robust data for all watersheds for all pollutants to be able to run robust modeling.

The bacteria TMDL, to me, is a good example of why this will not work. The bacteria TMDL went through years, years of technical analysis and peer review and then it was revised again. This was what, a seven-year process? It was definitely a multiyear process and people are still saying the science isn't good.

The Water Quality Improvement Plans are supposed to be done in two years and that was the bacteria TMDL's one pollutant. There's also inconsistencies on what the modeling is supposed to achieve. On page 32 it said it will achieve numeric goals within the established schedules. But then later in the appendix, F53, it's not really true. They have to reasonably demonstrate that it can achieve goals within the established schedule. So there's very little protection here that we're actually going to get to the water quality that we want.

On strategies required, in Provision B3B, this is further down in the paragraph, said they are actually going to implement these. There's no reference to the new standards that you have to include. So because our current Water Quality Improvement Plan just focused on the worst pollutants, we've got a disconnect here about whether you have to just do the worst pollutants or if you have to do them all. So that's a language problem.

And we've got lack of cross-referencing between

these sections. Good for us because this provision can just be chucked altogether without any impact to the rest of the permit. But if you were actually going to try to keep it in, it's completely confusing and there needs to be a lot of cross-references added.

For the monitoring and assessment, it says that it's going to happen but we don't know how often. We don't know the minimum. We don't know when they're going to occur. We heard the County say yesterday that, well, you don't really want to look at wet weather because you really can't tell and it's all over the place and a suggestion of maybe five years or more of being able to have assessment. It's unclear.

With compliance schedule regulations, there are specific requirements about interim dates not exceeding a year. They also talk about compliance schedules only available when it's necessary to allow a reasonable opportunity to contain compliance. With requirement issues, less than three years. So if any of the basin plan standards were more than three years before, this doesn't apply.

And then this also talks about recommencement of discharge. So this provision is only for discharges that stop and then start again. And are they even allowed for continuing discharges? No, this goes back to Noah's

anti-backsliding.

We've got this consultation panel issue. Again, this would be insufficient public involvement. This to us, if it were actually in the permit, would be a major modification because you're now having all these standards that they would have to meet for all of the permit requirements. And there are specific, under the regulations, things that have to be done.

There has to be a request for a modification. We have to follow notice and comment procedures. Compliance schedules under those are only allowed for Act of God, strikes blood, things that we don't have here. So I think we're trying to fit a square peg into a round hole.

Other problems. Then this -- now, how long does this last? So you have a plan and then it's approved by the Water Board. So now you're in compliance without having to actually do anything. You put together a plan. You're meeting the receiving water limitations. There's no guarantee of a hearing because under the provisions in F1 B4, which are the Water Quality Improvement Plan sections, the Executive Officer can decide there's not going to be a hearing.

So we could hypothetically have these whole plans that say we're in compliance with receiving water limitations because we have a plan and only one

environmentalist got to look at it and we're not having a hearing and this is terrifying. Then how long does this last?

We remain in compliance as long as the analysis is accepted and continues to be accepted. The copermittees had a problem with the continue to be accepted yesterday. I think it should continue to be accepted if there were new information. They have to demonstrate progress. What does that mean? Do we have to actually meet interim limits? There's nothing that says if you don't meet an interim limit, you're now in noncompliance, and now we can take enforcement action against you for being not in compliance with the receiving water limitations.

There's this connection with the other copermittees implementing their editor process. I love that part of it because so far we've seen the editor process to be a sham. No one has done it yet and so compliance is basically tacked to other people doing a real editor process, nobody will ever get a safe harbor because we've got this sham process that hasn't actually occurred.

In the end, this is a bad policy. Not only is it illegal, not only is it poorly written, this is a policy. It doesn't have to be in here. The copermittees asked for

it. They're afraid of some so-called loaded gun. This is an unknown -- this is a fear that doesn't really exist because the amount of money that they've spent defending these receiving water limitations -- I'll answer for the County is zero. Nobody has sued over this yet. The Regional Board hasn't enforced over it yet.

And what the Regional Board is really trying to get at is trying to get these TMDLs that are not done for receiving waters that are impaired and need TMDLs and they want them done by the copermittees.

Let's have a process, let's have a third-party process like the Penasquitos sediment TMDL. Let's have -- if the copermittees really want protection from a scary environmentalist, why don't they go to the Board and say, "Hey, we've got problems. We are not in compliance. Give us a cleanup and abatement order. Give us a time schedule order. We will admit that we've got problems."

But they haven't yet done that. They have these report that's say, "Oh, we're doing such a great job. Look at all this money that we're spending. We've got all these reports." But if they're really concerned that the water quality is a problem, let's work on it together and see some admission of some guilt and let's work toward solutions.

I'm going to tell you since we're right after

lunch and I like analogies, I'd like to tell you and to show you my depths of despair over this provision, I'd like to talk about cake.

So this permit to me is like a cake that we spent a really, really long time talking about and getting ready to bake and baking it and everybody's got their little cooks in the kitchen about how it's supposed to be. And some people think it's been cooked too long, and some people say that it's lumpy, but it's a pretty good cake. And then the staff went and they frosted it with mud, and now I don't want the cake anymore. I have a really hard time with this cake. I'd really like you to scrape the frosting off the cake, and give us the cake that we had that we had, that we worked so hard on.

With that, I will turn it back to Noah.

MR. GARRISON: That's fairly hard to follow but I'll do my best.

I do want to say throughout this that we do really appreciate the efforts that staff have made and their response to our questions and the effort they've put in to meet with us and discuss the permit terms.

We have a fundamental disagreement on including this provision but staff have really done an excellent job of being responsive when we've asked them questions and to coming to us with potential solutions and I think they

should be absolutely commended for the work they have done.

With that, I'm going change tracks here quite a bit. As I said, the Receiving Water Limitations Alternative Compliance option is really our primary concern with the permit right now. With that removed, I think our major objection to adoption would effectively go away. But there are things that we certainly would like it see cleaned up in the interest of getting a better permit and making it more easy to implement something.

One of the things that's been talked about quite a bit in the last day and a half or so is the long bank development requirements and the change between simply a retention standard and a remove 100 percent of pollutant standard.

And I have to say while I absolutely appreciate staff's intention here and I think that there are certain things that are absolutely admirable and things that we would like to see in a 100 percent pollutant removal standard, we tend to agree actually on this front with the permittee community that we would rather see a retention-based standard. This is what we've been seeing all throughout California when we've actually been pushing for it quite a bit, is effectively a hierarchy that starts with a standard that states you must retain onsite the

85th percentile storm.

This is a graphic from Dr. Richard Horner from the University of Washington, who was on the National Academy of Scientists expert panel on the stormwater pollution. What it shows is actually for the majority of development types, those five bars on the left which represent different types of development, single-family residential, redevelop projects, commercial projects.

If you're on soils that are at least somewhat infiltrated, you could actually retain 100 percent of the runoff across the board. So meeting the 85th percentile standard or even a 95 percentile standard, which we think would be warranted, but certainly the 85 percentile standard, is absolutely feasible and a strong approach to take.

Those bars on the right-hand side are for the same types of development on non-infiltrative soils, soils where it's assumed there's literally no infiltration capacity, clay soils. There are areas of San Diego County or Orange County that sort of meet this parameter. But even in those cases, retention of at least 50 percent if not 70 or 80 percent of that standard is still feasible and the rest can be treated using other practices.

So we agree fundamentally with the approach of set a retention standard where it's not feasible for

whatever set constraints you have to meet that standard, allow for a biofiltration to treat some multiplier of the remaining volume. Biofiltration, as many people have already indicated, is not as effective at removing pollutants and so if you treat a larger volume of runoff, you potentially could start getting at removing a similar pollutant load. And that's why we say that you might treat 1.5 times the volume.

I know that Riverside County has a separate standard. I believe they state that it retains more runoff, or would treat more runoff. But in either case, you have a retention standard which brings all sorts of benefits in the retention of stormwater, followed by a biotreatment, which is the next best practice we can have.

Alternative compliance for offsite mitigation or regional projects would absolutely be a valid approach in this case, whereas infeasible (inaudible) onsite, if that's available under the permittees, we would support it. But the retention standard should be the primary standard, not this 100 percent of pollutants.

MS. KALEMKIARIAN: Can I have you clarify something because it's getting late and I want to be sure I heard it right. So you agree with the copermittees' request that the 100 percent requirement shouldn't be in the permit?

MR. GARRISON: We agree with their interpretation that it should be a retention not the 100 percent of pollutants standard.

MS. KALEMKIARIAN: So what the wording was before in that section?

MR. GARRISON: Right. Exactly. In fact, previously the permit had, under a different alternative compliance scheme, but it did have a biofiltration option with a 1.5 times multiplier, I believe, and that's something that we could live with I would say as a next step down if it is infeasible to retain the runoff.

I know Riverside County will speak to their standard. But each having that multiplier means we are treating a larger volume of runoff. We're getting at least a better percentage of the pollution out of the water before it's discharged from the site.

MS. KALEMKIARIAN: But it would be acceptable to you even without the 1.5. I mean, just the way it was written before, before the revision?

MR. GARRISON: I would have to see exactly what the revision was before on the next step for infeasibility and I'm not entirely sure there was exactly an infeasibility structure in the same way. So I would have to ask staff if it was written like that.

The Ventura Permit and the Los Angeles County

Permit both have structures in place like this. Orange County has a similar structure in place. They just don't have a multiplier on their biofiltration requirement and that's something we would want to see changed.

With that, I'm going to turn it back to Jill and then ultimately to Colin Kelly.

Thank you very much.

MS. WITKOWSKI: I have a quick correction. I spoke about Miss Elia earlier and she is not with South Laguna Civic Association. She is with the Hobo Aliso Chapter of the Sierra Club.

I want to talk briefly about the concrete conveyance channel hydro-modification exemption, which people seem happy about except for the environmental community, especially Jim Pew from the Ottoman Society. We've been talking about the concrete conveyance channel but I want to talk about what this means actually in reality.

So I found some concrete conveyance channels that actually go concrete all they way from the point of discharge to San Diego Bay, and they actually have names of -- these maps actually are courtesy of the City of San Diego -- from their channel clearing, their Flood Channel Maintenance Program as they call it. So they call it Solola Channel and Cottonwood Channel. In C there shows

that according to their record, those channels are concrete for their length.

So no problem, right? We have concrete conveyance channels. There's no issue with that except that these concrete conveyance channels are actually in the Basin Plan called funding intermittent streams.

So these weren't channels with just concrete boxes that the City of San Diego built in the middle of a field and are just completely manmade. They, at one point, were streams and should be streams. And they actually have beneficial uses. They have wildlife beneficial uses, and warm aquatic life beneficial uses.

And under the Clean Water Act we have to protect those beneficial uses existing and potential beneficial uses. If you want to remove those beneficial uses, there's a mechanism for that called a use attainability analysis, which is a very long process that I wouldn't recommend. It would be terrible.

But under this permit, we have to protect the beneficial uses. And so either one, the wildlife habitat beneficial use is not being met because we've got these channels concreted, or if you've actually seen some of these concrete channels, they do get deposition in them, and then they get vegetation in them and then they do support wildlife.

And the problem with having no hydro-modification requirements in that area is that if you get increased flow, you're going to blast out the habitat that actually occurred in there and you will have -- you will not be respecting the beneficial uses. You'll have negative problems there.

And as you can see, this is from the EPA but it was also in the hydro-modification presentations that were last summer through the focus meeting process, hydro-modification is one -- it's actually the number three source of -- it's actually impairments for rivers and streams.

So with that, I'd ask you to reconsider that exemption and take it out. And now I will pass it to Colin Kelly.

MR. KELLY: Hi, my name is Colin Kelly. I'm the Staff Attorney for Orange County Coastkeeper and Inland Empire Waterkeeper. I don't get down here very often. I'm mainly in Region 8 most of time but like the County of Riverside --

MR. STRAWN: Did you state that you --

MR. KELLY: -- I have taken the oath, thank you.

Like the County of Riverside, I can sort of relate. I'm in three Regional Boards as well. We're in almost the entire area of Riverside so we get Colorado as

well. So it's a treat.

This is just a current state of area water bodies. This is sort of a bigger picture presentation. Basically, the copermittees who have been here, we've heard from them yesterday, they've had around 20 years to meet water quality standards at least in these permits. And some as can be seen in the answers to comments from the County of at least Orange, don't acknowledge they contribute to exceedances of water quality standards through their MS4 systems.

And the Regional Board has rarely -- this one or Regional Boards outside of 9 -- have taken enforcement of the existing permit -- or permits for, and even when public health has been at risk.

Just briefly, this is a description of just the 303(d) list of water bodies in this regional board for South Orange County.

Aliso Creek -- some of the pollutants that are here are contaminants. Aliso Creek is indicator bacteria, toxicity -- I'm not going to go over all of these. They include phosphorus, copper for Dana Point Harbor, toxicity in zinc, toxicity for Laguna Canyon. Oso, toxicity. Prima Deshecha, cadmium, nickel. El Segundo's toxicity. San Juan is selenium, nitrogen and toxicity.

And Pacific Ocean is very broad. So I'll just

give you an example of San Clemente's City Beach. North Beach is total coliform. There's also enterococcus and total coliform on other parts of the shoreline in the Pacific Ocean.

This is a picture of Crystal Cove. That does not look very natural, that color. For 303(d) lists of water bodies in Riverside County, that's Temecula Creek. Long Canyon Creek is iron, manganese, E. Coli, and fecal coliform. Warm Springs is iron, phosphorus and total nitrogen. And Temecula, this one, is toxicity.

Now, this is to show there's a significant problem we have here. I deal with all of Orange County and it's pretty startling when you see that 303(d) listed water bodies in north versus south, there's a lot more in south Orange County than one might expect compared to the geographic area that we're talking about for the regional board.

For areas of beach closures in 2011, 300 closings. Orange County, 750. We heard a lot yesterday from copermittees that this is really not as large a problem as one might think, that we're really -- we're almost there. We're almost to the end line on this and we've really improved. And Orange County Coastkeeper, we don't contest that. I think that the Counties, the copermittees, should be given a great amount of credit for

the amount of work that they have already done in the past 20 years. Water has definitely improved and it's in large part due to the actions of these counties and the Regional Board. So they should be commended for that.

However, stormwater is still the largest cause for these beach closures. And the costs we heard yesterday of implementing permits definitely can be expensive in certain situations. However, you're only looking at one half of the costs.

So we'll just take a case study. Now, this is in Huntington Beach, which is in Region 8, but in 1999 it was closed for much of the year. There were closures -- Huntington is Surf City USA. They have the Open of Surfing there. The economic impacts -- it's still not really determined what the cause of the bacteria level jumps to cause the closures. However, a lot of people point at urban runoff.

After the Huntington Beach closures, researchers at USC detected polio virus, coxsackie and hepatitis A in the urban runoff pouring from the storm drains into California beach waters.

Now, you're likely to hear from copermittees that was 1999. This is 2013. There's truth in that. The County has done some very good work in improving since 1999 and that should not be ignored. I don't think we are

quite where we should be, and I don't think that hitting the pause button on development of permits is really appropriate.

I'll give you another little tidbit. Researchers at UCI, which is a proud Orange County University, found that over a two-year period surfers in Newport Beach and Huntington Beach were twice as likely to get sick than their counterparts in Santa Cruz 400 miles north.

I grew up as a surfer in Southern California, and the first thing you learn as a surfer before you stand up, after you either borrow someone's surfboard or buy your own if you're lucky enough, is if it rains don't go in the water until the fourth day. And I'd like to be able to live in a Southern California where I don't have to teach that to my children, that they should be able to go in the water without worrying about getting sick.

So another case study right here. This is San Clemente, a little bit closer to home. It's in Region 9. We frequently -- in South County, this is the number one issue I receive calls about and that's Poche Beach. I'm sure you're all familiar with Poche. It's a regular on Heal the Bay's annual Beach Bummer list. Since 1999, it has received an F grade every single year except for 2005 when it received a D.

So this is an issue for the County as a whole.

But the phone calls I receive from people who live nearby Poche, I have to let them know because of our name people think I'm a regulator. So I get yells. The phone calls I receive are people screaming at me about Poche, literally screaming at me. So I have to calm them down and say, "I'm not the correct person to yell at. I'll give you their number." But I try to walk them through, and we are all part of this process with Poche. This is a situation where, again, the County should be given a lot of credit.

There is no doubt the County has put a significant amount of resources towards improving this beach. Now, that has not yielded results that people are happy with, but I don't necessarily think it's all the County's fault. I think it is their responsibility.

There was a watershed study that was performed at a cost of around 280 thousand dollars to determine the source of high bacteria levels and in the water coming out of Poche Creek. And the County installed a runoff treatment system with ultraviolet light that discharges into a scouring pond. That facility cost approximately three million dollars. So that's a good amount of investment. The County was trying to do the right thing.

What makes me nervous about the existing permit is that I believe a lot of the action that the County has done on this has been, at least in the background, a

recognition that they have to do something, that although they can take calls from people in San Clemente about this, that they just can't simply ignore it.

This is a problem that there may be a solution out there. I have spoken with the County about it. This is a very complex situation. The scouring pond is a significant part of that problem. And there are other non-regional Board issues related to this.

But I sit back and think if there was something like a safe harbor, if the County could just put a plan forward and not necessarily see that an outcome happens, would we be as far along in this development of a solution as we are today? If this was the law ten years ago, if this was the permit in 2001, would we be 15 years away, 20 years away from a solution? Because I think now we're five years away from a solution at least. But it's a concern about the County's accountability to the people who live in this area.

MS. KALEMKIARIAN: May I ask you a question along those lines? Tell me your name again.

MR. KELLY: Colin Kelly.

MS. KALEMKIARIAN: Colin. Because we're talking about the safe harbor, from the perspective you have of trying to enforce -- for lack of -- this is the enforcers, but monitor and be an advocate, when you say that having

these provisions that were added, you fear would lessen the motivation. Do you think it was a fear of litigation that was motivating the County before?

I don't hear that that's the case? What was motivating them? And then I'm going to follow up. From your perspective practically speaking.

MR. KELLY: Well, I don't really think that the copermittees understand the complexities in bringing in action to enforce some of these things. If the counties think that they're incredibly difficult to comply with, they're incredibly difficult to enforce. So unless you're a highly experienced nonprofit, this might be something that would be difficult for the average -- or let's say, community group to do deal with.

MS. KALEMKIARIAN: Let me try to focus my question because the way that these alternative compliance provisions appear to me to be is that it's an attempt for a regulator to engage in this interim process and to say, well, if you haven't gotten here, we're going to try to pull you forward some more by having interim goals and working on your plan. I understand that. I'm not saying I think it's going to work or not work.

Before this was in existence, and the permit -- the previous permit as I understand, didn't have anything like this, that said you have to do it. So what was

motivating this improvement over ten years in your opinion?

MR. KELLY: It's hard for me to determine what the motivation is and I think that I would be remiss if I didn't -- I think the County and most counties at least have in the back of their minds, the managers, that third-party enforcement is a possibility.

Now, I don't think it's a likelihood with a lot of these things, but it's a consideration.

MS. KALEMKIARIAN: So what tools did you have in your toolbox, as an attorney who cares about this, over these last few years? I mean just hassling them? Which is a big tool.

MR. KELLY: Yeah, it is a big tool. I can give you a third-party activist secret and the secret is if copermittees are engaged in a good faith effort to reach solutions, we have other things to deal with. We see good and bad actors who are permittees.

And speaking for Coastkeepers, I'm not speaking for anyone else, the County of Orange was making a good faith effort in dealing with this. The City of San Clemente was going in good faith trying to deal with this. This is a complex issue with Poche Beach in particular. I'm not assured that if the County could simply put forth the proposal to the Regional Board and say, "Here's our

plan," and we're allowed to step back, implement something and say, "Well, it didn't work but we tried." I don't think that would necessarily see the advancement towards a solution as quickly as what's going on right now.

MS. KALEMKIARIAN: So these provisions, just to -- because I'm really trying to understand as an activist, if you had under the alternative compliance some very specific things they were saying they were trying to implement, that wouldn't give you even more ability to prod them and poke them and get them to move? It would give you less?

MR. KELLY: I don't see the liability problem that the counties are talking about. I think those are a losery. A lot of these are the fear of potential litigation. But as Noah and Jill have laid out, that fear has been there a long time and yet that has not resulted in taxpayer money being spent defending the County in any of these actions.

Now, as a person who represents the public interest, we have members. The membership of environmental organizations want to see progress. The people who talk to us about Poche want to see Poche cleaned up as quickly as they can. Everyone in that situation is frustrated. I just don't reasonably think that if the County was allowed a way out, that we would

be -- ten years ago -- we would be where we are today.

I think that it allows resources that otherwise would go towards cleaning up Poche to be dedicated instead to something else that for the people of San Clemente, who want to be able to use their water without getting sick, that's a choice that those people are not going to like. And it is going to violate the ability of those people to actually access the water because it's not meeting its uses.

Going on to Riverside, if I've answered your questions, Riverside is distinct with Inland Empire Waterkeeper and Orange County Coastkeeper. Orange County, coastal Orange County, is going to have development. But in my role as the Staff Attorney for Inland Empire Waterkeeper, that's where the real development is happening. We saw a swift decline in development after the crash.

All 80 percent of my time now in Inland Empire Waterkeeper is dealing with development now. Mega development is coming to Riverside. There is a huge plan, multiple plans, to really go after and develop Moreno Valley, outside of your jurisdiction but it's going to have effects in this area. We think that Riverside County in Region 9, this is where low-impact development is going to hit hard.

So we want to make sure that there's a well-reasoned plan to really encourage low-impact development. And the situation that we're seeing is that a lot of the development that happened pre 2008 that has sort of fallen off and has stalled, they are saying that low-impact development does not even apply to them because it was entitled before the adoption of the last MS4 Permit.

So on Riverside County, I think that Riverside has actually done some really interesting things. They have definitely adopted a lot of the spirit of low-impact development and Inland Empire Waterkeeper really appreciates that. But this -- on the low-impact development side is-- this is where we're looking to see how this permit was actually enforced.

And in closing, these permits are really a vision of where we're going and that's why Waterkeeper is concerned about that, because Waterkeeper considers this to be a hoke that copermittees do what they say they're going to do and if they don't, well, they tried. And it's a working -- we appreciate this is a working document. There is WQIPs. There is involvement of the copermittees.

But we also have to remember that these things have long-term impacts. And when we talk about what

low-impact development is going to look like in this permit, in areas that are going to go through development like southern Riverside County, those impacts are going to be (inaudible). So we should at least determine what we think low-impact development is and how we're going to implement that.

I'm not sure what our available time is but we reserve the remaining of it for any rebuttal.

MR. STRAWN: Four and a half minutes left. We'll round it to five minutes for you.

MR. GARRISON: Thank you very much for your time.

MR. GIBSON: Good afternoon, Mr. Chairman. I'd like the record to show that Tomas Morales returned to our session at 4:07 p.m.

CHAIRMAN MORALES: And I would also like the record to show that I sincerely apologize to the audience. Court of Appeal actually took us at the very end. But I do apologize.

MS. HAGAN: Do you want to see if any parties have cross-examination of the environmentalist groups?

CHAIRMAN MORALES: Do any of the designated parties want to cross-examine any of the folks that testified on behalf of the NGOs?

MALE SPEAKER: No.

(Laughter.)

CHAIRMAN MORALES: Seeing no takers --

MS. HAGAN: Would this be a good time to address the City of San Diego's cost benefit analysis document?

MR. STRAWN: Jill, you had a request earlier to make a point. Can we back up and do that? We were kind of waiting for Chairman Morales to come back and you just needed a minute for this, right? But it does count against your time.

CHAIRMAN MORALES: Actually on this, I don't think it will because what we're talking about is a document that was newly brought to our attention, and the determination is whether we make it part of the record or not.

MS. HAGAN: So maybe it would be helpful if I just refresh for you the standard to consider new information and then you can hear from the folks who are proponents of the document and opposed to the document.

The regulations that apply to our proceedings allow the Board to establish dates for receipt of written comments and cutoff dates, written evidence, new evidence. A date was established earlier in this proceeding back on January 11th.

And so the standard then, in our regulation, says that the Board may refuse to admit late evidence. The policy is to discourage submission of surprise or late

exhibits and information.

It also says that the Board shall refuse to admit it if it would prejudice any party. However, the Board may choose despite that to allow it if the person who seeks to have it introduced would suffer severe hardship if it's not admitted into the record.

CHAIRMAN MORALES: So it's not really a "shall."

MS. HAGAN: So it's not a complete "shall." It gives you some discretion. And then while you were away, there was brief reference to this document by County Council for San Diego --

CHAIRMAN MORALES: Actually, I was here for that.

MS. HAGAN: Oh, you were here for that? But he didn't get into a lot of detail about it. And there may have been a reference to it by one of the County's witnesses who spoke after Mr. O' Day.

CHAIRMAN MORALES: Right. And I think I did pose a question as to when the document was actually first published or available.

MR. O' DAY: Actually, we have someone here who can clarify that. It isn't me. It's Kris McFadden from the City of San Diego.

MR. MCFADDEN: Good afternoon. Kris McFadden, Deputy Chief, City of San Diego. I was sworn yesterday.

This document was something the City actually

started working on about 2010 in response to the bacteria TMDL. We did discuss it internally and with our City administration at that time, we chose not to finalize the document. Now that the CLRPs had come out at the end of last year and with our new administration, we once again brought it up. They did feel that it was proper to actually get this information out.

We did share it at that time and March is actually -- of this year -- is when we did finalize it and then made it available to the public. And actually what we've done, just to clarify, the County did ask for that information. We did provide it to them. I provided it just by e-mail very -- relatively recently to Mr. Gibson -- and just as an informational item that if -- I believe it was information that the Board had requested previously and other meetings and it's just something that we had put out there to start discussing with the Board.

CHAIRMAN MORALES: I'm going to pose a question. If this document isn't admitted into the record, will the City of San Diego or any of the other copermittees suffer a severe hardship?

MR. MCFADDEN: I will speak, at least on behalf of the City of San Diego, we're not presenting this as evidence today. It's something that the County had presented. So the City's not going to take an issue

either way with it not be admitted or being admitted.

CHAIRMAN MORALES: Thank you. Same question for the County.

MR. O' DAY: Well, yes. It's part of the available evidence in support of our position and that's why we put it in our presentations. I referred to it in my presentation. It was referred to in Mr. Susilo's presentation, although due to time he didn't actually get to that slide, but it's in that presentation.

It wasn't available until after the deadline for the submission, but it is relevant and we think you have the discretion to include it in the administrative record and we think that you should include it in the administrative record. And if you elect not to do that, of course, we'd just like our objection noted for the record.

So, I mean, frequently in administrative proceedings, as you are aware, the Court permits you to supplement the record even after the proceedings are closed if it's material that's new and wasn't available at a particular deadline and is relevant to the proceeding. And I think that principle clearly applies to this study.

CHAIRMAN MORALES: It sounded to me like the standard was a little more than relevance which is why I asked the question. If you could be more specific, what

would be the hardship you would suffer if it's not admitted?

MR. O' DAY: Well, we would be deprived of our opportunity to put relevant evidence in support of our presentation into the record in this proceeding.

And I don't think -- I think the fix might be -- I understand Miss Witkowski's objection to it. She's probably going to say -- I'll let her speak of course -- she's probably going to say there are references in there to other studies and things, and we haven't had time to review it, and fully get it and comment whether we think it's got any validity.

I would suggest that perhaps the fix might be to offer Coastkeeper the opportunity to do that and submit some post-hearing commentary on it if, in fairness, I think that would be fair. But to leave it out, I don't think would be fair to the County.

CHAIRMAN MORALES: Okay let me hear from the NGOs.

MS. WITKOWSKI: Thank you. Jill Witkowski and I have taken the oath.

If I understand from Mr. McFadden that this document, which I had originally been given right before lunch says April 2011, and then someone from the City gave me the one with the March 2013 on it right after I

returned from lunch, I haven't been able to see any differences between the reports. But Mr. McFadden did say that this was available at sometime in March. It's now April. Even having had it a week ago would have been helpful.

Typically, we like the Regional Board to be able to consider all important evidence or relevant evidence to make its decision, but we haven't had a chance to read this and while it does rely on some of the studies that are in the record, it also refers to -- the cornerstone is talking about a 2007 Weston Report that has been called the strategic plan and it looks at the implications of the strategic plan.

I don't know what that is. I haven't had an opportunity to see it. Frankly, I don't have time to now review this and write separate comments on it given my limited resources. And so for those reasons, I think it's prejudicial, and frankly, I believe it's actually not relevant given the law on the TMDL, which is that it must come in according to the law.

I apologize. I have one more procedural objection to get on the record. I'd like to make a timely objection to the hearsay evidence of the County of San Diego's conversation with Miss Wooten, their health expert. I understand that under the hearing procedures we

acknowledge that it can be used to supplement or explain other evidence, but it's not sufficient in itself to support a finding. Thank you.

CHAIRMAN MORALES: Well, the objection to the hearsay evidence is noted.

MS. HAGAN: Mr. Morales, may I just add that regardless of whether you allow this document into the record, any slides that were on presentations that were submitted but were not actually used by the copermittees and presented to the Board need to be excluded from the record and they will be. If they were presented and we're not receiving written materials, those slides need to be removed.

So I just wanted to make that clear. Mr. O' Day mentioned that some portions of the presentation that were not actually presented to the Board, but they won't be included in the record.

MS. KALEMKIARIAN: Are we finished with that issue or do you need to --

CHAIRMAN MORALES: No, I'll go ahead and make a ruling at this time.

I think we'll go ahead and allow it in just because it is late information and to the extent it's information that if it wasn't added to the record might be prejudicial to the County. I will allow it in.

We'll determine whether we need to give the NGOs an opportunity to comment on it and actually how much time they should have to comment on it. Because it's looking like it's getting close to 5:00 o'clock. The NGOs still have five minutes and we've yet to hear from the BIA folks.

So it's either going to be a very long day or we're not going to be able to conclude this today.

MR. O' DAY: May I be heard on one point that Miss Hagan just made?

CHAIRMAN MORALES: And snatch victory from the jaws of defeat?

MR. O' DAY: Well, if I'm hearing her correctly, she's saying that the slides that were not actually put up on the screen by our expert Mr. Susilo are not going to be considered part of the record. That is a separate issue from and I appreciate your ruling on the study.

I guess this is one of those situations where you said at the beginning of this proceeding when I registered my procedural objections, if you have an offer of proof and you need more time because you have an offer of proof and you haven't had the time to do that, then please let us know.

Well my specific offer of proof is the remainder of Mr. Susilo's slides and he wasn't able to get through

them because of the time limitations and the overall time limitations that we have here.

And once again, it's the issue of one block for three major copermittee groups and the County needed some time for its own separate presentation. They're very relevant to this issue of the bacteria TMDL. They're science-based. I think they're critical to your analysis and we either request that they be placed into the record or that Mr. Susilo will be permitted to complete the presentation and put those slides up if we're going to be technical in that he has to put them up and talk about them in order for them to be in the record.

And I make that motion at this time, Mr. Chairman.

CHAIRMAN MORALES: Okay, until he talks about them I'm not inclined to make it part of the record.

MR. O' DAY: Please note my objection for the record.

CHAIRMAN MORALES: Of course.

MS. KALEMKIARIAN: May I ask another procedural question?

Miss Hagan, I would appreciate a response to the NGO observation that these alternative compliance measures are illegal and aren't in compliance with the Clean Water Act. I don't know whether now is the time, but I'm just

asking at some point that we get Counsel's response to that. And I don't know if you've had a chance to even review that issue since it's been raised.

MS. HAGAN: I have but I've reviewed some of it but there is one point I'd like to look at further if there's an opportunity to, before I reply.

CHAIRMAN MORALES: And Mr. O' Day, I did want to point out unless you feel a little too prejudiced that you all have a little over 30 minutes. So I suppose Mr. Susilo could do his presentation.

We're going to start now with the Industry Association but before we do, let's take a very short break so that you all can come in for the end of the day session.

MR. STRAWN: And for planning purposes, the Building Association has 75 minutes remaining.

(Whereupon, at 4:53 p.m., a recess was taken to change reporters.)

I, Delise A. Martinelli, Certified Shorthand Reporter for the State of California, do hereby certify:

That the meeting was taken by me in machine shorthand and later transcribed into typewriting under my direction and that the foregoing contains a true record of the meeting.

Dated this 13th day of August, 2013, at San Diego, California.

_____.

Delise A. Martinelli.
CSR No. 13713

ATTACHMENT
32

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

WEDNESDAY, MAY 8, 2013

ITEM 9, VOLUME I

WATER QUALITY CONTROL BOARD

BOARD MEETING ROOM

9174 SKY PARK COURT

SAN DIEGO, CALIFORNIA

APPEARANCES:

CHAIRPERSON:	Tomas Morales
VICE CHAIR:	Gary Strawn
BOARD MEMBERS:	Eric Anderson
	Henry Abarbanel
	Sharon Kalemkiarian
EXECUTIVE STAFF:	David Gibson, Executive Officer
	James Smith, Assistant Executive Officer
	Chris Witte, Executive Assistant
STATE BOARD STAFF COUNSEL:	Catherine Hagan
ALSO PRESENT:	Roger Mitchell
	Julie Chan
	Christina Arias
	Kristin Schwall
	Michelle Mata
	Christina Arias
	David Barker
	Barry Pulver

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San Diego, California, Wednesday, May 8, 2013

3:10 p.m.

CHAIRMAN MORALES: Item 9 for the San Diego Region, Tentative Order R9-2013-001, this is the time and place for the continuation of two days' worth of a public hearing on this tentative order.

At the public hearing that began on April 10th, the Board heard most of the testimony and cross-examination by the designated parties. The Board also heard from elected officials and members of the public who wanted to address issues raised in the tentative order.

As outlined in the order of proceedings dated May 1, today, we will allow the designated parties who want to use their remaining time to complete rebuttal testimony. Designated parties can save all or part of their remaining time for closing statements instead. Please let me know when I call on you whether you want to save time for closing statements and how much.

As a reminder, for rebuttal testimony and closing, the copermittees have 36 minutes, the environmental group 5 minutes, and the BIA Coalition 13 minutes.

In the interest of efficiency, at the same time

that we take up any rebuttal testimony, we will also hear from staff, USEPA, the designated parties, and interested persons on the written errata circulated by staff. These errata were summarized by staff orally at the end of the hearing on April 11th and were circulated in writing in more detail after the April hearing.

We will also at the same time hear testimony or comments on the City of San Diego's Cost Budget Benefit Report dated April of 2011. For this aspect of the hearing, there are time limits that apply; and we will proceed in the following manner: Staff will be asked to introduce their written errata, comment on the City of San Diego's report, and respond to any issues that were raised at the April hearing.

USEPA will follow staff with its comments. Then we'll hear from the parties, starting with the copermittees, who will have 45 minutes to address the errata and cost issues. The environmental groups follow the copermittees for 15 minutes, and then the BIA Coalition gets 15 minutes.

Finally, we'll allow interested persons to speak on these issues. These comments will be limited to 15 minutes. And, in that group, we'll first hear from Clean Water Now, who requested to be heard first.

As a reminder, during testimony or comments,

board members or counsel may ask questions at any time, but time for the questions and responses stop the clock and won't be counted against you.

After all the comments, I will ask for closing statements from the Building Industry Coalition, the environmental groups, copermittees, USEPA, and staff.

With that, we are going to get started. And since this is a new hearing date on a continued item, with respect to persons that were not present last time, I would like to again administer the oath to all persons who intend to testify. So if you will please stand and raise your right hand.

(Whereupon, the group of people testifying in Item 9 were duly sworn to testify truthfully by Chairman Morales.)

CHAIRMAN MORALES: With that, staff will begin. And I will ask that, when you come up, please introduce yourself and name who you represent and that you have taken the oath.

MS. HAGAN: Mr. Chairman, just real briefly, a housekeeping matter. I wanted to state for the record that, at the two-day hearing in April, at various times, Board Member Abarbanel, yourself, and Ms. Kalemkiarian were absent for portions of time; and you were all provided audiotape so that you could familiarize

yourselves with what you missed. And I just wanted to make that known for the record.

CHAIRMAN MORALES: Thank you for that. Before we start, I think Dr. Abarbanel would like to . . .

MR. ABARBANEL: I only wanted to point out that, on the Executive Officer's Summary Report on this item, on page 3, it says: "The cost benefit analysis report prepared by the City of San Diego." It was prepared for the City of San Diego, not by.

Thank you. That's all.

MS. WALSH: Good afternoon, Mr. Chairman and Members of the Board. My name is Laurie Walsh. I'm a water resource control engineer in the Southern Watershed Unit. I would like to give you a brief introduction of the item today. Item 9 before you today is a continuation of the public hearing on the issue of Tentative Order R9-2013-0001, the NPDES permit for discharges from municipal separate storm sewers within the San Diego region.

At the conclusion of the hearing on April 11th, the Board did continue the public hearing to today's meeting to allow more time for discussion on the proposed tentative order. The San Diego Water Board staff was directed to prepare the remaining revisions to the tentative order based on the testimony at the April 10th

and 11th hearing.

Supporting Documents 12 and 13 contain suggested revisions to the tentative order in the form of two options. These options are identical in all respects, except Option 1 removes the discharge prohibition and receiving water limitations compliance option of Provision B.3.c.

The compliance option is a set of requirements that a copermittee could choose to use to demonstrate compliance with the prohibition and receiving water limitations requirements in Provision A of the tentative order. Option 2 retains the compliance option and makes language adjustments to address the testimony provided during April's meeting.

As a matter of housekeeping, you'll notice that Supporting Documents 12 and 13 are the corrected versions of the errata, and these versions were corrected for typographical errors we discovered as well as some necessary changes to the fact sheet that were inadvertently omitted in our first errata submittal to you.

Staff recommends that the Board adopt the tentative order with either Option 1 or Option 2. We can support either option.

Additionally, at the April hearing, the Board

allowed the City of San Diego's cost benefit analysis report into the record on this item and invited the designated parties to submit written comments by April 26th. Written comments received by the deadline are included in your supplemental agenda package as Supporting Document 5.

To assist the Board's discussion on cost, the supplemental agenda package includes two spreadsheets, the regional stormwater program expenditures for fiscal year 2011 and '12 -- that is Supporting Document 6 -- and the spreadsheet on the comprehensive load reduction plan estimated cost, which is Supporting Document 7.

This cost information is provided by the copermittees in their annual reports as well as comprehensive load reduction plans. All of this information is already in the record and was provided to the Board during the December 2012 public workshop.

The cost benefit analysis is specific to the costs of programs for the City of San Diego to meet the terms of the bacteria TMDL at San Diego beaches and creeks. This report is not relevant to the adoption of the tentative order. Consideration of this report is more appropriately placed during potential future hearings to either change the TMDL or amend the Basin Plan as related to this TMDL, which must occur under

separate board processes.

Lastly, at the April hearing, the Board also allowed into the record letters on the tentative order from the United States Congress to USEPA and the California Legislature to the San Diego Water Board. The response letter from EPA is included in your supplemental agenda material. And an example of the Board's response letter to the California State legislative senators and assembly members was provided to the Board today. Copies are provided on the back table, and we also posted the response on our website.

Again, staff supports the adoption of Tentative Order 2013-0001 today with either Option 1 or 2. We can support both, and we are prepared to answer any questions you have at this time.

MR. ANDERSON: I have just a question on the adaptive management process. In the EPA's letter, they referred to a change in Provision B.5 of the permit. And one of them or someone had suggested that all programs should be adaptable, including especially C, D, and E.

Does the part in B.5 kind of cover that pretty well or did you guys make the changes in C, D, and E? I just didn't see it.

MS. WALSH: Provision C, D, and E? I mean, because the Provision E, the reporting, that is the

TMDLs. But the adaptive management portions of the permit are throughout the permit for all of the provisions, you know, basically driven by the Water Quality Improvement Plan.

MR. ANDERSON: I have a second question. I'm sorry. I almost forgot. My bigger question was: The economic analysis makes an assumption of the cost of re-complying with the bacteria TMDL, and there is not any real supporting documents to explain to us how they arrived at those costs.

Do you agree that those costs are what we imposed when we passed that bacterial TMDL?

MS. WALSH: I think I'm going to ask Wayne to come up, because he was, you know, the one who read the TMDL and went through those, so he is better to answer that.

MR. CHIU: I'm sorry. Could you repeat the question for me.

I'm sorry. Wayne Chiu, Water Resource Control Engineer with the Southern Watershed Unit; and I have taken the oath.

MR. ANDERSON: The economic analysis talks about a cost of complying with that bacterial TMDL at three point-something billion dollars as that is the way to -- that what we passed is and that is how they would

have to comply.

Do you agree with that number and with the analysis that that is how you achieve it?

MR. CHIU: Well, first of all, I would say that it falls within the range of costs that we had estimated within the TMDL. We only provided ranges of potential costs for different types of BMPs. What they provided in the cost benefit analysis, you know, obviously relied upon some assumptions and a plan they looked at to base some of their calculations on. So I wouldn't disagree with, you know, their calculations; but I wouldn't necessarily agree with the analysis itself.

CHAIRMAN MORALES: Anyone else from staff?

Next up, copermittees. Oh, sorry about that. USEPA. My apologies.

JOHN KEMMERER: Good afternoon, Board Members. My name is John Kemmerer. I'm the Acting Water Director for EPA Region 9. I think you probably know, EPA Region 9 covers the States of California, Arizona, Nevada, and Hawaii. And I have taken the oath.

I just wanted to briefly say this afternoon that EPA is very supportive of the approach your staff has taken, and we encourage you to adopt the proposed permit this afternoon. This would be an important step forward in addressing urban runoff, the primary cause of

water quality impairments in this region.

As noted by my colleague, Doug Liden, who was here on April 10th, your staff has made incredible efforts to involve interested stakeholders in the development of this permit. Over a year ago, they began holding public workshops on the development of the permit, and they provided many opportunities for input and helped in sharing flexibility on how permit language has been updated to reflect stakeholder input. So we are very impressed with the job that has been done here.

In evaluating the two errata options that are being presented here today, we prefer the adoption of Option 1 for compliance with receiving water limits. Option 1 retains the approach used in previous MS4 permits issued by this Regional Board and most MS4 permits across California since the issuance of State Water Board Resolution 9905.

As you know, the issue is being considered by the State Water Board. EPA is participating in the State Board's reevaluation of how receiving water limits are set in MS4 permits; and, of course, all of the involved stakeholders in California are very interested and involved in that process.

We believe the best permit, best option for this permit is to maintain language consistent with

Resolution 9905 and to reopen the permit if the State Board establishes a new approach for their evaluation of new receiving water limit language.

However, as we testified on April 10th, we believe your staff has done a good job in drafting an alternative approach to receiving water limitation compliance, and it is given here as Option Number 2. This alternative calls for a quantitative analysis demonstrating that the stormwater control actions implemented will achieve numeric goals and schedules for protecting water quality and attaining water quality standards.

While we would prefer that the receiving water limitation language included in Option 1 be adopted today, we would not object if you chose Option 2, given that it does establish a process intended to ensure that measurable water quality improvements are achieved.

So I'd next like to move to the proposed permit's development planning section. Given EPA's interest nationally in facilitating the use of low-impact development -- we also sometimes refer to it as "green infrastructure" -- we have been very involved in this section of the permit. We have been working closely with your staff on the development and planning language beginning over a year ago before the public workshops

were begun.

And we were completely supportive of this section in our April 10th testimony. The section is still very effective in establishing the use of low-impact development tools to address new and redevelopment projects.

Unfortunately, we didn't get a chance to discuss all of the changes made in the errata with your staff before they were posted, and we have concerns with one specific change made in the errata. And that issue we have is with the provisions on the use of biofiltration; when retained, the full capture volume is not technically feasible. So if you have a new development project, the requirement is to try to fully retain; and if it is not feasible, biofiltration is an option.

As currently drafted, the criteria for biofiltration systems in Section E.3.c.(1), which is on page 6 of 19 in Option 1, allows for the use of these systems if specific volumetric criteria are met.

As drafted, biofiltration systems may be used if they have a total volume, including pore spaces and pre-filter detention volume to hold 0.75 times the portion of the design capture volume not reliably retained on the site.

While we agree that properly designed and operated biofiltration systems can provide benefits approaching other LID BMPs, we don't the believe that it is appropriate to establish criteria solely based on volume of the biofiltration system. So in order for a biofiltration system to provide the LID-like benefits that I believe we are trying to achieve here, the system should provide a reasonable level of retention and pollutant removal. By solely defining the volume of the system, there is no assurance that these benefits will be achieved.

We are therefore suggesting that the permit facilitate the preparation of sound design specifications for biofiltration systems. This includes development of appropriate loading rates, soil specifications, and other design criteria. And to this end, we are suggesting a revision to the permit text, which I will pass out in a minute here, which would state that biofiltration BMPs must be designed to maximize stormwater retention and pollutant removal. The permit should also state that the permittee's updated BMP design manuals must provide guidance for these design considerations. So, again, I have brought copies of the suggested language; and I will pass it out in a minute when I'm through with my testimony here.

It's our position that the existing language by not including this additional level of detail on how biofiltration is implemented creates a loophole that could potentially allow the use of ineffective filtration methods that bear really no resemblance to low-impact development BMPs.

So, moving on from that, as we noted in the April 10th hearing where we are supportive of the proposed permit's approach for incorporating TMDLs, just to reiterate, Finding Number 5 in the draft permit regarding TMDLs appropriately references EPA regulations, including the regulation that NPDES permits incorporate limits consistent with TMDL waste load allocations.

Again, urban runoff is the primary contributor to water quality impairments addressed by the six TMDLs at this pore that are being implemented by this permit. In order to achieve the water quality improvements mapped out by these waste load allocations in the TMDLs, which you have adopted, it is vitally important that this permit include a clear, measurable, and enforceable approach for TMDL implementation.

The proposed permit's TMDL provisions achieve this objective, and we support the fine-tuning that was done in the errata provisions on how the TMDLs are expressed.

So, in closing, I want to emphasize our support for the inclusion of the watershed Water Quality Improvement Plans in the proposed permit. Under these plans, the direction taken in water quality monitoring and stormwater control measures should be prioritized to those areas of greatest importance and the plans provide the framework for efficient and strategic use of resources to control urban runoff and achieve measurable water quality improvements. And we are really enthused about the approach that your staff has taken with these Water Quality Improvement Plans to really get to the measurable improvements.

So we support the proposed permit as the necessary step to address the primary contribution -- contributors to water quality impairments in your region. And we strongly urge you to adopt the permit as proposed in Option 1 with the one suggested revision to the development planning section that I'm about to give you.

Thank you for your time.

MS. KALEMKIARIAN: I have question. I'm sorry. I didn't catch your name.

MR. KEMMERER: John.

MS. KALEMKIARIAN: John, there was a lot of discussion last session about this Section B.3.c, which the NGOs were saying was a safe harbor they don't want to

have in there and that government officials/copermittees were saying, well, we are afraid after this Browner decision that we are going to get sued just strictly for noncompliance with the TMDLs. So that is the Option 1 versus Option 2 difference that we are looking at.

In your experience with the EPA, I don't know whether you feel qualified to answer this, but are you fearful or do you see that there is some type of rash of strict liability litigation that is going to come about after the Ninth Circuit opinion; that all of a sudden, we are going to see municipalities being sued because they don't meet the TMDL standards?

MR. KEMMERER: Well, I guess, with this clarification, it is my understanding that Option 1 and Option 2 are looking not so much at the TMDL wastewater allocations but the recieving water limits.

MS. KALEMKIARIAN: I'm sorry. That is right.

MR. KEMMERER: Yet, putting the --

MS. KALEMKIARIAN: But same problem?

MR. KEMMERER: Right. Yeah. Yes, I get the gist of your point. Yes. So the Ninth Circuit decision in L.A. Flood Control District and NRDC's litigation was considered by the Supreme Court and then remanded back to the Ninth Circuit.

Based on your question, I mean, we have not

seen historically a lot of litigation over this provision. It has been in all of the California permits, and it has been in permits around the country in different forms for many years. And, specifically, in California, really, in the last 12 years or so, this has been in there. We have not seen a lot of litigation over that.

I do think that, you know, there are opportunities, even if we stick with Option 1, of really the copermittees making strong efforts towards achieving water quality standards. I also think that, again, the statewide process is underway to look at how this might be changed statewide. And so, you know, our view is, I guess, to directly answer your question, we don't necessarily see that there is a rash of new litigation on this matter.

We do think that, again, your staff have come up with a good approach with Option 2. We think the better way to go would be with Option 1 and then to follow up with what the State Board ends up developing. I hope that answers your question.

MS. KALEMKIARIAN: It does. And I'm sorry, but I was searching through my notes from the last series to see what the name of the case was, but I think I misstated it. The case you are talking about is the one

that I was thinking about.

MR. ANDERSON: John, before you go, I really want to thank you and your office for authoring a very good response to the letter from a congressional delegation. It was very right on point, and I was very, very impressed.

MR. KEMMERER. Thank you.

CHAIRMAN MORALES: Now we'll go to the copermittees. And I think we were given an order that you guys decided amongst yourselves.

MR. SNYDER: Good afternoon, Chairman, Members of the Board. My name is Todd Snyder. I'm a watershed planning manager for the County of San Diego. I have taken the oath.

What I want to do today is to re-introduce Ken Susilo from Geosyntec Consultants. Due to time constraints at the hearing on April 11th, Ken was unable to complete his full presentation on our concerns with the bacteria TMDL. So we appreciate the opportunity for him to be able to complete that presentation today.

As a reminder, Ken is a principal in Geosyntec's Los Angeles office. He's an accomplished engineer with many years of experience in stormwater quality and has participated in a number of TMDL offerings in southern California and beyond. One of

Geosyntec's important roles is as co-principal investigator of the international BMP database.

So there is really no better person than Ken to get to know what BMPs are capable of doing based on real world data and what they are not capable doing. So Ken will present on behalf of the County a number of our technical concerns with the bacteria TMDL, including some of its outdated science, and questions about the attainability of its targets.

His comments are made in the context of the County's continued recommendation to exclude the bacteria TMDL for beaches and creeks from the permit at this time until the TMDL can be brought up to date with more current data and the best available science that is out there today.

You heard in April from Jim O'Day from our County Counsel's office that we believe you have the discretion to keep the TMDL out of the permit at this time; and we renew our request today that you do that. We do appreciate the fact that board staff, having knowledge that there is a TMDL reopener, and that is actually written into the permit now, but as we have been told many times by regional board staff, the permit is not the place to obligate the Regional Board to do anything. It obligates the copermittees with

responsibilities.

And so our concern is that it's not good policy, good public policy, to knowingly move forward with a bacteria TMDL that most people think is flawed and out of date and to rely on a fix somewhere down the road through a reopener process. We just think that's the wrong approach.

So, at this point, in our opinion, there are no guarantees that the reopener will actually happen. So by including the bacteria TMDL in the permit today, you'll make it significantly more difficult for it to be amended in the future. And that is our position.

So with that, I will turn it over to Ken.

MR. ABARBANEL: If the cost for enforcing the TMDL were free, it cost the County of San Diego nothing, would you support it?

MR. SNYDER: I don't know how to answer that question.

MR. ABARBANEL: Well, yes or no would do.

MR. SNYDER: I would need to think about it a little more before I answer the question.

MR. ABARBANEL: Well, I have another 30 microseconds for you to answer yes or no later.

MR. SNYDER: One of our primary concerns, as you will hear Ken address, is that --

MR. ABARBANEL: If you are not going to answer the question, you might as well . . .

MR. SNYDER: Well, I'm answering your question you asked. You gave me 30 seconds.

So one of the things that is our primary concern is that, even with the limits that are in place for the wet weather portion of the TMDL -- and that is really our primary concern, is the attainability of these limits during wet weather -- is it good policy to ask our taxpayers to fund projects that might not result in the ultimate goal.

And so we are not just concerned about the cost to the County. We are concerned about the cost to the taxpayers as well. And so, on the wet weather side of the TMDL, I think I would have concerns with this TMDL, even if it cost the County nothing, because it will cost the taxpayer something.

MR. ABARBANEL: I'm a taxpayer in the County of San Diego. My question was if it cost me nothing.

MR. SNYDER: I didn't hear that.

MR. ABARBANEL: If it cost the County nothing, would you attempt -- what would your position be?

MR. SNYDER: If it is free to the taxpayers and the County, we would be much less concerned about this TMDL.

MR. ABARBANEL: So that is a "yes," you would do it? Pardon me if I'm putting words in your mouth, but I would like a "yes" or "no," because I'm a county taxpayer. The County doesn't exist without me or you.

MR. SNYDER: Agreed.

MR. ABARBANEL: So it costs you and me nothing.

MR. SNYDER: Right. The Board of Supervisors ultimately makes decisions for the County, so I would probably on that question defer to them.

MR. SUSILO: Good afternoon, Chairman Morales and Members of the Board. My name is Ken Susilo, and I have taken the oath. I'm a professional civil engineer in the State of California and have been one for 20 years. I'm a certified professional in stormwater quality and was a founding diplomat with the American -- available diplomat water resources engineer with the American Academy of Water Resources Engineers.

In April, I provided an abbreviated and accelerated version of this presentation. I appreciate the opportunity to finish the presentation today.

The four major concerns regarding the bacteria TMDL were: Number 1, the TMDL bacteria limits do not reflect the current science, creative thinking or most current data; Number 2, the TMDL requirements are not consistently attainable; Number 3, no rigorous benefit

cost analysis was performed and a contextual review of the analyses that have been performed with surprising results. Number 4, the technical concerns raised previously by the County of San Diego have not been adequately addressed.

The basis for my opinion is my review of staff reports, data extracted from the Arroyo Sequit-referenced watershed, research by nationally recognized experts, and information presented at the 2012 State of the Science Workshop.

The first point relates to the referenced watershed and specifically that the permit-referenced watershed approach is inappropriately applied to the TMDL compliance sites. Receiving water limitations are expressed as bacteria densities and allowable exceedance frequencies or AEFs. The reference: The permit AEFs for wet weather and dry weather are 22 percent and zero percent respectively.

However, we know that large San Diego regional-referenced watersheds have exceedance frequencies of about 30 percent in wet weather, and even the Arroyo Sequit-referenced watershed exceeds 28 percent of the time. So 22 percent is too low. Dry weather exceedances are typically about 10 percent and can be up to 20 percent. And so a zero exceedance criteria is also not

appropriate.

In April, I presented this plot of actual data collected between 2004 and 2011 in the Arroyo Sequit watershed. The take-away message here is that the referenced watershed itself, had that watershed been subjected to the TMDL, it would be in violation 50 percent of the time in wet weather and 85 percent of the time in dry weather. So having the basis of a regulatory requirement and routinely violate the same requirement presents a conflict in logic.

The point of this slide is to address the TMDL with respect to metrics appropriate to protect public health. USEPA 2012 rec criteria raises two points.

First, EPA states that scientific advancements have demonstrated that E. coli for fresh water and enterococcus for marine sites are better indicators of health than the previous indicators: total choliform and fecal coliforms. Our tentative permit and TMDL, however, used total fecal and enterococcus for beaches and fecal and enterococcus for creeks and not E. coli.

Secondly, EPA also expressed that single sampling maximums, maximum values are over-conservative and do not correlate with the same level of risk associated with the geometric mean criteria. They recommend a statistical threshold value or 98 percentile

value to better correspond to health protection levels of the geometric mean. The bacteria TMDLs in this permit use the single sample maximum value and are therefore inconsistent with recent USEPA guidance.

My opinions on whether TMDL limits can be attained are based on the following data.

MR. ABARBANEL: If I may ask you, the EPA sent a letter to my congress member, Mr. Issa. And in it, it referred to the quality of the scientific background of this TMDL. It says: "That process included review of the science underlying the TMDL by third-party peer reviewers and extensive analysis of the TMDL implementation costs prior to stated option of the TMDL. We also carefully reviewed the basis for the TMDL and believe the science and analysis are sound."

Do you disagree with EPA on this?

MR. SUSILO: I think, it appears to be a conflict in terms of the guidance of the 2012 rec criteria and in that letter. So that is where, you know.

MR. ABARBANEL: It's all right with me if you disagree. I just want to know.

MR. SUSILO: Well, I'm not providing my opinion on this one, I'm saying.

So attainability: My opinions on whether TMDL limits can be attained are based on the following data

sources: Actual monitored land use data; BMP performance data and in-stream data; predicted performance of non-structural BMPs; and SBPAT, which is a tool that utilizes actual monitored land use and BMP performance data.

We have said that TMDLs are not consistently and reliably attainable. This slide shows some of the factors that impact attainability. On the left are favorable conditions under which you could possibly meet the TMDL metrics.

To the right, you see unfavorable conditions that can make TMDL compliance nearly impossible. As you see, the variabilities are a function of runoff quality, storm event sizes, antecedent conditions, BMP performance opportunities, and direct loadings and contributions.

In April, I also presented this box and lister plot, which presents results from the international BMP database, which was partially funded by EPA and the Water Environment Research Foundation. The take-away message here is that, when you compare the peer-reviewed database, BMP performance to the TMDL standard, the only technology that reliably attains water quality-based effluent limits is disinfection. It is generally accepted that plaintive infection technologies for wet weather flows is problematic.

While the previous set of plots represented control monitored data, it's also important to look at real projects. This is an example of a good project not achieving attainment. Sandbar restraint is well known for its innovative, highly effective and targeted source tracking. They identify key infrastructure points of weakness and exfiltration from sanitary systems, infiltrate into the storm drain systems.

The famous dog that tracked human signatures was employed in this process; and despite these efforts and improving improvements, the subject area is still subject to noncompliance with the bacteria standards.

Another example of a good project not achieving attainment was in Santa Monica, the Santa Monica Pier. This is an example of a focused and aggressive structural and non-structural BMP implementation, including disinfection, bird source exclusion, and the elimination of cross connections; yet, high levels of enterococcus remain.

The third major area of concern has to do with the benefit cost analysis. The basis for the following cost opinions are the San Diego County Copermittees' comprehensive flood reduction plans, or CLRPs, that were submitted to the Regional Board in October of 2012. The regional cost estimate for all San Diego Copermittees

range from 2.8 billion to 5.1 billion, which were divided by an 18-year time frame. And the take-away message here is that these costs are significant.

The purpose of this slide is simply to illustrate that, for the two CLRPs, specific analyses were conducted to develop specific project lists for both wet weather and dry weather conditions. Not all jurisdictions planned on implementing the exact same suite of opportunities. And each responsible party carefully and thoughtfully considered their need, opportunities, and specific projects in developing the CLRPs.

This slide breaks down the cost from the combined watersheds for wet weather, dry weather, special studies, and compliance monitoring. Without going into detail, the key items noted here is that wet weather costs are estimated to be 60 to 66 percent of the total and dry weather 33 to 39 percent of the total cost.

Slide 24 was presented in April as well. It relates to the potential health benefits to wet season and dry season conditions. The 2006 study by Gibbon, Pendleton & Bane present an estimated annual public health impact attributable to excess gastrointestinal illness caused by swimming.

The key conversion here is to translate the

seasonal information to wet weather and dry weather metrics, which is how the TMDL is expressed, and how pollutant controls are categorized. While these data are not San Diego-specific, the ratios are assumed to be representative for this discussion.

And the take-away message there on the bottom line is that wet weather activities would realize 2 to 4 percent of the benefit; whereas, dry whether BMPs could produce 96 to 98 percent of the benefit.

This slide illustrates relative wet weather and dry weather implementation or BMP cost as it compares to just that human health cost metric. And while avoidance of public health costs are not the only metric of benefit, as this shows 63 percent of the cost, it provided only 3 percent of the benefit.

The Regional Board did not quantify the benefits of this particular TMDL. The given studies showed a number of uncertainties and limitations; although, the authors in the end expressed a high degree of confidence, saying that, despite these limitations, the results reported here represent the best estimates possible in light of imperfect information. That said, they also included the interesting conclusion, stating that the cost of eliminating all beach contamination may outweigh the marginal public health benefits of doing so.

The City of San Diego-commissioned study by the economist at Point Loma Nazarene University in April 2011 has been entered into the record. As previously noted, they estimated costs would outweigh the benefits by six to one.

Before concluding, the final point that remains, it pertains to the issue that the County's technical concerns were not adequately addressed. Some of these concerns were described in the original peer review comments, in addition, in preparing the CLRPs for the San Diego River Watershed.

Geosyntec utilized SBPAT, which, again, is the GIS-based public domain peer-reviewed water quality model that was specifically named by the Los Angeles MS4 permit as a model to conduct reasonable assurance analyses. It also used the most currently available monitoring data. SBPAT was used to estimate target loads based on allowable exceedance criteria, baseline 2001 loading rates, and target load reduction.

The required load reduction listed in Table 6.3 of Attachment E of the permit was based on a 10-year-old model, 10-year-old modeling studies, and results in significantly higher target load reductions. A discrepancy of this order of magnitude has potentially significant cost implications, particularly when costs

countywide are on the order of billions.

For the San Diego River Watershed, for example, we filled it with numeric limits, and the program significantly overestimated the load reduction required to attain the TMDL waste load allocation.

So, in conclusion, the critical TMDL water quality model should be made current and should include appropriate sensitivity and uncertainty analyses, particularly where new evidence, data, and model studies are available as they are now.

Thank you. I believe Todd Snyder has one final comment.

MR. SNYDER: Thank you. So that concludes our presentation on the TMDL issue. I just would like to read one additional point into the record. That is the fact that the County of San Diego supports the points raised by BIA and SDG&E back in the April hearings related to the necessary revisions in the permit to deal with the inclusion of the linear underground and overhead utility projects in the permit's post-construction BMP requirements. Thank you.

MR. ABARBANEL: First of all, I would like to thank you for the website, which is down here at the bottom. I have consulted it frequently in the last month. I really appreciate it. I think what you and

your staff have done is very, very helpful.

Then I have a question. If this board decided to not change the MS4 permit whatsoever but simply re-adopt the previous one, what would be the cost of that permit over the 18-year period we are talking about, to not just the County but to all the copermittees?

MR. SNYDER: So you are asking what the cost of what the current permit implementation is?

MR. ABARBANEL: Over the next 18 years, so I have something to compare these other numbers with.

MR. SNYDER: I'm not that good at math, but the County currently spends, depending on --

MR. ABARBANEL: Not just the County, but all the copermittees, including Orange County and Riverside.

MR. SNYDER: So based on the documentation in the record on this issue, it was documented that the 21 San Diego Copermittees, and I can't speak to the other counties, the San Diego Copermittees spend, I believe it's $119 or $120 million per year, which is the estimates pulled from our annual reports. So I would take that number and multiply it by 18.

MR. ABARBANEL: So no cost of living incremental?

MR. SNYDER: I'm not an economist either. I'm a history major, like a couple of you up there.

MR. ABARBANEL: Thank you.

MR. STRAWN: We are at County of Orange.

MR. BOON: Good afternoon, Chairman Morales, Members of the Board. I'm Richard Boon with the County of Orange. I'm speaking on behalf of the Orange County Stormwater Program. I'm the first of a number of presentations by the municipal programs. I'm going to speak for ten minutes.

So I'm going to cover three -- essentially, two items. I want to talk a little bit about the structure and the foundation of MS4 permits within the NPDES permitting system. Then I'm going to talk very specifically about the need for the Compliance Option Section B.3.c, why we need it, why we support it, and then conclude with any questions you may have.

So, first off, I just wanted to point out that, in 1987, when Congress passed the Water Quality Act, it drafted large discharges of stormwater into an existing NPDES program that was governing discharges from manufacturing and sewage treatment plants. In effect, they put a non-point source problem in a point source framework, and they put a square peg in a round hole. And that is a square peg in a round hole.

So, nonetheless, throughout the history of rule-making on stormwater, and we passed the 25-year mark

last year, it has always been recognized that there is a fundamental difference between the episodic discharges of runoff from the urban landscape and compared to the continuous or periodic batch discharges from industry.

In 1999 when EPA had its last rule-making, the Phase II permit rule-making, they were very explicit about the fundamentally unique nature of stormwater. They state: EPA envisions application of the MEP standard as an iterative process over a number of permit terms. They go up, successive iterations of the mixed BMPs and measurable goals driven by objective of ensuring water quality standards. They also considered numeric effluent limits and determined that they were simply too complicated to derive and too complicated to verify.

Later on in 2006, we seemed to periodically want to drive this peg a little more rigorously, a little deeper into this round hole. As the State looked at numeric effluent limits, they convened a blue ribbon panel, and they determined in 2006 -- and I don't think anybody's view has changed -- that it was infeasible to develop numeric effluent limits for MS4 permits of water quality standards that could and should be achieved through the implementation of best management practices.

Simply rebuilding the urban landscape and affecting societal change, which I think is at the core

of what we are trying to do here, is a long-term process. The permit and the findings recognize that. It is talked about in Finding 18. The San Diego Water Board, yourselves, recognized that a decade or more may be necessary to realize demonstrable improvement to the quality of the waters in the region.

The order includes a long-term planning and implementation approach that will require more than a single permit term to complete. And I acknowledge, also, that the change in the errata sheet acknowledges that, yes, it is a long-term endeavor; and, yes, we have already made significant progress.

However, if we are going to continue to sustain the momentum, we need to be creative, and we need to be diligent in how we continue to craft the regulatory framework for stormwater and ultimately define compliance for MS4s -- we think your staff have been both in conceiving of B.3.c -- and I'm here to advocate for the continued inclusion of this option in the permit.

So the need: Provision A right now, the receiving water limitations provisions and the discharge prohibitions, will require instantaneous attainment of water quality standards for every pollutant everywhere at the time the permit goes into effect. So we need B.3.c, because it creates an achievable basis for compliance

with the order. Without this provision, we are in immediate noncompliance at the point the permit becomes effective.

So we support it, but we have a number of clarifications, too, that we would like to see. We support it because we think it creates an auditable compliance pathway. It links the BMP approach to attainment of water quality standards per everything that has been written previously about the way this program should be regulated. It establishes an outcome-based approach, which will support the watershed planning. And I think it will also kick start your own staff's practical vision document.

And it is supported by 39 permittees. This is the high point of my career. I will never ever speak again on behalf of 39 separate jurisdictions. Without the compliance, without the compliance option, there is a disconnect between the Water Quality Improvement Plan, the watershed planning approach, and how compliance with the permit is ultimately measured.

So now, to the small print and the clarifications. We have two. We are very keen and certain about how the phrase "numeric goals" is used in the permit. This footnote, which occurs in B.3.a(1), defines your staff's and our understanding of what a

numeric or an interim or a final numeric goal could be. And there are a number of different expressions of the goal. This is consistent with all of the conversations we have had with your staff over the stakeholder process over the last 18 months. It is also entirely consistent with the conversation that I and my colleague, Nancy Palmer of the City of Laguna Niguel, had with Wayne last week.

So the concern for us is, when you get to the following section, numeric goals appear to be only concentration-based or load-based effluent limitations. This is inconsistent with prior assurances. It is inconsistent with the prior definition. And these terms have particular regulatory significance for us. So what we would like is to see numeric goals defined as they are defined in the footnote, and that can be accomplished simply by striking out those phrases that are in the middle of that section.

So next, the second clarification, and we have talked about this previously, again, it gets to the heart of compliance with this permit. Currently, the compliance option, there is explicit language that links back to Section A. What we need is language that links forward from Section A to the compliance option.

Per the Ninth Circuit decision, each provision

in this order is separately enforceable. And it was discussed: Are there other cases out there, lawsuits teed up to take advantage of this provision in the permit?

The City of Stockton case in 2009 is the most egregious, when a group of water districts in the Central Valley thought they could get additional allocations of water, and they sued the City of Stockton for contravention of the water quality standards.

There is also the NRDC-L.A. County case, the City of Malibu case, and I believe there may be a case out of the County of Santa Barbara. So they are there. They are real. They are a threat. We take them very seriously.

So this is my only means of getting this into the record, but we would offer language that would restore that linkage or create that linkage between the two sections. Some references: "A," we would put the references forward to be three discharge prohibitions and, again, the same language referencing B.3.c as the basis for the compliance in the receiving water limitations.

So, to conclude, we think that B.3.c, the compliance option, provides necessary and auditable compliance pathways for the permit for the permittees.

We would look to get clarification of numeric goals per the footnote. We would want to see the nexus between Provision A back to B.3.c and vice versa. And we would advocate very strongly for the inclusion of this compliance option with the clarifications. And I say that on behalf of 39 copermittees. Thank you.

MS. KALEMKIARIAN: Let me ask a question. Maybe this is grammar, but when I look at the section you are referring to as Clarification Number 1, B.3.c.(1)(a)(ii).

MR. BOON: Yes.

MS. KALEMKIARIAN: I was just trying to read back and forth, and maybe staff can clarify; but it seemed to me that, when you read that provision, if it was adopted, and I realize it is still an issue, it is saying: "Numeric goals and schedules developed pursuant to Provision B.3.a include the following numeric goals." So it is not saying you have to have all three of them. It is saying these are the kinds of numeric goals we want you to include.

So I don't actually see the need to strike the expressed as concentration-based or load-based effluent limitation language, because, in three, you have those other numeric goals. I mean, it is a pretty broad set of three categories.

I see a staff head being nodded. Was that the intention? So I just don't want us to be meddling with something that doesn't need to be meddled with. I understand your point. But if this is broad enough to encompass all different ways that copermittees are going to show alternative compliance, basically, it's pretty broad.

MR. BOON: It's broad in the footnote, but by not referencing that footnote when you next use that term and only picking two of the options, two off that list, you seem to be saying: Here, we are looking at the grand scheme of things; there may be biological outcomes; there may be problematic outcomes, and you might want to express it as a delisted water body, the attainment of an IDI score. But when you get to B.3.c(1)(a)(ii), there are only two goals that you can contemplate: the concentration-based load, a concentration-based or a load-based effluent limitation.

MS. KALEMKIARIAN: I guess I just read it differently. It seems to me, this "numeric goals" can be one of the following three things, one, two or three, so that the whole footnote is encompassed by all of that Section A. That is how I read it, but I guess I would like to see how staff is reading it. That is how I read it. I mean, I don't know that they would dispute that

the footnote could be mimicked, but it seems to me the footnote is mimicked. But I guess that is what I'm saying; the language is different.

So Wayne may want to address that. I don't know.

MR. CHIU: I would say your interpretation is correct. The way it is written, it is one or more of the following, and it does say "and/or." Ideally, they would have all of them. But, you know, the numeric goals that would apply to effluent would primarily be measured in terms of a load or concentration.

In terms of receiving water, that could be expressed in several ways, in terms of an IDI score or maybe some sort of measurement of number of species of something. But, you know, the idea is that the flexibility to choose the numeric goals in the receiving water would be where you have maximum ability to choose different types of targets or goals. But then, effluent, you know, primarily would be expressed with a concentration or a load for a pollutant specifically.

MR. BOON: So I think Wayne's explanation gets to the heart of my concern, and I want to offer one example of why this is important. Selenium is a concern for us. It occurs in surface waters. It periodically exceeds the acute criteria. It is coming out of geologic

formations from subsurface flow. It is not anything that has been done in terms of the disturbance of the landscape through urbanization.

There are currently no technologies that we know of that can take selenium out of the water column with any sort of cost effectiveness. So, in that instance, simply participating in a research project, a collaboration with a UC system university, to figure out how we deal with selenium might be a numeric or interim goal. It doesn't lend itself to an effluent limitation.

MR. CHIU: I'm sorry. I misspoke earlier. I was looking at the wrong section of the permit. I was looking under the water compliant improvement plan where it can set numeric goals. But if we are talking about Provision B.3.c, where they are setting the numeric goals there, actually, all three have to be included.

So, you know, there needs to be concentration or load-based effluent limitations for TMDLs, concentration-based or load-based effluent limitations for 303(d)-listed pollutants, and then also a component within the receiving water to demonstrate that, you know, the discharges from the effluence spore are not causing or contributing to an exceedance of water quality standards.

So it is the third component, really, that

definition in the footnote that Richard was referring to, where you could have that maximum flexibility. But like I was saying before, for a discharge from a pipe, we would be primarily looking at a concentration for load to demonstrate to us that it is not causing or contributing to an exceedance of water quality standards.

Does that make sense?

MR. BOON: To Henry.

MS. KALEMKIARIAN: Yes. I don't know right now whether it's semantics or not. I understand the point that is being made, that that footnote 6 is defining what can make up interim and final numeric goals for the Water Quality Improvement Plan. Okay. And then the compliance option says: Numeric goals and schedules developed pursuant to B.3.a, which I was just reading, include the following numeric goals. It does seem . . .

Should those mirror each other? I guess that is the question. It seems like they should.

MR. CHIU: I don't think they should. For the compliance option we are talking about, basically, the copermittee must demonstrate that their discharge is not going to cause or contribute to an exceedance of water quality standards. They must also show that the receiving water itself is not being impacted by that discharge. So, you know, that's why all three of those

need to be included as part of the compliance option.

We believe it's a fairly high bar, and that is probably why they would like to see the bar lowered a little bit. But we purposely set that bar high because we believe that, if you have all three of these goals in there, the copermittee can in fact demonstrate to us that they are not causing or contributing to an exceedance of water quality standards.

CHAIRMAN MORALES: You know, we are talking about the compliance option. This is partially a rhetorical question. But am I losing my mind? The recollection I had from the last two days was that the copermittees thought the compliance option wasn't going to do a whole heck of a lot for you. And you said that you needed more; in your estimation, it wasn't going to protect you from anything.

I mean, I won't prejudge or anything, but you almost convinced me. And now, you know, you are saying that we have got 39 copermittees that are in support of it. What changed in the last month?

MR. BOON: I think that it comes down to wanting to see alternatives and options, and we will grasp anything that is out there, because, right now, we are all of us out of compliance with our permits, because when it rains, there are levels -- there are

concentrations of constituents that exceed water quality standards.

This starts to get us towards a basis of attainable compliance. It may work very well where you have a small watershed area where you have very little inputs into the system other than urban services. So I think some people think that it is going to work well for them in some very specific instances; in which case, it is much better to have an option than no option at all.

The other part of this is, I think that last time we were in front of you, we had only had I think seven or eight business days to look at the permit. And now we have had a much better opportunity to digest the language, to talk to your staff, to talk between the three counties. And the consensus is that people want with these clarifications this option to be retained.

MR. ANDERSON: So I'm asking you: You support the Option 2?

MR. BOON: Option 2, retaining this alternative compliance thing -- module in the tentative order, yes.

MR. ANDERSON: I have a quick question. Did you see the amount offered by the Region 9, John?

MR. BOON: John Kemmerer's tweet, we are happy to accept that. On his biofiltration language?

MR. ANDERSON: Right.

MR. BOON: That is not a problem for us.

MR. ANDERSON: I do have a comment about the round peg, just to digress a second, a minute of levity. My interpretation was that it was the Regional Board and the EPA that turned the Clean Water Act into that type of thing, because the only way they knew how to do water cleanup was through NPDES point source. I don't think the Clean Water Act actually contemplated doing it the way it is being done.

MR. BOON: It was an act of regulatory expediency, yes. Thank you.

MR. STRAWN: So we are up to Riverside County or do we have somebody else from Orange?

MR. OGAWA: San Diego County Copermittees.

MR. STRAWN: Go ahead. We have 19 minutes left for the copermittees; and then there is a 30-something-minute rebuttal. And we need to discuss where to use that.

You are not the man with the silky horse, are you?

MR. OGAWA: Not silky, buttery.

Honorable Chair and Board Members, my name is Mikhail Ogawa, and I'm the Clean Water Manager for the City of Del Mar. However, today, I'm here as a representative of the San Diego County Regional

Copermittees. My statements represent the general consensus of the San Diego Copermittees.

First, the copermittees thank the Regional Board and your staff for acknowledging and initiating eratta sheets, taking into consideration the comments and recommendations that were provided at the April hearings.

I'd like to start anecdotally. It is tough to follow Richard, so I have got a little story that I would like to tell. It is coincidental that, today, my five-year-old son is also making a pretty big presentation at his school this evening.

This morning, we were comparing notes and feelings of nervousness. And I was expressing, you know, I'm a little bit nervous. I have got to get up in front of lot large audience with my back to a lot of them, and they are probably making faces and whatnot.

He expressed no nervousness, and he said that he's very confident in what he's going to say. So I wish I could share some of the fun facts about the black jaguar that he's going to be sharing this evening, its preferred habitat, its eating habits, and how it chases down and kills its prey. But I'm going to be talking about some of the technical issues that still remain for the San Diego Copermittees in the MS4 permits.

However, before moving into those technical

comments, the San Diego County Regional Copermittees support the testimony and presentation provided by Richard Boon of the Orange County Copermittees regarding the compliance option identified in Provision B.3.c.

The first item, technical issues related to the TMDL compliance language, we appreciate the board staff's proposed revisions through the eratta to Attachment E based on our comments in April and where we change the "copermittees" from a plural to a possessive singular. This more accurately puts the copermittees in a position to be accountable for their actions.

However, changes were not made in all cases where the plural form of "copermittees" is used. We remain concerned about being held accountable for the actions or, more importantly, the inactions of other copermittees. While we are committed to work together and support each other's water quality improvement goals in each watershed, compliance should be determined on a jurisdictional by jurisdictional basis.

So we would request you make minor modifications to the errata sheet and the tentative order as expressed to you on this slide. What we are recommending is replacement of the plural form of "copermittees" with a singular possessive form of "copermittee's" into a few more of the compliance

provisions in Attachment E.

The second and last technical issue, the pre-development baseline requirement of the hydromodification management requirements, this topic has been discussed previously. The requirements as currently stated are for jurisdictions to require that redevelopment projects mitigate for hydromodification impacts that are not caused by the redevelopment project.

At previous workshops and hearings, you have heard the engineering principles as to why this is an inappropriate requirement. We would also like to reiterate that this requirement presents significant legal liability to the copermittees. We believe that the pre-project terminology or standard should be used instead of pre-development. It is still the most appropriate standard for this provision.

However, to pick up on one of the board member's comments at the last -- at the April hearings, if we cannot, if we are not successful in obtaining the pre-project standard, we'd like to offer a footnote that would allow the copermittees the discretion to address the legal concerns.

And that footnote would be proposed into provision E.3.c(2)(a). And that footnote would read: "The pre-development runoff condition standard shall be

applied to the extent allowable under state and federal law. A copermittee may modify the standard for a particular project where the copermittee finds that application of the standard would exceed the copermittee's authority under applicable state or federal law as applied to that project."

With that, I will answer any questions.

CHAIRMAN MORALES: On the footnote, the four words that jump out at me are "where the copermittee finds." What does that mean?

MR. OGAWA: Where our legal counsels determined that a particular project, the pre-development requirement would exceed our authority to require mitigation; where there is no nexus for the impacts, that we would be allowed the discretion to modify those requirements.

CHAIRMAN MORALES: You put five lawyers in a room, and they all come out with five different opinions.

MR. OGAWA: And I'm no lawyer.

MR. ANDERSON: 39.

MR. MORALES: Yes, 39. All right.

MR. OGAWA: Thank you.

MR. ANDERSON: Thank you for your constructive suggestions.

MR. STRAWN: Are there other copermittees from

San Diego County or are we up to Riverside?

MR. UHLEY: I believe we are up to Riverside. If I may ask, if you could let me know when there is about six minutes left on the clock.

Good afternoon, Chairman Morales and Members of the Board. My name is Jason Uhley, Chief of Watershed Protection, Riverside County Food Control, providing comments on behalf of the Riverside County Copermittees.

I just real quickly want to reiterate that, in Riverside County and the cities in Riverside, we are always facing multiple mandates and expectations for police, fire, social services, as well as expectations from our residents for clean water, clean lakes, rivers and streams. So we are always looking for innovative and cost effective ways to try to address those competing mandates.

So I would like to lead off by first thanking board staff for listening to our testimony that was provided at the April hearing and addressing several comments that were raised by us. I have identified a few of them here. I didn't provide an exhaustive list. But as a result of their recognition of some of the issues that we raised, we will be able to do a little bit better job and be able to be a little more innovative and be able to be a little bit more cost effective. And so,

thank you for that.

I'd also like to support the comments made by Richard Boon on behalf of the 39 copermittees. We need a pathway to compliance. We desperately need a pathway to compliance, and it needs to be incorporated into these stormwater permits. And so we do support Compliance Option 2. We do have some reservations. I will talk about that in a second. But we need something. So, from that perspective, we are supportive. We also support the modifications that were mentioned by Richard Boon from the County of Orange in his testimony, the two issues that were discussed.

I'd like to additionally note, on the issue of liability and risk for third-party litigation, I think some of the older permits were structured in a way that did make that litigation more challenging to bring forth. But the way the monitoring is structured in this permit, I think it is going to make it much easier to bring litigation forward, because it addresses some issues that were raised in the NRDC versus L.A. lawsuit.

And so, we may not have seen litigation here in the past, but we have an increased liability moving forward. That is part of the reason why we very much need this compliance option, so that we can continue to do a good job with protection for the recommendation of

doing a good job.

And I know there was a lot of comments last time about safe harbor, and this permit is not. This permit receiving water limitation and compliance option is not a safe harbor. As was previously discussed, this sets a very high bar for the copermittees and asks for a lot in terms of study, in terms of monitoring and data collection, in terms of assessment of receiving waters.

We have to do separate studies for each pollutant water body combination for which we want coverage, and it is going to be very costly and time-consuming. This is not a walk in the park.

And we also have to commit to plans and schedules. We only have coverage as long as we are compliant with the plans and schedules that we put forth in our compliance option. And we are very much concerned about our ability to do this and the costs that could be associated with doing this, particularly for a small region like southwest Riverside County where we have got fewer than 400,000 residents right now.

And so, as we move forward, we are very carefully going to be watching how San Diego County and San Diego City address the receiving water limitation compliance options. We are also going to be following very closely what's happening with the State Board in

L.A. And based on what we see there and based on what we find as far as facts on the ground from Riverside County, in terms of our efforts to try to figure out how to move this forward, we may come back with additional recommendations when we submit our report of waste discharge. But I want to be clear that we support inclusion of this option now, because we need a path of compliance.

I also would like to thank board staff for attempting to address our comments on the critical sediment yield area provisions in the permit related to hydromodification. At that time, we had asked to make sure that those provisions focused on impacts to receiving waters as opposed to just the sediment yield areas themselves.

They did make an accommodation, but the way they accommodated it, I'm still concerned it is going to be challenging to address, because they are asking us to determine or to verify that there will be no net impact to receiving waters.

In the science of assessing sediment movement and management and impact on receiving waters, it is very challenging. And I'm very nervous that, ultimately, this is going to result in a lot of problems that the plant encounters, really.

So, instead of talking about whether this can or can't be done or how it can be done, what I'd like to simply ask today is that the Board consider adding to this provision a pathway for the permittees to propose an alternative compliance program. Maybe outside of the crucible or the pressure cooker of this permit adoption hearing, we might be able to find a more innovative and cost-effective way to address this requirement. So we simply ask that you address that as part of your direction to staff today.

The other comment -- there are two more comments. These were issues that weren't addressed in the errata sheet that was produced in May. This has to do with -- the first has to do with flood control projects being regulated as development projects. The development planning regulations are really meant for land uses, residential areas, commercial areas, industrial areas.

But our flood control project is the receiving waters themselves. So we need the time to take these regulations that are really intended for regulating land use and try and apply them to the receiving waters. You end up with some really strange problems about how to apply hydromodification and how to do the BMP-sizing criteria in kind of the same way that you run into

problems with road projects, because part of the problems with roads is the MS4. So it is kind of the same issue on a bigger scale.

And so, you know, our understanding is that what the Board is really looking for is trying to ask us to try to minimize the amount of the produce area that we are putting in our receiving waters, and we understand that. We are supportive of that. I would remind you that our mission is not only to provide flood protection but to protect the beneficial uses of receiving water. That is part of our mission statement. And so we are very supportive of that.

Unfortunately, we think the way that the Board is trying to get at this in the development provisions is inefficient, and it kind of interferes with our effective implementation of our regulatory mandate or our statutory mandate. And so, we think there are better ways to do this. I think the right way to do it would actually be through the Board's existing authorities, through 401 Certification.

But, as a compromise, what we provided here is an additional exemption for flood control projects that basically asks us to minimize impervious areas where feasible and where it doesn't impact public health and safety. And so we are trying to provide a middle ground

here to try to address this issue.

We are also concerned with the redevelopment language, because the redevelopment language may trigger the development requirements for some of our maintenance activities. From time to time, we have to replace concrete panels in our slope paving or do other activities like that. So we were additionally going to ask that the language I read at the bottom of this page be added, which is actually from the L.A. permit and exists in other permits in the State of California. That would just clarify that our regular types of maintenance activities are not subject to development requirements.

And then, finally, Chair Morales, at the last meeting, I believe you had asked for an offer of proof of additional items we might raise if we had more time to discuss them. And I would point out that we would probably have discussed two things.

The first is the change to the definition of "illicit connections." The new definition of "illicit connections" doesn't seem to differentiate between legal and illegal connections. And it also seems to expand the scope of the definition beyond the federal regulatory requirements. So we would want to see that definition brought back to what was proposed prior to March.

And the second thing I think we would talk

about would be the changes to the WQIP provisions that were included in the March revisions to the permits. The WQIP provisions became much more prescriptive in March and we think less flexible, kind of contrary to the goals that have been stated in terms of what we were trying to accomplish with the permit. And so we would have spent time talking about that. That gets back also to the issue that you raised, Board Member Anderson, earlier about the C, D, and E. We would spend more time talking about that.

But in the interest of trying to make some immediate changes that would be helpful, we did propose on these next two slides some very minor modifications to Provision B.3, which is the WQIP provisions, and B.2 that we think would help to either clarify flexibility that we think the board staff intended, but maybe wasn't clear in the writing of the permit, or make clear that, for provisions where there are long lists of things that you must do that you only must do them where they are applicable to the specific watershed management area.

And so, with that, I would like to thank you for your time; and I would be glad to any answer questions you may have.

MR. ANDERSON: So you are supporting Option 2 as well?

MR. UHLEY: Yes, sir.

MR. STRAWN: That brings us to the City of San Diego, Kris.

MR. McFADDEN: Good afternoon, Board Members. I'm Kris McFadden. I'm the Deputy Director for the City of San Diego Stormwater Division, Transportation and Stormwater Department. I've submitted a green card today. And that might be different from what you have seen before, but this is in full support of Option 2. To be clear, it is not for Option 1. The support for the green card came only because of the Option 2.

I do want to thank again the staff. Up to the last minute, they have been communicating with us, really taking it into consideration. And we have gone through, and we have been cutting bait for a long time, and maybe it's time to fish. And we would like to get started.

I do think that the Water Quality Improvement Plans are the right approach. Like we have mentioned before, they do give us a pathway to compliance. It is very clear. Also, I think we have worked diligently with the board staff and EPA to get their concurrence that Option 2 is a viable option, and it's really coming down to your decision if you are going to allow that, for the cities to use it.

I think this ultimately provides a really

viable compliance method and goals for all of us to actually understand. And this slide you have probably seen before, but I still love it, and it came from the City of Carlsbad again. Could you imagine if I went to the Mayor's office and saying I need money for this. I would get laughed out of the room.

Of course, we have a lot of different options worth looking at here. But, really, to me, when I can take the Water Quality Improvement Plans and comprehensive load reduction plans and roll all of these issues into one, and this is what really got me a lot of attraction when I started talking to elected officials and our budget director: "What is it going to take to comply with all of these regulations?"

We are able to take these comprehensive load reduction plans that have numbers associated with them. Maybe they are not perfect, but we needed a starting point, and it really got people's attention. And what we were able to do is incorporate these into our annual budget and even into the City's five-year financial plan, where we are seeing incremental increases every year over the next five years.

I go into budget deliberations this Friday. So I am going to be getting a lot of questions about compliance options and how much is this going to cost us.

So the CLRPs and the Water Quality Improvement Plans have been extremely helpful for me to be able to communicate this information to my elected officials.

Also, a lot of these costs are being rolled up into bond-financing options. At the City, we are actually going out for $5 million of bonds for water quality improvement projects in fiscal year '14. We are looking at about $20 million that we are getting in fiscal year '14 as well for deferred capital just for storm drain maintenance.

So a lot of these cost figures are going into our debt management department, too, to make sure that we are able to meet our bond demands in the future. So I really feel that this is a really clear link for water quality compliance. And it helps us communicate to our elected officials the importance of this.

It also helps us to annualize funding for really long-term efforts, like TMDLs that do have a 20-year time frame, and also start working on those projects that maybe we won't need as many TMDLs in our future, or hopefully any, so that we can just improve water quality based on the permit alone.

So I will close and be brief. Really, the Option 2 is the City's most significant issue. It has been a long road to get here, but we do support Option 2

to be included. And with that, you will have the support of the City of San Diego. Clearly, this is not an easy way out financially or workload for the City. The CLRPs have indeed required us to adjust our five-year budget projections up significantly, millions of dollars each year.

So I do really hope that you will give us the option of using the Option 2. And I will be happy to answer any questions you have.

MR. ABARBANEL: I have a question, if I may, Kris. How does the City of San Diego -- what is the funding source for the City of San Diego in meeting these obligations?

MR. McFADDEN: Currently, we have about a $34 million budget. Six million of that is generated from our storm drain fee, which hasn't been raised since Prop 218 passed past back in '96. And the remainder is from the general fund and some from parking citations related to street sweeping.

MR. ABARBANEL: So the storm drain fee was what?

MR. McFADDEN: It is 95 cents a month for single-family homes, and it generates just under 6 million a year.

MR. ABARBANEL: So what percentage?

MR. McFADDEN: Oh. Of the $34 million, 6 million comes from the storm drain family.

MR. ABARBANEL: And you haven't raised that since 1904, you are saying?

(Laughter.)

MR. McFADDEN: 1996, Prop 218.

MR. ABARBANEL: And the rest, more or less, from the general funds?

MR. McFADDEN: Correct.

MR. ANDERSON: Does some of that general fund allocation include bond for infrastructure with it?

MR. McFADDEN: On top of that $34 million, in fiscal year '14, we are bonding for 5 million for water quality improvement projects and approximately $20 million for deferred capital money that is going to storm drains, which do indeed have a water quality benefit.

MR. ANDERSON: That adds up to $50 million.

MR. McFADDEN: Correct. And that is not accounting for the cost to other city departments for their compliance.

MR. ANDERSON: Parks?

MR. McFADDEN: Correct, parks and rec, fire stations.

MR. MORALES: The City of San Diego, you guys do a great job. And you even get compliments from "the

Indios," you know, first thing in the morning. And were it just the City of San Diego that we gave a compliance option to, I would have zero concerns. It is not at all that I would worry about it. It is just, I'm not thinking of a jurisdiction in particular, but you give an alternative compliance option to a municipality or copermittee that isn't genuinely interested in exercising it, and they could, I think, find creative ways to do perhaps do less than they should.

MR. McFADDEN: If I may offer, when we work on the Water Quality Improvement Plans, they are, of course, watershed based. And I have seen a positive response when we can go to other municipalities and say, if you do participate in this in dual posture with the City and the other municipalities in the watershed, I think it gives us a better argument to say you have this as a compliance option. Therefore, I would say that they would be more likely to actually fund that option, instead of taking the alternative of potentially being out of compliance. That would be -- just from some conversations I have had before, that's my experience.

CHAIRMAN MORALES: Thanks.

MR. ANDERSON: I worry more about the City than the other guys.

(Laughter.)

MR. McFADDEN: I won't take that personally.

MR. STRAWN: I think we have the Port of San Diego, Mr. Brown.

MR. BROWN: Good afternoon, Chair and Board Members. I don't have a PowerPoint. I submitted a red card, but perhaps our card should have been green as well. We submitted a red card last time because we had some other technical issues with the permit.

But we are here primarily to raise only one point today, which is that we support Option 2. We believe that Option 2 is fair and reasonable. We believe it does give the parties a path to compliance, and the Port is very committed to doing that.

I will speak briefly about one of the questions from one of the board members about whether the litigation threat is real. I work locally at a local environmental law firm, and we see a lot of the stormwater litigation going on, and it is very real.

I will give some examples. The NRDC case against County of Los Angeles, even though the Supreme Court has heard it and it has been remanded and it is still going on and NRDC and the County are still at it, the County has now sued the County of L.A., and we are trying to straighten that out, but that is going on. That is very real.

Locally, the shipyards case here in San Diego, the primary reason that the City and the Port are in the shipyards NASSCO litigation is allegations that our MS4 system is feeding the problem. The Port has tried to look at this. We know we have spent well in excess of $5 million on litigation in that case and probably close to $10 million. And none of that money has been used for cleanup. This is a litigation machine.

The next case is the Teledyne Ryan case, which is still going on. It has been going on in this city for more than a decade. That case is also primarily about the storm drains and what is going on with that, feeding it from the Teledyne Ryan case and the facility. And that has also been in the multiple million dollars of litigation costs and still under continuing jurisdiction.

We also have the Lake San Marcos litigation that is now going on, which is primarily about stormwater drains feeding Lake San Marcos. As I mentioned, this is only one small law firm. And we are in the middle of at least five or six litigation matters dealing with storm compliance and these permits. The Supreme Court in their footnotes have made it clear that these will be the drivers of what is coming at us.

In addition to that, I believe that there is probably at least a dozen administrative matters before

this Board where the key to it will be the storm drains feeding San Diego Bay. And so, this has a very big potential impact for litigation.

MR. STRAWN: We are out of presentation time. There is still 36 minutes of rebuttal time. I don't know if we want to go ahead to eat into that to finish up.

MR. BROWN: I think we are viewing this as kind of a block, and I only have got one minute left, which is to say: We think this is by far the best option. We think that one of the reasons why we really need this help of having some additional time is because TMDLs are new. They were not in the prior permits. That is like pouring gasoline on the fire. We are going to have a whole bunch of compliance issues that we never had before. We see more administrative actions. We see more litigation. All we want is a chance to comply.

And we apologize that we didn't get this message through clearly enough the time before, but we strongly and desperately support Option Number 2.

THE REPORTER: I didn't get your name.

MR. BROWN: I'm Bill Brown for the Port of San Diego. I did take the oath.

CHAIRMAN MORALES: Mr. Brown, that litigation that you are talking about -- and I know a little bit about litigation -- you mentioned five cases for a number

of different municipalities and agencies. I would venture to guess that, before every single case that an agency or municipality is having to argue with respect to stormwater issues, they are dealing with at least 100 or a couple 100 others. I mean, it is a very small part of that portfolio.

When I hear concerns about litigation, it always reminds me of what my first-year civil professor, "civ pro teacher," in law school said, which was, you know, somebody said: Well, how do you prohibit litigation? And he said: You can't. You can sue the Bishop of Boston for bastarding, but you have to prove it.

I don't know that there is anything that we can do to keep you all from being sued. I mean, that is maybe more of a legislative thing. And I hate for somebody to think that, you know, this is the answer for that concern. Regardless of what we do, it is going to be a concern.

MR. BROWN: I agree with you, Chair. But the difference is, with Option 2, we will not be in immediate violation the minute you adopt the permit. If you adopt the permit without Option 2, as has been said here before, we will be in immediate violation and subject to strict liability that day.

With Option 2, we can say we are marching forward with compliance. The case is not ripe. We are going down the path of Option 2. And then, although you mentioned that, what municipalities are facing, this is only a small part of the case, actually, it's part of their budget. It is huge, I would say, for the Port San Diego, 80 to 90 percent of their litigation costs and litigation exposure.

And I will just talk about costs, because I've been involved in those. And I know what the Port is spending on outside attorneys these days in litigation. 80 to 90 percent of the Port's costs for litigation are arising out of environmental problems, and almost all of that comes from stormwater. And that litigation money may be great for lawyers and law firms, but it is not helping get these problems solved.

And by setting us up for strict liability the minute you pass this measure, we are looking at a really bad scenario. If you give us Option 2, we have time to try to explain to the courts and everybody that we are marching forward on the path, and these lawsuits aren't ripe. And that is a very, very big issue for us; and it is protection that we feel you can give us.

MS. KALEMKIARIAN: I want to address this question not so much to the Board as to the staff in

response and really to ask speakers to address this. I understand what Chairman Morales was saying.

I just finished doing a cross-stitch for my nephew, who is graduating from law school next week, from Abraham Lincoln, which says: "Discourage litigation. Persuade your neighbors to compromise." And I believe in that as an attorney.

To me, the question is: Are you going to get sued or not? You are going to get sued if someone wants to sue you. To me, the question is: How do we get a permit that everyone can agree on and that our staff feels they can hold the copermittees accountable for their obligation under the law?

So my question to the staff and to the NGOs and the other copermittees is: By including Option 2, are we so eviscerating the power of the agency that we are not going to get compliance or be able to seek compliance or do we offer a compromise that some people will like and some people won't like?

I guess I'm sort of showing my hand. That is what I think that staff was trying to do. But I'm not going to be in favor of that if the staff is going to step forward and say: Oh, my gosh. We included this because we got hammered, but it is going to really take away every power we have to enforce.

Now, I don't read our staff as doing that. And I guess I need to the hear from the NGOs why you think that might be what happened here or whatever you do think happened here, because I want to know that. But I see this Option 2 as a compromise. And whether it protects you or not, I don't know; and, frankly, that is not my job. Whether it will enforce regulation and get us toward compliance with the Clean Water Act, that is our job.

And I want to hear whether this can do that or not, not necessarily right now, but over the course of the next hour or however long we are going to be here.

MR. BROWN: No. I have something to say, but I think Mr. Gibson was going to speak, and I always appreciate what he has to say.

MR. GIBSON: I will gladly defer to Mr. Brown.

(Laughter.)

MR. BROWN: Okay. But I already deferred to you, but I will go first.

I don't think that this will eviscerate the ability of compliance. You heard USEPA today say that this is a reasonable plan that would allow us to go forward. It is not letting us out. It is just saying you get some time. There has to be a plan. It has to be approved. We have to march forward. We have guidelines,

but we won't be in violation tomorrow; and that would be a wonderful thing.

I want to applaud the staff and Mr. Gibson. I think they did a wonderful job of coming up with this Option 2. It came a little late in the game; but, boy, we are happy to have it on the table. We want to make sure that we understand, that everybody understands how much we appreciate this, and that we really do endorse Option 2. I do apologize if we didn't make it clear the last time how much we want this, but we really do want this.

CHAIRMAN MORALES: You made it clear, you thought.

MR. GIBSON: Mr. Chairman, if I can. Thank you, Mr. Brown. I sincerely appreciate your comments. I do want to offer, though, I think, one important clarification in disagreement with this statement.

Option 2 is only operative if the Board adopts that Water Quality Improvement Plan and makes those specific findings. And so, adoption of this tentative order today with or without that option, the receiving water limitations obligation is already in place. The receiving water quality objectives are already being exceeded. That condition of vulnerability exists today, even without this tentative order, and that condition

will most likely continue for some time. It is really a question of how do we address those pollutants of concern.

I do think we should hear additional testimony before we go on with this discussion much farther. I think that that will help round out our discussion. But I just wanted to offer that one quick clarification.

MR. BROWN: I agree, but I do think this: As you have heard from all of the people who have come up here and talked about this recently, this is a much better option, and we really endorse it.

MS. WITTE: Excuse me, Chairman. Can we take a short break so we can switch out reporters, please.

CHAIRMAN MORALES: Yes, we can.

(Whereupon, at 4:53 p.m., a recess was taken to change reporters.)

I, Bonnie G. Breen, Certified Shorthand Reporter for the State of California, do hereby certify:

That the meeting was taken by me in machine shorthand and later transcribed into typewriting under my direction and that the foregoing contains a true record of the meeting.

Dated this 21st day of May, 2013, at San Diego, California.

_____

Bonnie G. Breen
CSR No. 5582

STATE OF CALIFORNIA

REGIONAL WATER QUALITY CONTROL BOARD

SAN DIEGO REGION

WEDNESDAY, MAY 8, 2013

WATER QUALITY CONTROL BOARD

BOARD MEETING ROOM

9174 SKY PARK COURT

SAN DIEGO, CALIFORNIA

MR. MORALES: Everybody take their seats, please.

MALE SPEAKER: I wasn't even going to speak today. I just want to let you know that the -- collectively the copermittees would like to reserve their remaining time for closing argument.

MR. MORALES: Okay.

MALE SPEAKER: I think everything kind of got bunched together into one block. And as I understand from Board Member Strawn I think we have 30 some minutes. 34. Thank you.

MR. ABARANEL: Three and a half now.

MR. MORALES: We're going to -- actually it's not really taking something out of order, but we do have -- and she has been here since noon and will be leaving soon, Dr. Lynn Reaser from Point Loma, who authored, I guess, the study that was commissioned by the city on the economic cost benefit. And the only reason I raise this is because she will be leaving soon so if there are any board members that have specific questions for the author of that report, this would be the time for us to ask them. I don't believe any -- any other folks in the audience get to question her, all that time as passed. She is simply here and

able to us if we have questions.

MR. KELLY: My name is Colin Kelly. I'm the staff attorney for Orange County Coastkeeper. We would like to reaffirm our objection to the inclusion of this report. We think that presentation does bias us since our reports that were submitted were not accepted.

MR. MORALES: Dr. Reaser will not be making a presentation and she may not even open her mouth if we have no questions, quite frankly. So unless there are any board members that have questions.

MS. KALEMKIARIAN: I did.

Thank you for coming. In the executive summary it states that there was an alternative strategy developed by Western Water Solutions, which had a tiered approach over 20 years and those costs parameters were used in the report's analysis. So do I understand that you were using it as the basis for your cost analysis, a strategy that -- this Western Water Solutions strategy, whatever that is.

MS. REASER: Yes. Western Water Solutions had proposed a 20-year strategy and that was the basis for our cost estimate of about 3.7. We did the economic impact of that analysis.

MS. KALEMKIARIAN: Okay. That was my only question.

MR. ABARANEL: You -- you based part of your cost analysis on the cost of parking at the beaches.

MS. KALEMKIARIAN: Right. That was my other question. Thank you.

MR. ABARANEL: I presume that was the City of San Diego, because if you think you can park at the beach in Del Mar for that amount, I would like to ride with you.

MS. REASER: Yes.

MR. ABARANEL: By the way, it's free in Encinitas.

MS. REASER: Thank you, Professor. As you know, we did the study and did look at these three elements and one was implicit value of beaches to be able to access more water day, beach days in the year. And so to try to value the implicit value of that we looked at different parameters and used primarily that $10 figure from the City of San Diego, knowing that some people will obviously value a day at the beach considerably more than that $10, but some would value it less. So we use that $10 basically as our best estimate to try to

gain a true measure of implicit value of beach access to the residents of this region.

MS. KALEMKIARIAN: I did have one other question -- go ahead.

MR. ABARANEL: I was also interested in when assessing benefits you didn't assess the benefits and -- I must say, I was thinking of Gary -- of recreation at lakes and rivers which could be polluted by bacteria as well.

MS. REASER: Yes. That is a legitimate concern. And we did address that in our report. This focus was primarily on the beach area although, again, the huge cost differential between benefits at about 617 million and 3.7 billion was still large that we viewed that, even if you included the benefits of the rivers and streams, that would certainly raise that potential benefit. But you are certainly correct, we did not include all those other recreational areas, but we did mention it in our report.

MR. ABARANEL: This report was written in 2011 and the permit before us is written in 2013. Previous permits, as we have heard, emphasize action rather than outcomes. How much would you estimate the copermittees in focusing on outcomes

instead of only actions can save, and, therefore, decrease the cost and increase the benefits.

MS. REASER: I think the numbers that we used in this report are still legitimate. We talked about inflation before. We basically did all of your analysis in terms of constant dollars, and so I think the overall parameters are still legitimate at this point.

MR. ABARANEL: Okay. My question wasn't about inflation, it was about change in strategy.

MS. REASER: I'm sorry. Then I think the -- the strategy, for instance, as you look at option two, and we look at the approaches, we recommended a less costly approach that would achieve the same objectives. And so, for instance, using more active stream management, more aggressive street cleaning, more active trash pickup, more use of best management practices. All of those less costly motives could be highly effective in various individuals that we spoke to in achieving these very important objectives that you're trying to reach.

MS. KALEMKIARIAN: I just -- the economic benefits analyzed didn't include the benefits of the planet.

MS. REASER: Well, we certainly did look at the economic benefit to the planet in some respect. Clearly the value that people put on beach activity is obviously of value to the planet. Second, the economic benefits that we structured in terms of the implementation of tourists to the beach activities, that certainly has a very important preferable benefit to the planet. And, third, the health benefits are also important to the planet. It would be hard to really measure planet benefits. We have done that in some of our previous studies where, for instance, we look at the reduction of greenhouse gases and that I did mention. But --

MS. KALEMKIARIAN: It doesn't --

MS. REASER: This does not come with that kind of a measure.

MS. KALEMKIARIAN: No.

MS. REASER: We looked at various studies and this is the first, to our knowledge, that's taken as comprehensive approach that we did, looking at not only the implicit value of the beach, the economic benefits it terms of restaurants and stores and all that economic benefit, and also the reduction in healthcare costs as well as the work cost loss and additional costs

of healthcare. So this is the first study where we tried to blend all of those elements together.

Did we miss some, certainly. I -- I believe we have. We did the very best we could to capture everything that we possibly could to quantify it. And, again, we started out with a very objective few. I happen to have a passion for the environment myself. When we do studies we go in with just the view that we will use our best economic theory, tools and evidence and let the evidence fall where it may. And, quite frankly, we were surprised at the big gap between cost being about six times the economic benefits and so I agree it should have been captured and I would have loved to have captured, we just don't have the tools or data to do so. I think that those still would be encompassed at a significant gap between the cost of the most expensive report in bringing a more reasonable lower cost alternative to still achieving those objectives and narrowing that gap between the cost and benefits of this very important endeavor.

MS. KALEMKIARIAN: I guess the problem I have, and obviously it's good and important for us to look at this kind of data, and you're limited by

economic analyses, but there's so many benefits. I mean I can't say the benefit to a citizen is -- or my enjoy-ability is $10 in parking, the effect on Marine life, the effect on the quality of the ocean water, the ultimate effect on global warming, the availability of alternatives measures, which aren't excluded by the permit. And I appreciate it -- I wrote a question here on your recommendations and action step; can't we do these under the permit, of course the municipalities can.

My reaction was "interesting" but all of these benefits that are there, which we can't quantify or put a dollar value on necessarily, but that we intuitively know are there. Difficult to measure. So the gap didn't bother me as much as it might an economist, because I'm looking at it saying there is a lot of qualitative and quantitative measuring we really can't do.

MS. REASER: Right. And in terms of measuring these things, trying to think of how one might do it, one might try to, for instance, ask people what would certain standards, pure water, the environment, global -- you know, what is this value to you.

MS. KALEMKIARIAN: What would you pay?

MS. REASER: And you could do a survey and ask people. The problem with that kind of survey is that there often not that totally reliable. For instance, people ask, you know, what would you pay to be green. They will say one thing, but when they actually are asked to go to a store and there's actually something else they may pay.

Another example is consumer confidence surveys, which you say one thing, but then they do something totally different. So one will ask people their opinions, but even then that's not a hard fast way to come up with a conclusion. Over time I think we will have a better impact of the whole impact of global warming and a lot of scientific evidence, but even now the best scientists, Dr. Abaranel, would probably not be able to actually quantify all of the dimensions of -- of environmental damage that we have done.

MR. ANDERSON: My comment is actually at the risk of delving into the bacteria TMDL that I think is appropriate in a different forum and reopen a requested by the copermittees, my comment is this the more rhetorical economic study is as stated earlier today, the bacterial TMDL is based on improving information there's science. Before

you spend 300 billion dollars in infrastructure -- over 300 billion dollars in infrastructure, don't you think you would spend money on the science? And we know the science is not that far from getting perfect information on bacteria.

MS. REASER: I would just like to comment on that because that is a point that we made in our study looking at various scientific studies and understanding that, again, all of the evidence is perhaps not totally clear, as it rarely is, but that's one of the reasons we recommended going in at a less aggressive lower cost and more -- giving somewhat more time to allow perhaps some of this more scientific research to be undertaken. We could not obtain from that county health authorities, for instance, data on healthcare illnesses that might be related to ocean bacteria. So even though -- that kind of evidence would be very important to understanding and having a better handle on the cost benefits of these programs.

MR. ANDERSON: The TMDL does give everybody some time to deal with this and what we are talking about today which is MS four permit, which is forced to include whatever the TMDL is. So today I want to talk about the MS four permit and then look

forward to reopening the bacterial TMDL with good science.

MS. REASER: I would like to comment that we have done other water studies. We had done a study on the marginal cost of water for Equinox Center. And we did rely heavily on much of the information, for instance, by Coastkeeper and some of these other NGO's. So just to make it clear when we did the study it was done very objectively and we really just tried to bring the best evidence that we could to the table.

MS. HAGAN: Mr. Chairman, I would actually recommend that you allow, if they're interested, the NGO's to ask some limited questions of Dr. Reiser, because this evidence was allowed in at the very last moment of the last hearing day and they might not have had an opportunity -- obviously they didn't have an opportunity to question anybody or consider it except -- except to do written comments. I don't know if they have an interest in asking her some questions, but before -- before she leaves I would recommend that you allow them to do that if they wish.

MS. REASER: Also, this report is on your website and we have some hardcopies here as well.

MR. MORALES: To Noah, or anyone -- and, ma'am, if you're -- you can have a seat.

MS. REASER: I'm fine.

MR. GARRISON: Noah Garrison, with the Natural Resources Defense Counsel. I have taken the oath.

We don't want have any questions at this time. However, I would like to state our agreement with staff that this report is irrelevant to the proceeding at this point, and, respectfully, to request that the board, to the extent you are going to consider this report, that you do allow in this -- the studies that we submitted as rebuttal evidence against this report. The fact that we were offered a comment, we certainly appreciate, but without the ability to back that comment up without supporting evidence really does leave us without any recourse and potentially prejudices us if this does come up in any kind of petition or post-adoption hearing. We would respectfully request that you do accept those studies in evidence.

MR. MORALES: Just so -- so I'm clear, what was the agreement that the report was irrelevant?

MR. GARRISON: Well, we agreed the report

was irrelevant with your staff but to the extent you are going to consider it, the individual board members may be considering or that it is actually allowed in as evidence at this point, we would request the study submitted, along with our response to that report, are also admitted into evidence.

As currently stands, I believe the board has rejected several of those studies saying that staff did not have time to review them, but that really is what lends weight to our response or our comment.

MR. MORALES: I think it was maybe three out of five studies. Several of them are already in the record.

MR. GARRISON: I believe two of the five were, yes.

MR. MORALES: The problem isn't -- the problem is one of timing and staff has to review those, respond, we open things up and we're back here in August.

MS. HAGAN: I did want to point out that similarly the cost benefits report, all of the studies referenced in that document, if they're not already in the record they're not -- they were not

added to the record by virtue of the report being allowed to be entered into the record.

MR. GARRISON: But the report itself was entered into the record and that's what we're concerned with. Anyway, I don't want to belabor the issue and thank you for your consideration. We just wanted to raise that point again.

MR. MORALES: Okay. Thank you. Then, Dr. Reaser, thank you.

MS. REASER: Thank you very much.

MR. STRAWN: I think were up to the NGO's. The order I have is the NGO'S next. Is that -- did I get that out of order?

MS. HAGAN: That's right.

MR. GARRISON: This is Noah again.

MR. STRAWN: I -- I show you have about between minutes.

MR. MORALES: Do you want to save any of that for rebuttal?

MR. GARRISON: We would. Thank you Chairman Morales. We would like to save five minutes for rebuttal.

Again, Noah Garrison with the National Resources Defense Counsel. I have taken the oath.

Thankfully I think I have given some of

the testimony that -- that has occurred before us today. I'm going to significantly shorten my presentation. The first thing I will talk about is the low-impact development. We voiced our concerns about bio-filtration as being allowed to permit requirement before, but at this point I think the language that the EPA has put forward, at least addresses significant portions of our concerns and we would not object to that as the language in the permit. Clarifying the bio-filtration language is something we would not object to. Moving forward.

There is one provision that we've deleted from the errata, receiving waters must not be utilized to convey untreated storm water runoff from the priority development project to the candidate project. The fact of the matter is you then have a development site that discharges runoff into the receiving water. That water is then conveyed to a regional project of some sort and that's where the treatment occurs.

It is our understanding, from speaking with staff and EPA, that provision was removed because it was redundant within the permit, that it is sort of a given that you can't discharge untreated runoff into the MS four system and

ultimately receiving water, but I would like to get clarification from that from the staff. And if that's the case we're fine with this being deleted.

The staff is saying yes it is redundant.

STAFF MEMBER: It is redundant.

MR. GARRISON: With that, I'm going to move to -- if I can get these to fade away.

The receiving water limitations and our objection to option two and why we support option one.

And the first thing is that we keep hearing again, we heard it at the last hearing, I thought this issue was sort of debunk. We keep hearing that this permit is going to place the permittees in immediate noncompliance and they need a pathway to compliance and they haven't had one and somehow this is going to be -- this permit will completely change the ball game, and I would like to reiterate that's not the case. In fact, in reading a letter that the executive officer put forth this morning, it states, I would note that the same receiving water language, which has been in MS four permit since 2001, has not resulted in undue San Diego Water Board enforcement actions or

citizen suits for receiving water limitation exceedances within the San Diego region. This is the third permit term for San Diego that these provisions have been in place. And with each term we hear, oh, well this is going to take us longer to, you know, fix and longer to deal with that one permit term. And we need to find a compliance mechanism and the only way to do this is to allow us different pathways which will relieve us from compliance with the receiving water limitations.

And they have had a compliance -- compliance process. The process has been in these permits since 2001, but the permittees aren't raising their hands and saying, hey, we have violations. Hey, we need help solving this problem. Hey, what are the next steps the board can help us to go through in order to fix this problem.

They're simply not availing themselves of the process that's been in place for 12 years. Likewise, they have been in violation of their permits for 12 years. This permit change is nothing. And so this new option, this alternative compliance, it really just completely changes the game here. First of all, there is no need for it.

And the state of litigation that keeps being alluded to just isn't coming. I believe I'm the only organization here that is actually involved in any of these lawsuits. It is an incredibly complex difficult deal. This has been going on for almost four years now and it's not over yet. The resources and -- and staff time, and funds, and so forth, just make this generally an almost impossibility for someone to undertake. It's an absolute last resort action that is taken when, in the case of LA County, that particular permittee was actually not even acknowledging they were even a discharger. This isn't something we want to do. We would much rather work with the permittees. We would rather see them proposing projects and proposing different plans that they can come up with, particularly the water quality improvement plans are the perfect mechanism for that. We would rather work with them than against them on this.

Now to Mr. Gibson's point that maybe there's only a handful of small watersheds that this would be applicable to, and that's great and this process isn't something that should be totally thrown away, but should be undertaken as a timed schedule or some sort of compliance mechanism for

the permit. Any permittee that stands up and says, hey, we're having trouble meeting water quality standards. We're having violations of the permit. We want to go through this process. We want to undertake analysis and the modeling, and everything that's needed and work with the board. We would want to be involved in that process and work with them as well. But this shouldn't be in the permit as something that grants them an opportunity for any watershed for any permittee to come up with a plan. And do I realize, as Mr. Gibson has pointed out, it has to be approved by the water board, but it shouldn't be available to every permittee under every circumstance. This should be something that is undertaken as an enforcement mechanism when everything else available to them under the permit has failed.

And to the question that was asked about does this remove the enforcement of the board, the answer, in part is, absolutely, because if this board approves a plan and the permittees implement that plan and violations of the receiving -- of the receiving water limitations or exceedances of the water quality standards continue, then this board says they're in

compliance. And certainly it eliminates any kind of stake that the environmental groups or public at large have because at that point they're in compliance and we have no right to challenge them on that.

With -- with the receiving water, as they are, they still have opportunity to utilize the process. They have the opportunity to come to the board and say, hey, that process that was earlier proposed, we would like you to undertake that with us through our compliance action and we really want to work with you on that. And everyone else, the public, everyone who is outside who is affected by this permit has the opportunity to say, hey, you're violating the permit and I want to get involved with this.

But that option is largely removed if they're allowed to meet the requirements through these alternative compliance options. So I would also like to say, very quickly, that Mr. Brown --

MR. STRAWN: You need to speak a little more slowly. I think our reporter's head is about to spin off.

MR. GARRISON: I apologize. I was trying not to get that comment from you this time. Thank

you very much. I would like to say to the point that Mr. Brown raised, that this doesn't alleviate their need to comply, it just gives them more time. But that violates the requirements of the clean water act. This is a letter from the EPA region three, I showed this last time, writing on MS four permit, in Maryland, that says that backsliding is prohibited in NPDES permits, allowing additional time to complete a task that was required by the previous permit constitutes a less stringent condition and violates the prohibition against anti-backsliding. In the previous permit they were required to meet the receiving water limitations. They were required to me water quality standards.

If the new permit states, okay, you can do a plan, and you now have time -- there's a gap whereas long as you're do that plan you're in compliance, that violates the anti-backsliding requirements and it would be an illegal provision under the Clean Water Act.

Finally, the last thing I would like to say about it is that this board has evidence of concern that we really have an outcome based permit and this is exactly the opposite. What this says is you go through a process. You model. You

study. You come up with a plan. You propose a plan. You then adopt that plan and implement things and then regardless of what the outcome is, you're in compliance. And that's something that we strongly urge against. So as a matter of policy this is a bad provision. As a matter of law it's illegal. And, ultimately, it's something that we would embrace if it was done outside the scope of the permit as an enforcement action, which is something we absolutely oppose being included in the permit itself.

I am going to turn this over to Jill Witkowski. She is going to discuss an additional specific that was added that makes this even more of a problem, but in broad strokes we urge the board to adopt option one with the changes explained by the EPA and to reject option two.

MR. MORALES: Just -- any questions? I have one since it's kind of, I guess, the flip side of the question that Henry asked earlier to the copermittees.

And the EPA was here earlier this morning and they say they're okay with option two. So how do you square the letter you're showing us with what they told us earlier in the morning.

MR. GARRISON: I would argue that Mr. Kemmere has stated in previous proceedings, and I don't want to speak for him, but he has stated there are potential anti-backsliding questions in earlier proceedings. So whether or not they are okay with it in principle, that they feel like it presents a robust process, the legal question is not one that I believe that he thinks EPA has -- has further answered, and, to my knowledge, this is the only ruling in any kind of legal context that EPA has given on the issue and --

MR. KEMMERE: Should I answer that?

MR. MORALES: Sure.

MR. KEMMERE: So what Noah is showing there is a letter from our regional office in Philadelphia and that -- I mean -- we did look into -- we spoke with the people in our office of general counsel in headquarters about this letter, and this kind of situation here, and it really is not a black-and-white question. The anti-backsliding issue, there's a lot of different qualifications in the anti- -- implementation of anti-backsliding. And it's not completely clear that is -- that this provision would constitute an anti-backsliding. I can't come out and say that,

you know, if -- depending if there is a court -- a court has to deal with, sometimes they might interpret something differently than this.

But our view is that the way that the staff here has developed this option two is rigorous. It has that quantitative analysis and, again, we think that it is a workable approach. Our preference would still be, as I said earlier, option one and see what the state board comes up with. We think option two is workable and, again, the question on -- I can't come up here and say there is absolutely no risk to this from an anti-backsliding standpoint. I'm not a lawyer. I know our lawyers would not really -- would not come up with a black-and-white answer on this either.

MR. MORALES: They would say it depends.

MR. ANDERSON: The copermittees, and I hope this is okay to ask this now, suggested some changes to option two, if we decide to adopt option two. Did you track those?

MR. KEMMERE: I had a really hard time tracking them, frankly, and I, from what I could understand, I was very uneasy about them because I think, again, the thing that we like about option two, and what we think is good about it is it has

this quantitative analysis and it has some measurable goals that need to be met, and what I was hearing from Orange County, seemed to be departed from that, but, frankly, I don't have a copy of what was -- what was given. And so it's a little hard to follow, but my inclination is it's probably not something we would be comfortable with so -- but if I can get a copy.

MR. GARRISON: And, again, I would note that the rigorous process, and any of the things that EPA finds that they do agree with in that, even though they stated absolutely preferred option one, those would not be lost. This could still be used as an enforcement mechanism, and that is the proper context for it.

MS. WITKOWSKI: Jill Witkowski, good evening, with San Diego Coastkeeper. I would like to talk about ASBA. We heard a lot about areas of special biological significance this morning from UCSD and all the great work that they're doing.

And I would like to discuss with you option two and how it's gotten worse from our opinion by adding in ASBAs to the alternative compliance. Not sure how much you know about ASBAs in general, but back in the '70s the state decided that there were

special water quality protection areas and designated them areas of special biological significance. These were given rigorous protection, which is basically no new pollution into these areas, discharges from storm water have to comply with natural ocean water quality, and it's -- it's a rigorous and protective things because these are special and beautiful areas that we want to protect.

In March of 2012, they came out with a 20-page rigorous requirement for what discharge in these areas would have to do and that includes the City of San Diego. Part of this would require an ASBS compliance plan, in -- and significant monitoring and in the event that they find that any discharges do not comply with natural ocean conditions within 30 days, they need to send a report to the regional board and the state board.

There are requirements on inspection frequency, erosion control, structural and nonstructural BMPs. It's a thorough and complete process. What I'm concerned about is having that be included in the alternative compliance option, is that somehow there'll be some way of partially complying with these rules.

The state board has set up stringent requirements for areas of special biological significance, which is if you want to discharge into them, you have to already have an existing discharge and you have to already meet these strict requirements and if you don't already discharge into them, you're out of luck. And then making this somehow be included in the alternative compliance, I'm concerned that these strict requirement wouldn't be met. So basically, there are other permit requirements and to somehow say we don't have to comply completely with those other permit requirements is pretty scary and terrifying.

Another thing about the option two alternative compliance changes that were made in option two is -- it sounds like the suggestions that were made by the San Diego copermittees to make the provision better were adopted, but none of the issues that I raised in substantial part, you know, I had multiplied the problems with some of the language that could be fixed with, for example, peer review modeling, and making some of the language more consistent and none of those were adopted into -- into option two.

So I would object to that on that

reason. And also, both option one and option two, I believe reduced the monitoring frequency and provision D to A3B from twice during the wet season to once during the wet season. And we just wanted on the record that we support rigorous monitoring and would prefer that the -- the change not be made to reduce the amount of wet water -- wet whether monitoring.

I, just to answer board member Kalemkiarian on the question of, you know, why are we doing this, alternative compliance option, why is the regional board staff put it in. I think, from my point of view, the regional board staff heard significant concerns from the copermittees and wanted to come up with a way that would be stringent and rigorous in order to allow them to have alternative compliance. And I think they did the best job that they could in the short time that they had to try to put something together.

But I think with the attitude of the copermittees of -- get us as few regulations as possible, we want something that's cheap and cost-effective that the rigorous standard that the regional board staff was intending were not actually happening in the time period that we have.

And so my concern is first, that this language has not been thoroughly vetted and the changes we suggested were not put in. But in second, un actual implementation, it will never happen the way the regional board staff is hoping.

And what I hear that the copermittees are saying, we need this provision because they don't want to get sued and we're saying we really don't want this provision because we think it's illegal and at the very least what Mr. Kemmere said it's sort of in shades of grayest whether it's illegal or not.

So for that point of view, we urge you to include -- include option one to make sure that you're on the right side of the law for sure and that the copermittees still have the option of pursuing other compliance options through approaching the regional board on an individual basis. Thank you.

MR. ANDERSON: Wait. So I'm looking at your testimony from the April 11 hearing on the suggestions on B3C2 and mostly I see major problems without suggestive language to correct those.

Did you have some specific recommendations that we need to include?

MS. WHITLOCK: Well, I specifically didn't include language changes because --

MR. ANDERSON: We just object to that.

MS. WHITLOCK: But if would be included, we would be happy to provide red-line language.

MR. ANDERSON: I was trying to refresh my memory as well. Thank you, Jill.

MR. STRAWN: Jill, I'm going to -- I think you're lucky that we delayed this a month because a month ago I was pretty mad at you for -- I'm a little disappointed.

MS. WHITLOCK: Okay.

MR. STRAWN: And right now, I'm pretty happy with you because I think your approach up here -- well, it comes down to something. What bothered me last time was that the insinuation that the staff had succumbed to political pressure and put that option, the original option to wording in there. Because I think you knew better. That was an approach to try to put some quantity and scheduling into a corrective action. Whether it was done correctly or not, we can argue all day, but to come in here and insinuate that somebody did it for other than professional reasons was -- it doesn't fly very well with -- but you accounted

well for yourself today.

And as long as we keep this approach -- if you win this battle, you -- you don't want to lose your high ground in the process. You have always come in with good science and good legal options and I appreciate that. And I want to stay as your strongest supporter. So thank you for today.

MS. WHITLOCK: Thank you. Any other questions? Thank you very much.

MR. GARRISON: I just want to close out part of the presentation, one other point to make on the issues is that the state board is considering this right now. They are moving forward with petitions on the Los Angeles permit on this very issue. This permit can contain a reopener to deal with it once the state board makes its ruling.

But aside from the fact that it's bad policy and potentially illegal, it bears waiting for the state board to address this issue. They certainly are going to and better to wait, allow that process to go through incorporate whatever changes, if any, are made than to make this change which we believe is a rash choice and then have to

change it further at a later date completely potentially restarting a program that counsel for the state board to address this process, if you're leaning on going in this direction at all, but better still just to eliminate the proceeding and go forward with the permit.

MR. ANDERSON: You know, you're starting to sound like the copermittees.

MR. GARRISON: I believe I take umbrage in that, sir.

Thank you very much.

MR. STRAWN: You have almost six minutes left. Now I get --

MR. MORALES: Turn to the building coalition and they have a total of 28 minutes. I show six people that you've picked the order, and just give me your name. I assume you've already done a red card for everybody.

MR. McSWEENEY: Mr. Chairman, before get started, we would like to use our 15 minutes and reserve our 13 minutes for rebuttal and our closing statement. You have myself, Dennis Bowling and Tory Walker in this 15 minutes, and then whatever time that we don't use, we would like to give to one of our members from San Diego Gas & Electric to

discuss their issue which is very specific and none of us are qualified to make that presentation to the board. So we'll use our 15 minutes now and reserve the 13 minutes for later.

Wayne, how do I get out of this?

MR. CHIU: I'm sorry.

MR. McSWEENEY: Mr. Chairman, when we're finished, if I could ask Wayne to come up and help get Fred's couple of slides up on the screen.

MR. CHIU: Sure.

MR. MORALES: You did state your name?

MR. McSWEENEY: Yes, I'm Michael McSweeney, senior public policy advisor for the Building Industry Association. We will get started by introducing Mr. Dennis Bowling.

MR. BOWLING: Thank you. I'm Dennis Bowling. I'm a principal of Rick Engineering Company. I have taken the oath. Also the chairman the technical advisory committee that put together the hydromodification plan for San Diego County. That involved in the storm waters since the 2001 permits, and I have a lot of experience in trying to make these things work.

What we do support as part of this process is development of water quality improvement

plans. We think they're a -- would be a great asset to San Diego County. It will be an open process involving all the stakeholders. The stakeholder panel consisting of experts to assist in the development of the water quality improvement plans will be great. We're looking forward to regional water shed solutions and alternative compliance will really help us with all that.

With alternative compliance that's proposed with this permit, we'll be able to achieve cleaner water faster for San Diego County. And it will incentivize and encourage regional cooperation. We do have some suggestive improvements to the plan. First, adopt EPA's policy as incentivizing in-fill development by keeping the urban in-fill hydromodification management standard exemptions per the existing San Diego County hydromodification management plan process and modify them as necessary as part of the stakeholder process and development of the water quality improvement plans. And allow more time for the water quality improvement plans. It's proposed that you give the executive officer the authority to extend the time necessary to develop the water quality improvement plan if needed. The reason I

say that is that there's going to be a lot of volunteers following this process. I put literally hundreds of hours in the hydromodification management plan and now we're going to do eight plans in San Diego County in 24 months.

There's no time in some of plans for the volunteers who should be involved in those plans to be able to make the effort to do it right, so we're proposing that you grant the executive officer that authority.

Also, redefine priority development projects for large areas, low impervious projects, and we'll talk more about that later. And change the sediment transport language. And we'll talk a little bit more about that later. And also, redefinition of ground water. The coalition and the regional board staff agree that the tentative order keeps current hydromodification management standards in place until such time as the water quality improvement plans are approved by the regional board. The coalition believes that the current hydromodification management standards are based on good science and a lot of hard work.

Given the limited resources available to the copermittees, the coalition believes that

the current hydromodification standards should be presumed appropriate unless shown otherwise through development of the water quality improvement plans. So we request this of the board: That the following finding be added to the tentative order, and that's the regional board finds that there is substantial evidence to support the use of the current hydromodification management standards in each water quality improvement plan, unless there are unique characteristics in the watershed to the contrary.

And now I would like to turn it over to Tory Walker.

MR. WALKER: Tory Walker, president of Tory R. Walker Engineering. I did take the oath. Thank you for this opportunity, Chairman Morales and members of the board. I would like to revise a little bit of my short presentation and make it even shorter. Mr. Uhley from Riverside County presented a slide earlier on a recommended action with regard to the sediment balance. We support that language. Essentially, it says this is a very complicated issue. It's definitely one of those issues where one size does not fit all. In concept, it's a great idea. As a policy in a

permit, it's not a good idea. So essentially, the recommendation is to incorporate it into water quality improvement plans. That's where these issues can best be studied and dealt with.

In addition to that, I would just like to add that I was a little disappointed today to hear a lot of testimony focussing on a purpose for a water quality improvement plan, which I think the initial intent and purpose was to achieve water quality objectives sooner and I think we might lose focus of that. As a stream restoration person, it's my desire to see the functionality of these receiving streams being restored quickly. And that's behind these comments. Thank you.

MR. McSWEENEY: Michael McSweeney, and I have taken the oath. One of the issues we talked about is the ground water. We talked with staff and the executive officer yesterday, and the problem becomes when an applicant goes in to deal with a copermittee, so we feel we could clear up a lot of ambiguity by just changing -- and the request for the board there is changing the definition to sub-surface water that occurs beneath the water table and soils and geologic formations that are fully saturated as determined by an

appropriately-licensed professional pursuant to California Business and Professions Code Section 7830 ET. Whatever that means. I'm not a lawyer.

MS. KALEMKIARIAN: And following.

MR. McSWEENEY: And following. Thank you. The purpose of the EPA standard and AB32 and SB-375 is a tremendous change in the way we've been asked to build in the last five years, and that's to get it to build in the in-fill project. We feel that keeping the urban in-fill project resumption reflects the EPA's policy direction to incentivize in-fill development is a good thing. And we liked to use the preproject condition standard unless specific findings in the water quality improvement plans require an alternative standard.

The definition of a prior development project, we spoke yesterday with staff and we think that there should be -- this is what this request to the board is -- a definition that -- that if you're building either wind turbines for a solar farm out away from the city, that if you have less than three percent total impervious surface, that that could be excluded under the -- what's considered a prior development project. I would like to show a hand in the audience. How many of

you here are experts or consultants dealing with storm water? Raise your hands. So there's maybe a dozen people here.

With the water quality improvement plans, we like to give Mr. Gibson the ability if for good cause, to extend the deadline because quite frankly, doing eight of these simultaneously, the number of hands that were here, it's a lot of work. And a limited number of people that have both the knowledge and expertise and the understanding of the environment and the watersheds. So this is a request for the board to modify the draft order to give your executor officer discretion to extend the timeline if good cause is shown.

MR. MORALES: Are you making a pitch?

MR. McSWEENEY: Well, he was quite surprised yesterday when we brought that up.

Alternative compliance, we talk more about this in our close, but we want to make sure that project applicants can actually use the option of alternative compliance. Our copermittees naturally are not comfortable at this point because if we do some retrofits, they're going to have to maintain them. And I think that it's a moral

obligation for all of to us find a valid point of getting them the resources that they would need, not only to comply with the permit, but to make sure that we can do alternative compliance because it does not do any of us any good to have this in the permit if we're not allowed to use it.

And I'd like to conclude and give Fred a few minutes. We like the fact that we're on a path of a collaborative relationship. We're talking and working with people that we haven't worked with before. And I tip my hat to your executive officer for putting us on that path. We want -- we want to be able to support this permit. I think we need a little bit more time. I'll address that in my close as to exactly why I think you're going to find that the hydromodification plan deserves the time over the next few years to see the measurable results and to validate all the effort and expense that went into it.

And last but not least, the water quality improvement plans are supported by everybody in the room and we want to make sure it gets done right and gives us the time to do that. So Fred, it looks like you've got -- how many minutes, sir?

MR. STRAWN: You're coming up on 11 total. So take maybe three minutes and then you wanted to save 15?

MR. McSWEENEY: Yes. So if you can, just let him know when we're done with our 15 minutes, I would appreciate that.

MR. ANDERSON: Can you stop the clock real quick so I can ask Mr. McSweeney a question. Just a practical question on the three percent request. If you have an energy solar wind project out in the back country that occupies less than three percent of the site, don't you think that it would be pretty easy to maintain any storm water runoff on site and let it infiltrate without having ever to discharge?

MR. McSWEENEY: I'm going to let Wayne answer that. He has much more knowledge than I do.

MR. ROSENBAUM: I'm not sure about that. Wayne Rosenbaum, partner, Stoel Rives on behalf of the coalition. I have taken the oath. Here -- here is our problem. When you look at some of these facilities, Mitchell covers hundreds of acres frequently. You have isolated points around where you have the foundation here and the foundation there and you add them up and all of sudden you

have blown through the 10,000 square feet.

MR. ANDERSON: Or five.

MR. ROSENBAUM: Or five.

To have to implement -- you're right. There shouldn't be a problem with everything -- you don't need to implement LID in that kind of situation because you sort of have a natural LID. But the way we have created the permit, we have a whole other set of steps that we're going to have to go through, additional things we are going to do in a situation that hopefully we're really doing is we're doing some good things for the environment.

We are reducing our carbon footprint, climate change, et cetera. These guys are the folks that are helping resolve that problem and it's -- this puts one more impediment in this process where it's not really not going to get any better water quality. So that's why we requested it. Thank you.

MR. JACOBSON: Good evening, Chairman Morales and other board members. My name is Fred Jacobson and I work for SDG&E as a principal environmental specialist and I'm -- I have taken the oath. The post construction BMPs are meant to address land development projects that have

concentrated areas or new and impervious surfaces. For example, the roof and the parking lots of this commercial complex that were in, these are new -- these are areas of concentrated impervious surfaces.

However, the same permit conditions would also be applicable to long linear type construction projects like our transmission lines. These projects have small disconnected footprints of new and impervious surfaces that spread out over long distances. They're not concentrated. They're not the same kind of -- they don't create the same issue as new commercial center like this. So this is a significant concern to us that because of the way the permit is written, that on these projects that we would be subject to these kinds of requirements, although there's not really an issue for those requirements to address.

Just as an example of one of thresholds is 10,000 square feet of new impervious surface. That's on the left-hand side and on the right-hand side is just the relative size of a foundation for a new construction or for a new transmission to your foundation. So you can see there is a relative difference here. Note that the area on

the left-hand side is all concentrated in one area. The small circles of foundation footprints would be located over a long distance on a construction project for a new transmission line. And when we build these lines to connect to the new solar farms, wind farms, new sources of generation so this is a current issue for us in this permit. And applying the same requirements that are applicable to a new commercial development to these types of linear projects just doesn't make sense and it's not appropriate.

The state board in several of their permits, they have recognized this difference. They addressed it by -- in the construction general permit, they made a specific finding post construction BMPs are not applicable to linear type of projects. They have a special name for it. It's linear underground project or linear underground overhead project or LUP. And what we want to see is that same consistency in this permit as in the state board's permit. What we've been told is that the board needs to make this decision. Staff directed us to make our case so what we're requesting is that you incorporate language into the permit that specifies or clarifies that

development projects are not subject to the development planning requirements in Section E-3, and we have provided language and provided some handouts of language that we have previously provided.

MR. McSWEENEY: Thank you very much.

MR. ANDERSON: I have a question.

MR. ABARANEL: Can you go back to your previous slide? Suppose I grabbed the square on the left and started moving vertically with it, when does it become a LUP?

MR. JACOBSON: I'm not sure.

MR. ABARANEL: When it's a half foot wide and 20,000 feet long, is it a LUP?

MR. JACOBSON: What I'm -- what I'm -- so you're saying if you take that, you lengthen it, at what point does it become a LUP?

MR. ABARANEL: I keep --

MR. STRAWN: Are we raising it off the ground?

MR. ABARANEL: It's the great path of China.

MR. JACOBSON: Keep the area the same.

MR. ABARANEL: Okay.

MR. JACOBSON: But as I pull it, it

contracts in the horizontal direction.

MR. ABARANEL: When does it become a LUP?

MR. JACOBSON: Well, in the definition the state board has included in their construction general permit is a LUP when it is -- and there actually is a definition.

MR. ABARANEL: There is a long definition.

MR. JACOBSON: So anyhow, the definition talks about facilities that are like pipelines, pipes and wires, that are not your standard footprint for a development project.

MR. MORALES: I'm going to ask, I hate to do this, a hypothetical question. Say we keep things as they are, the Sunrise Power Plant, drive out to the desert, we see wires and all the locations where the -- meet the ground, that's a LUP?

MR. JACOBSON: Correct.

MR. MORALES: What would SDG&E have to do different under the permit than it does now other than like some reporting requirements? Is it your position that you are going to need to do some hydromod or other work around every base of --

MR. JACOBSON: Yes. You would have to do hydromod.

MR. MORALES: So what would SDG&E do at each location?

MR. JACOBSON: We have not had a project subject to this. We have done designs for this to address what would be required, but the permit does require just what it would for all the other types of projects subject to the post-construction requirements.

MR. MORALES: Which is?

MR. JACOBSON: Well, it's hydromod. It's low-impact development. These -- these tower foundations are spread out. That's one of the first things we do under LID is you disconnect your pervious surfaces.

MR. MORALES: But you're not -- you're not going have to put in impervious pavers because you're out in the middle of nowhere. The water will go -- how does it work?

MR. JACOBSON: Again, the specific designs we haven't sat down and said this is the design.

MR. McSWEENEY: Let Dennis take a stab at it.

MR. ANDERSON: I have a question for Wayne on this if I could.

MR. BOWLING: Dennis Bowling again. If you

were required to do hydromod for a project like that you would have to take the water that's displaced by that impervious surface, whatever it was, 10 square feet, 20 square feet, take it into a device to hold that water and either infiltrate it into the ground are release it at an extremely low rate and you would have to have one for every one of the towers. The problem is really maintenance of all those facilities. There is no real water quality impact for putting a very small concrete impervious surface stretched out up uncontinuously along a power line that the impacts would be unmeasurable feet away from the device. So there's really no benefit to it, but the cost would be very high. And the long-term maintenance would be high and there would be additional right of way associated with the device. And it's sounds ridiculous, but the way permit and hydromod plan you would have to do an individual assessment of every one of those to determine the difference in run off, pre and post. Do an analysis. Store the water and drip it off at a controlled rate or infiltrate it into the ground for little or no benefit.

MR. MORALES: I guess I have a question for

staff later. Would this be one of those instances where they could like do a project some other part of the watershed so it wouldn't necessarily have to do that at every location? You say, okay, we're going to do a really nice project somewhere in Pine Valley rather than here, here, here, here?

MR. BOWLING: That would be great for alternative compliance, but there really isn't an alternative compliance component of hydromodification management plan for San Diego County. So when you look at it, and they did this study on it, they would have to treat it at the source or you would have to over tenuate for something -- for something else. Really hard to do when you're talking about the very low flows that we're talking about for hydromodification management. You really try to trap, capture and treat every square foot of the impervious surface before it discharges offsite because you can't over mitigate for it. We're dripping water off these projects at such a slow rate because of the slow energy required so hydromodification cannot happen downstream.

It's really something that should be excluded and it's so small that there would be no

benefit for an extremely high cost.

MR. ANDERSON: Can I ask a question?

MR. ROSENBAUM: Yes, sir.

MR. ANDERSON: So the definition of LUP exclude the roads necessary to get to the transmission poles and everything? I'm not that worried about the individual little concrete foundation, but I see the impact of those roads are pretty dramatic as you go out in the back country.

MR. ROSENBAUM: Well, the way we have defined re-development projects, underground utility projects would not be considered or I guess a re-development project does not include underground utilities or redoing underground utilities.

MR. ANDERSON: This is underground/overhead project is LUP. So the overhead project, do they require -- do the roads become exempt in this definition, if you can answer that, or if anybody can.

MR. KEMMERE: I have to read this.

MR. ANDERSON: You're on the same page as I am as trying to understand the language.

MR. KEMMERE: That is quite an interesting definition. I don't -- that's from a different

permit. And, you know, we have had this discussion with SDG&E on several occasions and each time we have told SDG&E we don't agree with them. If the board were to direct us to include a special exception you know we would do it at your direction. But other than that we don't believe it's necessary.

MR. McSWEENEY: Thank you very much.

MR. STRAWN: Next we go to interested parties and the first one is Mr. Roger Butow from Clean Water Now.

MR. BUTOW: Roger Butow of Clean Water Now, and, yes, I have taken the oath.

I also stayed in a Holiday Inn a few years ago and if you know the commercials, I haven't done brain surgery yet but I'm thinking about becoming a theoretical physicist. Just thinking about it.

First thing I would like to do is point out that we too support -- thanks Henry.

We do support errata option number one. The irony is we didn't share any information, other than just simple transmission, to Coastkeepers or NRDC. We notice they're on the same page we are. And I definitely did not communicate with US EPA,

and I'm very glad to hear John's comments. And we concur with everything, including the errata or additions that US EPA included. We have the same anxieties and fears and also we obviously are not fond of backsliding. We would like to say that we also do believe there was -- we like the new wording of priority development projects in option number one. We also like the fact that in both options the word "restore" has been restored so we're very appreciative of that word, because we believe that is actually what we are doing. It's a simple return.

So that said, we have one other objection to errata option number one that has not been mentioned. We have absolutely, we'll just say, very little faith in the concept of the water quality improvement plan panel. Our experience, as we shared in our submissions to you are that this has been abject failure in southern Orange County. In fact, the historical incidence that have occurred have just been the opposite. We're afraid that the county will just -- the copermittees will just appoint people to that panel that are go-along-to-get-along people.

They will decide, and even though we

know staff is attached, they can go around staff and ex-parte communications, they can come up with the done deal with the go-along-get-along people. We won't call them appointees, we will call them annoy-ties. So we have zero trust really in the county to be the lead on that and we don't see, if I can use the word, the concept is not flushed out enough, and we'll leave the pun there, but we just don't feel that there is enough oversight built into it. The County of Orange has never empowered -- in my 15 year history has never empowered an NGO and, in fact, refuses to appoint NGO's to any water shed committees, even an ad hoc that sound NGO support. So that said, that is actually the fatal flaw in option number two for us. Option number one deletes it and we like that.

Moving on. We were very fascinated that it was noted that our cost benefit analysis was resinated and found relevant, except I don't know what was relevant. I not only like to know what I have done wrong, but what did I right, so if there are comments or questions I sure would like to know why it was found to be relevant, but I can list some bullet points and then I will leave with these bullet points about the cost benefit

analysis.

First, dated two years ago, why are we suddenly seeing it drop like a trump card or something at a bridge game or crazy eights. This thing has been in existence for two years. Why wasn't it submitted during the focus workshops. It has kind of an auspice, kind of an air of desperation, and, by God, maybe we can throw that on the pile and that will convince them. So we have -- we have very little faith in that.

Why, once again, it was completed two years ago, but it's completely derivative. It consists -- it's an aggregation. In literature you would say it is derivative summation based on outmoded studies. Everything in here is seven years or more in age and the era of water quality, that is Jurassic Park. That's a Tyrannosaurus Rex, all of these studies. The epidemiological is -- my God, it's almost 15 years old. That is actually almost -- I agree because I wrote almost the same thing that the NRDC did, irrelevant. And that's what probably makes it irrelevant. But I would also say the proper mechanism, or at least to have done a co-writing of the report would be a cost effectiveness analysis. Cost effectiveness is a

type of economic evaluation that examines the cost and health outcomes of alternative intervention strategies. It compares the cost of an intervention to its effectiveness as measured in natural health outcomes as in cases prevented, years of life saved, et cetera. It's presented in a cost effectiveness ratio, does that sound familiar, which expresses cost per health outcome, such as cases prevented, years of life gained, et cetera, and it compares alternative programs with common health outcome, recess the consequences of expanding an existing program. If we're going to do this then let them come back -- let them come back in a year with both a new cost benefit analysis, one that actually is current and up-to-date, and, second, a cost effective analysis. And I sure would like to know why my report was found relevant, but I don't know if we have time enough.

MR. STRAWN: You're out of time.

MR. BUTOW: You can ask me questions. You're not out of time. I was happy to see the gold star by my name. Thanks.

MR. STRAWN: Sean Kerrigan?

FEMALE SPEAKER: He is on his way.

MR. STRAWN: Okay. Had a couple of representatives from Senator Beason's office; Jessie Gype (phonetic) or Angelie Kelnick (phonetic). One more card from a Vaikko Allen.

MR. ALLEN: Good evening, Vaikko Allen is my name, regulatory director for Contact Engineering Solutions. I will definitely not take my entire time here. My -- I just want to say thank you for taking the extra time between the last hearing and now to make the changes that are in the errata sheets. My main interest really was in the post-development BMP criteria, and I'm happy with the changes that were made to the bi-filtration piece there so I will leave it at that and say Thank you.

MR. STRAWN: Is there anybody else from the public that would like to speak that I don't have a card for or I may have lost their card or got it mixed up in the wrong pile? No? Then I guess we're back to closing statements.

MR. MORALES: Okay. Let's go to the closing statement portion and we'll begin with Building Industry Coalition.

MR. McSWEENEY: Again, Michael McSweeney from the Building Industry Association. I wanted

to start off by thanking the board for setting up the stakeholder process and specifically Executive Officer Gibson.

I feel like a rookie this last year in NFL training camp and this is the first big game. I talked to many of the people in the audience, this is my third, this is my fourth, this is my second. This is my first, so I think you and I share something. This is our first permit adoption.

Past cycles, based on the stories told, were very adversarial, kind of like a circular firing squad. Everybody shot at each other. This permit has been a journey. And Executive Director Gibson has all got us in a canoe. All the groups have an oar and surprisingly we're not whacking each other with the oars. We're paddling along together, sometimes shaking our heads that we can't believe we're doing this, but were almost 100 yards from shore and we want to support this permit. We feel we're this close. The permit is incredibly complex. The revised permit was released 40 days ago, 138 of the first 148 pages had changes. The errata sheets were released 12 days ago and a revise was released yesterday.

There are still issues that need to be resolved. Lots of unanswered questions. And the issues are complex and costly. Yesterday we spent two hours with Executive Officer Gibson and his staff and a couple of issues for us were answered. It's been that iterative process for us talking with the different groups, copermittees, NGO's, and staff to get us to this point. With so many moving parts and so many dollars at stake why not give us the time to get the consensus necessary.

All of us here have a responsibility to work together to secure funding necessary for our copermittees to be able to do the work necessary and required in a permit. All of us. We can't point to the next guy, "it's your responsibility."

The best case is to get a broad based funding source where everyone has a skin in the game. The broader the base, the easier this will be to get the resources necessary. If you look to the business and development communities to fund the permit you will fall willfully short and you will cause unintended consequences of employers leaving the region, making the remaining employers less competitive, while causing increases in all types of housing and construction projects. Would

region nine not be better served by all of us together, joining together, board, staff, NGO's, permittees and the business coalition to offer possible funding solutions to our governor and legislature. Additionally moving forward I believe the regional quality control board needs to be a team builder, part cheerleader, part coach and part referee. We need to continue the collaborative process that you started a year ago all the way through the adoption of the water quality improvement plans.

Mr. Gibson, you and your team hold the key, as directed by your board, to shepard us through this new process. If we are successful not only do we clean up the water faster, we demonstrate to other regions and states that a way forward to solving complex and costly public policy problems is the way to go.

We support the option two errata and would like time to work with the copermittees, the NGO's, regional quality board staff.

The reason I went back for my marker is there was some discussion, like Noah said, about alternative compliance. Being the rookie at the game. The circle I drew represents 1.3 million

homes built in this county.

Wayne Chiu, have we had storm water permits for like 20 years? So let's say for the sake of discussion over 20 years there have been BMP's that much of what has been built is covered by some sort of BMP.

So my question is, where are the pollutants coming from. If these have BMP's the answer to question is the rest of the environment.

What alternative compliance can get for us, and I know my friends in the copermittee community are nervous about this, but it allows us to do what we do now, which is effective on new construction projects. And then as Jill, when I shared this with her, told me, we put an extra skin in the game, whether it's in lieu fee. The alternative compliance goes to address what's been built for 150 years. That's how we can get to where we need to be quicker for less cost.

So what's the tradeoff? The tradeoff is additional compliance on site costs more money. Would it not be better served to do what we do now, which is very effective, and move additional dollars into the areas that have nothing. Trade one to two percent additional pollutions here for

at worst 60 percent over there. Talk to Vaikko Allen about the types of existing technologies that are on the market today that we can utilize.

So we find yourselves here, what, 15 hours later over the last two months, we're tired, our butts are sore, we want to go home. For all the testimony you heard one amazing point stands out to me, every single person in this room wants to clean up the storm water. Everyone. Nobody is disagreeing. We all agree on the same outcome. The disagreement is how we get there.

Does the Regional Quality Control Board staff have all the answers? No.

Do the copermittees? No.

Do our friends in the NGO community? No.

Do we? No.

But we all have expertise we all need to share. The key is to continue the groundbreaking process you started back in June with the structured workshops. The more we work together in a collaborative fashion, the more we find ways to agree. The more we work together, the more we trust one another. And that's the critical point. Trust and respect to have be earned. It

takes time.

Richard Boone from Orange County last month was right when he expressed disappointment in the lack of continuity after the structured workshops were completed. We had been much better served to continue working monthly together to get to where we need to be. Luckily for our group Coastkeepers reached out and we found a way to work together. Thank you, Jill, for having the guts to ask to meet with us and to start work with us. We respect you for taking that first step.

Take a moment and review the process of putting together the MSCP. We talked about that last month. Most people said it couldn't be done, would cost too much, take too long, but here we are 15 years later and the MSC is looked upon as a national model. It brought together all the stakeholders that you have done, built a consensus, put a plan in place, and as has exceeded everyone's expectations, but they took the time to do it right. We have that same moment in front of us. We can continue down the same prescriptive path of must or join hands and continue collaboration on a permit that will achieve consensus and produce better results. We could be a national model of

how we do this.

Our coalition has learned to respect and trust people we thought were adversaries, the environmental NGO's. We still disagree on a number of subjects, but we know that they are sincere and we trust working with them because we respect them and what they stand for. We believe they trust working with us. They have experts who should be in contact with your engineers in figuring out ways forward to solve this problem. No one person or group has all the answers but working collaboratively we learn from each other, build bonds and trust and respect that allows for the exchange of ideas to grow and flourish.

Before you know it we'll have a permit with broad support, new ways of working together that will produce better ways to achieve compliance. We'll be well on the way to solving this problem instead of fighting over who controls telling who what to do and how to do it. The choice is yours. We can continue fighting all the way forward or you can give us the opportunity to get it right. Our position is to get it right over getting it done. Outcome over process.

And now Wayne Rosenbaum will do the

lawyer thing like on the commercial on TV.

MR. ROSENBAUM: I always get the fun parts. Wayne Rosenbaum, Stoel Rives, on behalf of the coalition.

On number one we have a couple of thoughts and comments. We do support option two. We do support it for a multitude of reasons. First of all, we have spent a lot of time working on a permit that assumes that we're going to develop high quality water quality improvement plans. If we were to take option -- the alternative compliance option off the table, there is no motivation other than a stick for the copermittees to get involved, or for the community to get involved. It becomes purely strict liability.

Two, while we do respect staff's assertions that, you know, they will use their prosicutory discretion, we still have not asked for and have not received an opinion as to how midgon (phonetic) strict liability penalties apply to this NPDS permit. It is an NPDS permit. If you accept option one it has numeric affluent limits and at that point each of these copermittees every time they send you a report will be sending you $3,000 for every line on that report where they cannot

meet the water quality objectives today. This is not a formula for working cooperatively together and solving the problems.

We believe that the option two is a better option. Moreover, it is the option that was -- that was -- been incorporated into almost every other storm water improvement. A water quality improvement plan is nothing but a storm water pollution prevention plan by a different name. We use them in construction permits. We use them in industrial permits. We use them across the board. Plan, do, check, review, and we do it all the time. I understand that NRDC decisions that says, "Well, we always had strict liability in these permits." I intend to disagree. I have been at these storm water permits for about 18 years and the result of it is we never -- until NRDC -- yes?

MR. STRAWN: You have one minute.

MR. ROSENBAUM: One minute. Until NRDC, no one, at least in the regulatory regulated community, thought we had strict liability. We had BATBCTP. This is a huge change. And I guess I've run out of my time, so unless there is one final question or comment, very quickly for the record, we're still real queazy about whether or not

procedural due process was followed, but we would like to get on with it and get it done, so I got it on the record. Any questions? Thank you.

MR. GARRISON: Thank you Chairman Morales and members of the board. Noah Garrison with the Natural Resources Defense Counsel. I would like to note our objection to the changes proposed by the building industry, in particular, the proposed changes to the definition of priority development projects and to the hydromodification standards, but beyond that we have no further comments. We urge the board to adopt a strong permit that removes the alternative compliance provision as laid out in option one and thank you for your consideration of our comments. Thank you.

MR. STRAWN: The business about the LUP, do you have a concern or a position one way or the other about the linear projects.

MR. GARRISON: I hesitate to state that we have an opinion one way or another at this time. I think our view is that, as was pointed out, that most of these are going to kind of runoff onto the ground and soak into the ground or get taken up by vegetation anyway, but we don't really have a strong opinion beyond that at this point.

Certainly for the priority development project, we do. Three percent over a large area could be an extremely large amount of impervious surface being put in place, but I don't have a decision one way or the other.

MR. STRAWN: Thank you.

MR. GARRISON: Thank you very much.

MR. STRAWN: Copermittees, you have half an hour or so left. I don't know if you want to use all that. It's getting late, in case you didn't notice.

MR. BROWN: Well, I know for the Port of San Diego I won't be using that. I only have one point to make and it's only one minute. I think you should decide in a broad philosophical ideas of what you think is right, but I do want to address one technical point. On the EPA letter that's the been much discussed here, the pertinent language here says that backsliding is prohibited in NPDS permits allowing additional time to complete a task that was required by the previous permit, constitutes a less stringent condition.

My point is that the TMDL's have never been written into these prior permits. What the copermittees are saying is that this huge

additional burden is because we now have to deal with these TMDL's written into a permit. So that the -- the fact that we're asking for additional time to deal with that additional burden should not be considered anti-backsliding. And now I'll turn it over to the main presentation. Thank you.

THE REPORTER: What is your name, please.

MR. BROWN: Again, this is Bill Brown from the Port of San Diego.

THE REPORTER: Thank you.

MS. SCORPANISH: Good evening. Mary Anne Scorpanish from the County of Orange where I lead the OCY program and I'm speaking giving closing remarks on behalf of all the copermittees. I want to start out talking a little about option two. And if you didn't get the message already it is a very high bar. It is a very challenging alternative for any of the permittees to try to pursue. It relies on the water quality improvement plan that the permittees would need to develop and have approved by this board. It's not up to the permittees to decide what might be good enough and then, you know, saunter on from there. It's also subject to public input. It's focus, remember, the water quality improvement plan, on those outcomes

on prioritizing on what the most important problems are in each one of these watershed management areas on being strategic with those, on being innovative. And if we step back for a minute and think about what the intent, or at least what we understood the intent was as presented by the staff, was to clarify what the receiving water limitation language meant. We all thought -- all the people in the regulated community thought we knew what that language meant all these years that it was in our permits. The LA County flood control district case, the court ruling on that, completely flipped that on its head. And so that's why we have been making a number of comments throughout all the workshops and the hearings that you've held on how important this receiving water limitation is in light of that court case. Because we feel it's completely changed -- changed the game. And there have been comments earlier about, you know, we thought it was all subject to MEP requirement, which, in essence, says you have a program, you're doing everything that you possibly can be doing that's practical to do, and, therefore, you're in compliance. I will make a note that the other outcome of that court case was that every separable

element of the permit is visibly enforceable.

So in terms of option two taking away any enforcement authority that the regional board has, any enforcement leverage that the regional board has, we don't see that being the case at all. We know that option two is not going to prevent us from getting sued. And, in fact, nothing that could be written into this permit would prevent us from -- from anyone from bringing suit. But what you can do with option two, and what is within your discretion to do, is provide us at least the possibility that we can be in compliance instead of option one which is really no possibility at all. We feel very strongly about that, and you may have heard some equivocation in April during the last two days of hearings, because we don't see it as certainly as a safe harbor, we don't see it as an ideal solution, but we would rather have some possibility than to have none at all. I also want to speak mostly on behalf of myself here that -- and for my team as well. We didn't go into public service and dedicate our careers to that to have anything less than sound policy. Anything less than good government. Anything less than being good public stewards, and not only the environment,

but the financial resources of the tax payers. And our mission is to be -- you know, to do nothing less than to be in compliance. I mean that is the minimum bar that we strive for. So every time we have come to you and made a plea for some permit requirements that are achievable that are within our reach, it always goes back to that mission that we feel and that personal mission, as well as our organizational mission. We are not like a factory that controls what comes out of our pipes and controls our process, our system, the storm drains and flood control channels is open to whatever comes in to them. We -- we know that the lawmakers responsible for reducing that pollution in those discharges that we make from our system to the maximum way practical, but I think what we're tasked to do, we are tasked to make changes to industry standards. We have made some very fundamental and far reaching changes to the development industry practices and development industry standards. We're talking about other industries and business as well as; gas stations, restaurants and so forth.

We're also being tasked by the Clean Water Act as an MS4 system operator to change

societal practices to get people to stop littering, to get people to stop over-fertilizing and overuse of their pesticides in their yard and a myriad of other kinds of activities. This doesn't happen in year. It doesn't happen in a permit term. These are, you know, decade long practices, and that's why we have time and again we go back to Congress's intent by setting that MEP standard on to these MS4 permits rather than the strict limits at the end of the pipe in terms of meeting new affluent limits. So I wanted to bring that back to you and to let you know that we are in it for the long term. We are in it -- we are in this business to make water quality better. We owe it to our community. We owe it to the future generations, and that's what we're committed to do. With that, I don't know if you have any questions, but that was the sum of my comments and I just maybe one more comment. So even if it didn't cost us anything to do all of the requirements that are in the permit, if we can't ever be in compliance, that means something to us. So it's not merely the dollars but it's -- it's being in compliance and doing the right thing and being within the law. That is important to us.

MR. STRAWN: And thank you for being

expeditious. I guess we're to the staff.

MR. MORALES: US EPA.

MR. STRAWN: Oh, US EPA, do you want to make a closing comment? Cathy start.

MR. KEMMERE: John Kemmere with EPA. So, yeah, I don't have any closing comments prepared. I just wanted to -- just a couple of quick things. There was some comments made about the TMDL and the scientific basis for it. We do stand by the letter we wrote to the Congressional reps. That is based on sound science and bacterial approach, that the reassessment of the recreational use criteria that EPA did in 2012.

I did look at the Orange County proposal, and, again, I hope I made my point clear that we really do prefer option one. Option two options, but if you do choose to go with option two, I would really recommend you stick to the staff recommendation. I didn't see the value in the Orange County changes that were recommend. I think your staff to have well thought-out approach in how they came up with that option two.

Unless you have other questions for me, that's all.

MR. MORALES: Staff.

MR. CHIU: Good evening, Chairman Morales and members of the board. I just want to say first and foremost, thank you to everybody in this room for sticking it out for three days of hearings. I think we all learned a lot by listening to each other. I know I've heard quite a bit that I thought I understood and have a better understanding of now but doesn't change my opinion necessarily, but it still gives me some better understanding.

You know, when we -- when we first started on this permit, our -- our end objective, our only objective was to make sure that we have a permit that will end up restoring the water quality standards within our receiving waters. We do acknowledge that it will take some time. And we know that's going to take more than five years. We weren't expecting anyone to achieve the water quality standards in five years.

We've been doing this now for almost 25 years. And we have seen some limited success, but we know there is a lot of progress to be made. Now during the testimony that you heard during the last couple of hours, we still are back down to three issues that I mentioned during my opening remarks

during the first day of the hearings.

We are still talking about development planning issues. We're still talking about TMDL's. And we're still talking about the compliance option. I'll touch upon all three.

With the development planning requirements, we believe as staff that we have made all the changes that are necessary, based on the testimony, based on the comments received, based upon on our understanding of what's necessary in order to achieve improved water quality. With the exception of USEPA's recommendation, you know, we would basically say that all changes that are necessary are provided to you in the errata, both in options one and two, or the development planning standards.

In terms of TMDL's, you heard a lot about the new science that's available, the, you know, potential flaws in the approach that we used. I agree there is new science. There is new information the TMDL's can improve. That doesn't invalidate the approach that we used. That does not invalidate the TMDL's. That does not remove the requirement for us to incorporate the TMDL's requirements as part of this permit.

We believe they have been incorporated as required and as appropriate, so we don't believe any additional changes are necessary other than what we have provided in errata. Now, as far as the last option or the last item, the compliance option, obviously we've -- we have provided you two options to consider. Now, it is obviously an item of interest for almost everyone in this room and you'll note that there is some fairly strong opinion on what you should do. Staff does not have an opinion.

We have provided you the options because we believe this is a policy decision. We don't have a preference, but I will give you staff's understanding of the ramifications. If we go with option one, we maintain the status quo. We maintain the legal precedent that has been set by the state board through the Presidential order. We're not opposed to that in any way.

Option two, we believe does provide a very rigorous process and way for the copermittees to provide to us and to the public their vision of a pathway to compliance. We believe compliance is achievable. We believe water quality standards can be restored in the receiving waters. We don't

believe it's going to take five years. We do believe it will take time. We don't know how long that will take.

The copermittees should be given the opportunity to tell us how long they believe it will take, and the public should be able to weigh in on what they think it should take. We believe that option does provide that way of approaching the problem and finding a solutions. As I said, we don't have an opinion either way. We believe both would be acceptable to us as staff. Our executive officer may have a recommendation for you. I have not heard it. I do not know what it is. Our legal counsel may have some legal advice for you or some legal guidance for you. I know some of it, but I don't know fully what it -- it may imply. But our position is that this tentative order is ready for your option today.

We recommend adoption of tentative order R92000130001 with either corrected errata option one or corrected errata option two with the proposed change provided to us by EPA. And there may be some additional errata, depending on the choice you make. Thank you very much.

MR. ANDERSON: Wayne, so if we do lean

towards option two, the copermittees, we kind of County of San Diego, Riverside and/or Orange County have suggested some different errata language to clarify. Do you have a specific -- should we ask you for your recommendation, specific ones as we do that?

MR. CHIU: If you were to choose option two, I would recommend no change to the proposed option. I don't believe the changes that have been requested are appropriate and USEPA has indicated I don't think they would support option two if we were to make any additional changes to it. But that doesn't mean that we can't make changes to it for you're to direct us to.

MR. ANDERSON: That one I did find particularly attractive was the nexus discussion clarification that would allow the copermittees to just do what is within their legal to do. That was I think that was County of San Diego.

^ MR. CHIU: I believe that was a footnote they wanted to the predevelopment requirement.

MR. ANDERSON: Right.

MR. CHIU: We would not recommend that change, simply because it does, as Mr. Morales had pointed out, it does kind of have some ambiguity

and how they might make a finding. And we believe that the way the water quality improvement plan has been structured, they could identify -- through the alternative water shed, water shed management area analysis, they could potentially identify those types of areas that would not be subject to hydromodification requirements.

Thus, would not be necessarily required to restore a predevelopment condition runoff condition, but you know, that would require analysis of the watershed to demonstrate that that wouldn't -- would in fact be an appropriate exception for a particular area of the water shed.

MR. ANDERSON: Thank you for your response.

MR. STRAWN: Sorry if I missed everything. The copermittees errata about making copermittees plural and to singular possessive. Do you have a position on that?

MR. CHIU: My position -- our position is that the changes we made as provided in the errata are appropriate for some of the compliance options. There is -- the way we decided upon what should be individual versus, you know, group requirement was basically was it going to be based on what's coming out of a particular copermittee's outfall? Or how

is something being expressed within the -- the TMDL's.

And with the -- you know, the A through C options, those were primarily looking at what's coming out of the copermittees outfall, and how is that copermittee's discharge affecting the receiving water within its jurisdiction. With some of the load-based options, if the TMDL's that incorporate that load-based option, that load-based option is expressed in the TMDL as a sum total for all the copermittees, and it does not break out those loads -- loads to particular copermittees.

And I think the one that the copermittees are most focussed on, the water quality improvement plans, the option to utilize the water quality improvement plan to demonstrate compliance, it is our belief that, you know, if you are in a water quality improvement plan, everybody should be implementing that water quality improvement plan, and everyone is jointly responsible for implementing that water quality improvement plan, that they are complying with the TMDL's, but within that water quality improvement plan, they can demonstrate that they are individually complying with, you know, A through C,

or that they are jointly meeting the load reduction requirements or the load requirements, which are provided as a sum total of the copermittees within a water shed.

So we believe it's appropriate to limit the singular to just what is coming out from the outfall of the copermittees' outfall on jurisdiction versus the other options, which I believe has some joint responsibility involved. Hopefully, that makes sense.

MS. KALEMKIARIAN: Just a follow-up. Since you've been writing on this process very well, for these kinds of things having drafted long documents and Thomas -- you miss stuff. There's things that get changed later. People don't understand something a certain way, how correctable is this six months from now, a copermittee comes us to and says, oh, my God. This is an EES instead of an EE, apostrophe S. How correctable is this that we can take something up like that if it comes before us?

MR. GIBSON: The board can certainly entertain minor amendments to it, but the process to that would -- there would be some cost time to it. What I would point out more importantly is that there will be a water waste discharge in 2014

and another one submitted by Riverside County in 2016. Those offer us opportunities to provide corrections or clarifications in minor ways as well as change of course in major ways. If there were relatively minor issues, I would suggest probably they're not that important. If there's a spelling change for example, or an apostrophe as versus and S, apostrophe.

Certainly one could argue it the other way. But if they're indeed those type of lessons since to learn, we can incorporate those changes and if they truly important, if they do really turn a legal corner, then we can bring back an amendment to the extent we become aware of this. And I am count on the engagement going forward, willing the canoe perhaps to use that metaphor, that where we do learn lessons along the way. I do intend to bring them back to the board's attention, but I do not want to be paddling around in circles either. I hope that answers your questions. We can bring back issues if we need.

MS. KALEMKIARIAN: I just can't imagine with something coming -- points along the way, that there's not going to be clarifications needed. No.

MR. GIBSON: I do have a recommendation

regarding the receiving water limitations compliance option for your consideration.

MR. MORALES: I think we'll finish. Here's my plan. We're going to ask -- I'll let the board ask as many questions that they want of staff. Then we will take a short break. We'll come -- I'll close the public hearing at that point. We'll take a short break because I have no idea how long we're going to be talking about this. We will come back. We'll get your recommendation and begin our discussion. That's called a cliff hanger.

MR. CHIU: Mr. Anderson has an area that --

MR. ANDERSON: It was down to my last question about, I think it was proposed by Riverside, that I thought was attractive or had merit, was the definition of redevelopment in adding the language about routine maintenance to maintain original purpose with facility and emergency construction activities required to immediately protect public health and safety.

MR. CHIU: Our opinion is that it's not necessary. Obviously, everybody wants additional clarity, especially for their particular type of project or their particular concern. We believe

that the definition is broad enough to consider most of those things and that if, in fact, there os a project that is not going to cause an impact to the receiving water, then there will not be a problem. But for flood control projects in general, they are part of the receiving water and they are impacting the receiving water. Yes, there may be some benefit that's being provided by that project, but we believe that, you know, anything going into a receiving water that alters its condition, alters its, you know, potential support of beneficial uses, should be examined closely before it is not called a PDP or prior writ development project.

MR. ANDERSON: Thank you. That was a good answer and I appreciate it.

MR. STRAWN: That same logic applies to the SDG&E linear project request for basically, you figure it's covered under the existing.

MR. CHIU: Correct. In general -- when we're talking about these linear projects, you know, we've covered the ones, the definition of redevelopment project, pretty much it covers the underground utility. For the overhead facility, I would say if the copermittees were to find that a

project such as a linear project were to meet the criteria of a prior writ development project and they believe it is truly going to impact water quality, then they should be implementing PMPs.

I question whether, you know, a 100 square foot pad would generate so much runoff as to require the implementation of huge BMPs that are going to cost so much to implement and maintain. If you this about 100 square feet, you know, we talk about maybe a half inch of rainfall, that's about, you know, 40 gallons. 100 square foot pad. Out in the middle of a desert, I'm not sure that it is impossible to infiltrate. I'm not sure that is, you know, difficult to manage. I'm not sure there could -- there aren't BMPs that could be implemented that he are relatively three self-maintaining, but I have not designed it. I have not seen the situation come up.

If and when the situation comes up, I think we may have to look at it closely, but I think the copermittees need to be given the discretion to determine whether or not they believe that it should be subject to the priority writ development project requirements.

MR. STRAWN: Last comment. Much more

concerned about the access roads to those power lines above or below ground than I am the pads. This wouldn't -- that wouldn't be affected here anyway, so...

MR. CHIU: If those are paved roads, I would say we might have concern, but if they're unpaved roads, we would at a minimum expect that they be designed so they minimize runoff and generation of sediment that can be discharged to receiving waters. C.

MR. STRAWN: The sediment is where they cross the back country streams are the big concern.

MR. CHIU: Right.

MR. STRAWN: Okay.

MR. MORALES: Okay. At this point, I'm going to close the public hearing on this and we're going to take a short break and then we're going to hear from our executive officer.

(Recess taken.)

MR. MORALES: If you take your seats, please. I'm going to call the meeting back to order. The public hearing is closed at this point, and we have pretty much two things to do. The first is to ask our EO and take it from there, so Dave.

MR. GIBSON: Thank you, Mr. Chairman, members of the board. I have said and I will repeat it again today. That this is both the best of times and perhaps the worst of times. This is, I think, the most important decision the board will make for the next 20 years, like the shipyards was for the last 20 years. This decision that you have the chance to make today sets the stage for what we will do with municipal storm waters, the single water discharge to our region, the singles source of stressors to our receiving waters. It's where we have the greatest challenge that faces us today.

I truly expected coming into the April hearing to be defending an approach in the face of opposition from the environmental groups. That we would provide what is essentially right now called errata two, that we give you the option to provide assurance for compliance.

When the municipalities are implementing the water shed, water quality improvement plan. That means certain criteria as provided for. It is truly what I want to recommend, but I cannot do that today. I think it is where we have to be some way. I think the tool that we want to use, but I do not think the time

itself is right now. When I consider the event, recent months it has given me pause to wonder whether or not we're were indeed ready to take that step.

I do think that the water shed quality -- water quality improvement plan is where we need to invest our time and resources, but the steps are which are described as optional, I think are a challenge to surmount. When I hear unremitting testimony in opposition to peer reviewed TMDL's that's based on sound science, that provides for 20 years to achieve the goals, and for which we have again and again indicated a willingness to engage and to update as appropriate as new science comes in, it leads me to wonder whether the copermittees right now are able to engage in the type of planning that would address multiple loads, all of this essentially, quantify those loads, be able to propose a program that would have social and political support and very significant costs. Certainly a cost that cannot be any less than what we're talking about right now for the bacteria TMDL's.

And when we consider nutrients, sediment, metals as we heard about earlier,

pesticides in the river side, herbicide, conditions like hydromodification and erosion, biological condition, I am concerned that providing this level of assurance on the water receiving only is perhaps a bridge too far at this time.

It does not speak to the rightness or wrongness of the approach. I do think it's the right way, but I'm not sure that we are ready and time is right for that approach. I think that instead we do need to focus on the water shed water quality improvement plan as otherwise provided in that tentative order toward the anticipation of the day that we can take this approach with the copermittees and provide that kind of assurance that can galvanize that kind of support for the kind of changes that need to take place in our communities to truly change urban stream syndrome, to mitigate and prevent it.

I think that's what we have to do. That's the challenge that's facing us, but I think that adding the errata two now at this time is not the right thing do, although I would've thought otherwise last month. There are those of us opportunities to learn and to change and to adopt to this course. We have, as I mentioned earlier,

the report of discharge for Orange County in 2014. We have another report awaiting discharge in 2016 for Riverside County where we can consider adding those copermittees to this permit for the region and we can take lessons learned and adopt the permit in those ways.

It may also be true by that time the state board will have issued an amended Presidential order or new Presidential order instructing us on how to address receiving water limitations exceedances. There may be even a Nine Circuit Court of Appeals ruling in that time or new information coming from the courts that would inform this approach. There are opportunity yet for us to come back to this approach that is proposed for receiving water limitations compliance options.

I think that the work that we can do together in the water shed water quality improvement plan can step us forward towards that option. And ultimately, I think that when we can have elected officials writing letters in support of this approach as we have all TMDL's, that they're willing to make that kind of political and social commitment to the kind of costs that are

certainly going to be anticipated in that plan.

That will be the kind of plan that you would want to approve and provide that level of assurance for. But then is the right time to take that action. I think what's particularly important here today besides all of the many other issues that we are addressing in the storm water permit and progress that we have made there is you have the opportunity to speak to the state board or to the courts as to how you have viewed this issue because a state board considers this, as they have at the workshop last November, as they may consider in a petition for review in the Los Angeles storm water permit, as they will consider on this permit, however you decide.

It is an opportunity for you to make a statement that they will take note of. We have the opportunity to evolve and to improve this approach with the water shed water quality improvement plan, I think that is truly a game-changer, not only regionally, but I think ultimately statewide and perhaps nationally.

I think we can make good investment on that collaborative approach with the water shed storm water copermittees, and that one way day we

can actually recommend this type of an approach. But I don't think that day is today. So my recommendation to you is that you adopt the tentative order with errata option number one with whatever corrections that are appropriate in your view. And that would concludes my recommendation.

MR. ANDERSON: Was the EPA recommendation on the -- that included in that?

MR. GIBSON: Yes. I would concur with the recommendation offered by EPA with regard to the new development and significant redevelopment sections.

MR. MORALES: I think I'm going to need -- thank you. I think I'm going to need a motion and a second. I don't care what the motion or the second is, but then we can have a discussion. May not be where we end up. I just want to make sure we track whatever we need to do properly.

MR. ANDERSON: Can I ask the attorney a quick question?

MR. MORALES: Yes.

MR. ANDERSON: What the heck does procedural due process mean?

MR. ABARANEL: How long do you have?

MR. ANDERSON: Briefly. And have we

followed it.

MS. HAGAN: I believe you have more than provided procedural due process to the parties in this matter and not everyone has gotten what they wanted, but they have all had ample opportunity and notice to be heard on the issues, so I don't believe that you are required to do more than you have.

MR. ANDERSON: Thank you.

MR. MORALES: Thank you.

MR. ABARANEL: I would like to move that we adopt tentative order number R9-2013-0001 incorporating option one and the recommendations of the EPA.

MR. ANDERSON: Second.

MR. ABARANEL: And now it's open to discussion.

MR. MORALES: We are open to discussion now. We have a motion and a second. So discussion.

MR. ABARANEL: I would like to say when I first heard the word MS4 was serving on the Del Mar City Council and it came from this board and early executive officer in a form of a bill for $100,000 to do something that we had never been consulted on

it was not a happy time. There was no clarity on what the goals were from the point of view of the residents of that particular city. I have to suspect that that experience was replicated elsewhere certainly in San Diego County and the region. I was so upset by it I used to actually get quite irritated when the street sweeper came by because it wasn't clear to me it was doing anything, but they were doing it. This order or tentative order, if we adopt this MS4 permit, which stresses outcomes versus actions, has been discussed extensively with the copermittees including -- thank you for recognizing the City of Del Mar as tiny, but it has a permit, in my opinion is a drink of clean water. If this were the airport it would be a breath of fresh air. It's absolutely totally a change in how the city, county can work with our residents to accomplish something that as many people have said here everybody wants to achieve. I really appreciate your comments from -- I served for about 20 years as a public servant before I found this job, which I didn't -- where I had to work harder and not get paid as much and took it immediately.

It's not just to be in compliance.

It's to lead, it's to accomplish goals, and even if those goals getting in compliance are a long way away, taking that leadership is definitely appreciated by your constitutes. They don't say it all the time, but they do appreciate it. So I think this is an incredibly positive step and it has implications, many of which have been discussed here, but a few which haven't, and I would like to, since we've all said many of same things over the last several months, I would like to point -- point out some things that haven't been said, and I said it a little bit earlier with regard to an earlier decision and that has to do with education. You're going to have to have people understanding what it is they need to do to contribute to the outcome.

On the matter of cost benefit analysis I would say none has been done to date. Regardless of the fact that we were urged to accept a 2011 study, and have it in the record, and spent a lot of time on it today, it was not put out to bid. It was not peer reviewed. It doesn't have any real stature. And if that is going to be really, really important, not just the cost, but the benefit. The -- then I would urge the copermittees working with the board, working on your own, to do a serious

one. Really think about the cost and the benefits and come back with plans that make the money that need to be expended to have major benefits.

Thank you.

MR. MORALES: Anybody?

MR. STRAWN: Quick question, just to clarify in my mind, we talked about with the EPA errata and my notes said most of that had to do with option one which is not part of this, so can someone clarify what that errata would be that.

MS. KALEMKIARIAN: It's right here. Just about filtration.

MR. STRAWN: So just that one comment?

MS. KALEMKIARIAN: Yes.

MR. MORALES: To be clear we're talking about option one.

MR. STRAWN: I understand. But when we talked about the errata I knew the big bulk of his errata had option two. Thank you for reminding me it was in there.

The only other comment, and it's a general one that bothered me and I -- some other people in the process, because I agree it's been a wonderful process and it's a huge advance over what had been done in the past. But I think if you all

reflect on it there were some -- there was a lot of time in my mind wasted discussing items that either were irrelevant or at the very least not going to affect the direct results. One of them was that cost analysis thing. I agree totally with the professor. We should have just, thank you very much, we stuck in the record, but there was nothing in there that should have convinced anybody of anything. And yet we spent an awful lot of time talking about and we could have attacked on its merits and throw it out. Not thrown it out. I think it was best to bring it in the way we did then reject it based on its merits as opposed to the other item, the TMDL's. We, staff, again and again made the comment that TMDL's are TMDL's. You're not going to change them in this MS4 permit. There's a process for that. There's concerns about them. But the amount of time we spend arguing about TMDL's was basically people saying we don't believe what you're telling us about TMDL's. That's understandable. But I think that should be along with what the professor said. That should be one of our goals is to get a little bit better understanding and trust of one another that we don't have to build things into something like an

MS4 permit to avoid some horrible outcome that everybody is telling it isn't going to happen, but just don't trust them. So we got to work on that a little bit. And that's all I got to say. I do thank everybody for their participation and I'm voting for it.

MS. KALEMKIARIAN: This has been really gratifying for me because my approach in my work and my non-profit work was always collaboration and cooperation and conversation, so I really applaud Dave Gibson and the staff for the way you approached this, even coming at the tail end I could see what a difference it is and I -- I'm going to support the motion and for the reason really that it's the staff and Dave Gibson that have to make this happen with the partners in the community. I don't think that option two would have protected anybody and it doesn't appear to me that there is an imminent threat of litigation. So it seems to me that the challenge is for people to build that trust that people are really serious about moving forward toward the goals and I was quite alarmed by some of the public official testimony, frankly, that seemed to say, well this is a good idea, but we can't do it, period. And

San Diego County is going to have to lead the way frankly in showing the board and working with the staff that they do think it can be done because right now the attitude that's been projected is that it can't be done. And we just need to find ways to alert people to when the ocean is dirty and I just don't buy that. So I think there is so much good that can come from this. I was going to -- I would have voted for option two as well but my comments would have been, everybody get ready to their feet held to the fire, because if option two was given and people didn't start moving on it, it was going to be the same old, same old.

I, particularly on Dave's recommendation, would vote for option one, but I think now it really -- there's a different feet to the fire, which is if the litigation is the result, as an attorney, I'm saying that's a bad result right now. So I'm going to take the NGO's at their word that this is not where it's going.

And I look forward to the opportunity in 2014 to see if we're ready at that point to look at measured steps forward.

MR. ANDERSON: Mostly I want to commend Wayne and the MS4 team. The two options and the

errata were prepared in a very short period of time and sent to us with time to consider. I went back through all my notes and everything and you guys did a great job of covering all the really important issues and giving us the opportunity to vote on a very clear choice. And, frankly, I was leading toward option two. Especially by the end of the day, but it is something that Dave and his staff have to enforce and with the opportunity of -- of taking -- allowing the option two options in the -- in the renewals for Riverside and Orange County and allowing them to write -- I really look forward to them being in those permits when we receive the applications to do the -- to do the MS4 permits. I really applaud the direction this is going. I hope that everybody doesn't take out their pistols and start shooting.

MR. MORALES: I was actually really torn most the day and in fact I still am in many respects. I remember when I first got this job. I was told by someone, you got to be crazy. That's the kind of thing where you will make no friends and lots of enemies and you work your butt off, and, by the way, not get paid. And didn't quite understand it at the time, but I think what she

meant was that, you know, to do it right sometimes hard decisions will have to be made. I struggled with what is the best approach to get clean water. You know, is it, you know, giving like cities and applicants and other copermittees leeway where -- or the ability to craft their -- their own approaches and will that be most effective or is it, you know, an approach like we have in -- in option one. But I did mention earlier that I was a history major, studied a lot of history, and still try to. And I would be surprised if in the prior discussions of permits, especially the initial ones, that folks who sat on the board at that point didn't hear exactly the same issues and concerns from the regulated community that, one, it's too expensive; two, we'll never be able to comply; three, the money could be better used elsewhere; four, you guys are nuts. But that's always been the case in -- well, in history. And I am hopeful -- I will vote for this. I am hopeful that at -- at some point, you know, everybody in the room or, frankly, our kids and grandkids will look back and, you know, think we made the right decision.

So unless there is any further discussion or questions by the board I'll call for

a vote.

So all those in favor of the motion to adopt the tentative resolution with option one and EPA's suggested errata today, please signify yes by saying aye.

BOARD MEMBERS: Aye.

MR. MORALES: Any opposed? Passes.

And thank you folks.

(Whereupon the hearing was concluded at 7:41 p.m.)

* * *

I, Johnell M. Gallivan, Certified Shorthand Reporter for the State of California, do hereby certify:

That the meeting was taken by me in machine shorthand and later transcribed into typewriting, under my direction, and that the foregoing contains a true record of the meeting.

Dated: This day of , 2013, at San Diego, California

_____

Johnell M. Gallivan

CSR No. 10505

ATTACHMENT
33

REPORT OF WASTE DISCHARGE

Application for Renewal of NPDES Municipal Stormwater Permit for San Diego County

Submitted to the San Diego Regional Water Quality Control Board on behalf of the Copermittees to Order No. R9-2007-0001

County of San Diego
City of Carlsbad
City of Chula Vista
City of Coronado
City of Del Mar
City of El Cajon
City of Encinitas
City of Escondido
City of Imperial Beach
City of La Mesa
City of Lemon Grove
City of National City
City of Oceanside
City of Poway
City of San Diego
City of San Marcos
City of Santee
City of Solana Beach
City of Vista
San Diego Unified Port District
San Diego County Regional Airport Authority

June 24, 2011

Prepared with the Assistance of Larry Walker Associates

Executive Summary

Urban runoff from the municipalities in San Diego County is regulated by an NPDES Permit (Regional Board Order No. R9-2007-0001) which is typically renewed every five years. As part of the renewal process the Copermittees must prepare a Report of Waste Discharge (ROWD) that serves as an application for issuance of a new waste discharge permit. The ROWD must include the following:

- Updated Copermittee contact information;
- Proposed changes to the Copermittees' urban runoff management programs (see Sections 2 and 3);
- Proposed changes to the Copermittees' water quality monitoring programs (see Section 2.B and related attachments);
- Justification for proposed changes; and
- Any other information necessary for the reissuance of the Permit.

To support the development of the ROWD the Copermittees conducted numerous meetings to assess and identify changes to their urban runoff management programs. A core set of principles guided the Copermittees' development of the ROWD and recommendations for changes:

- Simplified reporting;
- Streamlined and more meaningful assessment;
- Better coordinated water quality monitoring;
- Enhanced watershed and Total Maximum Daily Load (TMDL) focus; and
- Increased emphasis on strategic planning.

The Copermittees identified a number of specific recommendations for changes to existing management and monitoring requirements. If adopted, these changes would be in effect on adoption of the new Order. They are identified and discussed in detail in ROWD Section 2.

Parallel to the evaluation of the current urban runoff management and monitoring programs, the Copermittees identified the need to develop an iterative, adaptive urban runoff management approach focused on watersheds. This approach would build on the changes to core requirements described in ROWD Section 2. It is introduced in Section 1 and expanded upon in Section 3. The central feature of the Copermittees' recommended Watershed Adaptive Management Strategy is the "Watershed Plan." A single plan for each watershed would help streamline and refocus efforts and make best use of limited resources. The watershed appears to be the appropriate scale at which to integrate the many programs and activities targeting water quality improvement. Furthermore, this scale is consistent with other regulatory programs and policies (e.g. TMDLs and Basin Plans). While it is critical that decision-making remain within the discretion of each jurisdiction, the creation of Watershed Plans would encourage each Copermittee to carefully consider the impact of its management decisions on priority watershed water quality conditions. The suggested content and framework for the Watershed Plan is presented in Section 3.

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ATTACHMENTS

Attachment 1-1: Jurisdictional Illicit Discharge Detection and Elimination Program and Dry Weather Filed Screening and Analytical Monitoring Program Review

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Attachment 2-3: MS4 Outfall Monitoring Program Review

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Section 1 Introduction

1.A REPORT OF WASTE DISCHARGE PURPOSE AND ORGANIZATION

This Report of Waste Discharge (ROWD) serves as a legally required application[1] for issuance of a new waste discharge permit for the Copermittees in San Diego County. The permit will replace the current waste discharge Order No. R9-2007-0001 (2007 Order)[2]. Section J.2.d of the 2007 Order sets out a timeframe and minimum requirements for the development and submittal of a ROWD prior to the scheduled expiration of the 2007 Order. The ROWD must include the following:

1) Names, titles, and mailing addresses of primary Copermittee contacts (**Table 1.2**);

2) Proposed changes to the Copermittees' urban runoff management programs (see Sections 2 and 3);

3) Proposed changes to the Copermittees' water quality monitoring programs (see Section 2.B and related attachments);

4) Justification for proposed changes (see above as applicable); and

5) Any other information necessary for the reissuance of the Permit.

The organization and content of the ROWD are as follows:

Section 1: Introduction – Includes a general description of the Permit coverage area, relevant application information, background to ROWD development, and a brief discussion of general permitting issues, some of which are addressed in more detail in Sections 2 and 3.

[1] Section J.2.d of the 2007 Order mandates that the Copermittees submit this application and address the issues identified in the ROWD. The Copermittees therefore are legally mandated to submit this document and to make the recommended modifications set forth herein. Because the Copermittees are legally compelled to submit this application, nothing in this ROWD should be construed as an invitation to the RWQCB to regulate the Copermittees in any particular way. Please see Section 1.F.v of this ROWD for further discussion of this issue.

[2] California Regional Water Quality Control Board San Diego Region Order No. R9-2007-0001 NPDES No. CAS0108758, Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm Sewer Systems (MS4s) Draining the Watersheds of the County of San Diego, the Incorporated Cities of San Diego County, the San Diego Unified Port District, and the San Diego County Regional Airport Authority.

Section 2: Recommended Modifications[3] to Order R9-2007-001 Management and Monitoring Programs – Provides background and recommendations for establishing updated core program requirements in the new Permit. This information and any new findings that the Copermittees acquire each year will be used to identify program enhancements as part of the Watershed Adaptive Management Strategy, which is discussed in Section 3.

Section 3: Watershed Adaptive Management Strategy – Provides a detailed discussion of an iterative, watershed-based adaptive management strategy for water quality protection. The strategy contains two primary processes for program improvement:

- *Watershed Plan Development*. Establishment of an overall management program for each watershed at the outset of the new Permit, including management objectives, assessment metrics, strategies and actions (i.e., BMPs), based on the recommended improvements to core programs presented in Section 2 and the Copermittees' understanding of pollutant sources in each watershed; and,

- *Adaptive Management*. As needed adjustments to management actions that will enhance effectiveness based on new BMP effectiveness data, source identification findings, monitoring data results, or in response to deficiencies in program assessment results.

1.B REGION AND MS4 DESCRIPTION

Bounded by the Pacific Ocean on the west and Mexico to the south, the San Diego region occupies more than 4,200 square miles in the southwest corner of the continental United States. At the beginning of 2010, the region had an estimated population of 3,224,432[4], an increase of more than 400,000 people (15 percent) from April 2000 Census figures. While the San Diego region is expected to grow at a slower pace in the coming decades, the impacts of increasing population and urbanization will continue to be felt. Within the region, each of the entities below owns or operates a municipal separate storm sewer system (MS4), through which it discharges urban runoff into waters of the United States.

1. County of San Diego (Principal Permittee)
2. City of Carlsbad
3. City of Chula Vista
4. City of Coronado
5. City of Del Mar
12. City of National City
13. City of Oceanside
14. City of Poway
15. City of San Diego
16. City of San Marcos

[3] This ROWD uses terms such as "recommended modifications", "proposed changes", "requests" etc. because the requirements of Section J.2.d of the 2007 Order mandate that the ROWD address such program improvements. The use of these and similar terms in the ROWD must be interpreted in accordance with footnote 1 above and Section 1.F.v of this document.

[4] SANDAG Regional Growth Forecast, 2011.

6. City of El Cajon
7. City of Encinitas
8. City of Escondido
9. City of Imperial Beach
10. City of La Mesa
11. City of Lemon Grove
17. City of Santee
18. City of Solana Beach
19. City of Vista
20. San Diego Unified Port District
21. San Diego County Regional Airport Authority

Municipal urban runoff management programs in the San Diego region were initiated with the July 1990 adoption of Regional Water Quality Control Board (RWQCB) Order No. 90-42, but in many respects started fresh when that Permit was reissued in February 2001. The current Permit was reissued in January 2007. It added a number of new and increasingly prescriptive requirements for jurisdictions to implement, including expanded requirements for low impact development BMPs, treatment control BMPs, and BMP maintenance tracking for new development; hydromodification management plans; specific street sweeping and MS4 maintenance requirements; and expanded water quality monitoring programs among others[5].

Also notable is the 2007 Order's increased emphasis on watershed management principles and practices. Unlike previous permits, it specifically requires the implementation of a minimum number of watershed activities that go above and beyond core management requirements to reduce pollutant discharges causing high priority water quality problems in each of the nine watersheds identified in **Table 1.1**. These activities are developed, implemented, and assessed within the context of Watershed Urban Runoff Management Program (WURMPs), which are required for each watershed. Since urban runoff does not conform to jurisdictional boundaries, watershed-based urban runoff management requirements are intended to help focus programs on the most important water quality problems in each watershed.

Collectively, these and other requirements represented a significant increase in effort over previous permit cycles. Copermittees are now nearing the end of a third Permit cycle, and have conducted in-depth reviews of their management programs with an eye toward continued program improvement. The results of this review are described as applicable throughout the remainder of this ROWD and in the Copermittees' Long-term Effectiveness Assessment (LTEA), which is submitted under separate cover.

[5] As discussed in Section 1.F.v of the ROWD, many of these new and increasingly prescriptive provisions are the subject of a successful Test Claim before the Commission on State Mandates which is currently being challenged in the California courts.

Table 1.1: Watersheds and Responsible Copermittees under Order No. R9-2007-001

Watershed	Area (sq. mi.)	Population (2000)	Responsible Copermittees
1. Santa Margarita	750 total; 197 in San Diego County	27,124 in San Diego County	• County of San Diego
2. San Luis Rey	562	148,515	• City of Oceanside (lead) • City of Vista • County of San Diego
3. Carlsbad	211	496,128	• City of Carlsbad (lead) • City of Encinitas • City of Escondido • City of Oceanside • City of San Marcos • City of Solana Beach • City of Vista • County of San Diego
4. San Dieguito	346	147,626	• City of Escondido (lead) • City of Del Mar • City of Poway • City of San Diego • City of Solana Beach • County of San Diego
5. Los Penasquitos	94	227,599	• City of Poway (lead) • City of Del Mar • City of San Diego • County of San Diego
6. Mission Bay	68	220,803	• City of San Diego
7. San Diego	434	505,032	• City of El Cajon (lead) • City of La Mesa • City of San Diego • City of Santee • County of San Diego
8. San Diego Bay	415	932,845	• San Diego Unified Port District (lead) • City of Chula Vista • City of Coronado • City of Imperial Beach • City of La Mesa • City of Lemon Grove • City of National City • City of San Diego • County of San Diego • San Diego County Regional Airport Authority
9. Tijuana	1,750 total; 467 in U.S.	1.4 million total; 77,344 in San Diego County	• County of San Diego (lead) • City of Imperial Beach • City of San Diego

1.C APPLICANT INFORMATION

The administrative and technical contact information for each Copermittee is provided in **Table 1.2**. The first 20 of these parties were initially named as Copermittees under Order No. 90-42 in July 1990. The San Diego County Regional Airport Authority was added as the 21st Copermittee on August 13, 2003. No additional Copermittees have been added since that time.

Table 1.2: Copermittee Contact Information

Copermittee	Primary Administrative Contact (Official Mailing Contact)	Primary Technical Contact (Day-to-day Contact)
1. County of San Diego (Principal Permittee)	Cid Tesoro LUEG Program Manager 5201 Ruffin Rd., Ste P. San Diego, CA 92123	Jon Van Rhyn Water Quality Program Manager 5201 Ruffin Rd., Ste P. San Diego, CA 92123
2. City of Carlsbad	Elaine Lukey Environmental Manager 1635 Faraday Avenue Carlsbad, CA 92008	Elaine Lukey Environmental Manager 1635 Faraday Avenue Carlsbad, CA 92008
3. City of Chula Vista	Khosro Aminpour Senior Civil Engineer 1800 Maxwell Road Chula Vista, CA 91911	Khosro Aminpour Senior Civil Engineer 1800 Maxwell Road Chula Vista, CA 91911
4. City of Coronado	Scott Huth Director of Public Services 101 B Avenue Coronado, CA 92118	Kimberly Godby Supervisor - Services 101 B Avenue Coronado, CA 92118
5. City of Del Mar	Kathleen Garcia Director, Planning & Community Development 1050 Camino Del Mar Del Mar, CA 92014	Mikhail Ogawa Clean Water Manager 1050 Camino Del Mar Del Mar, CA 92014
6. City of El Cajon	Dennis Davies Deputy Director of Public Works 200 Civic Center Way, 4th Floor El Cajon, CA 92020	Jaime Campos Associate Civil Engineer 200 Civic Center Way, 4th Floor El Cajon, CA 92020
7. City of Encinitas	Erik Steenblock Clean Water Program Manager 505 S. Vulcan Avenue Encinitas, CA 92024	Erik Steenblock Clean Water Program Manager 505 S. Vulcan Avenue Encinitas, CA 92024
8. City of Escondido	Lori Vereker Utilities Director 201 North Broadway Escondido, CA 92025	Cheryl Filar Env. Programs Manager 201 N. Broadway Escondido, CA 92025
9. City of Imperial Beach	Hank Levien Public Works Director 825 Imperial Beach Blvd. Imperial Beach, CA 91932	Chris Helmer Env. Programs Manager 825 Imperial Beach Blvd. Imperial Beach, CA 91932

Copermittee	Primary Administrative Contact (Official Mailing Contact)	Primary Technical Contact (Day-to-day Contact)
10. City of La Mesa	Joe Kuhn Storm Water Program Manager 8130 Allison Avenue La Mesa, CA 91941	Joe Kuhn Storm Water Program Manager 8130 Allison Avenue La Mesa, CA 91941
11. City of Lemon Grove	Cora Long Stormwater Policy Analyst 3232 Main Street Lemon Grove, CA 91945	Cora Long Stormwater Policy Analyst 3232 Main Street Lemon Grove, CA 91945
12. City of National City	Din Daneshfar Principal Civil Engineer 1243 National City Blvd. National City, CA 91950	Barby Tipton Storm-water Inspector 1243 National City Blvd. National City, CA 91950
13. City of Oceanside	Mo Lahsaie Clean Water Prog. Coordinator 300 N. Coast Highway Oceanside, CA 92054	Mo Lahsaie Clean Water Prog. Coordinator 300 N. Coast Highway Oceanside, CA 92054
14. City of Poway	Malik Tamimi Stormwater Program Administrator P.O. Box 789 Poway, CA 92074	Malik Tamimi Stormwater Program Administrator P.O. Box 789 Poway, CA 92074
15. City of San Diego	Kris McFadden Deputy Director City of San Diego Transportation & Stormwater Dept. 9370 Chesapeake Drive, Suite 100, MS 1900 San Diego, CA 92123	Drew Kleis Program Manager City of San Diego Transportation & Stormwater Dept. 9370 Chesapeake Drive, Suite 100, MS 1900 San Diego, CA 92123
16. City of San Marcos	Erica Ryan Stormwater Program Manager 1 Civic Center Drive San Marcos, CA 92069	Reed Thornberry Stormwater Analyst 1 Civic Center Drive San Marcos, CA 92069
17. City of Santee	Pedro Orso-Delgado Deputy City Manager/Development Services Director 10601 Magnolia Avenue Santee, CA 92071	Helen Perry Stormwater Program Manager 10601 Magnolia Avenue Santee, CA 92071
18. City of Solana Beach	Dan Goldberg Principle Civil Engineer 635 South Highway 101 Solana Beach, CA 92075	Taryn Dunbar Assistant Civil Engineer 635 South Highway 101 Solana Beach, CA 92075
19. City of Vista	Paul Hartman Storm Water Program Manager 200 Civic Center Drive Vista, CA 92084	Paul Hartman Storm Water Program Manager 200 Civic Center Drive Vista, CA 92084
20. San Diego Unified Port District	Karen Holman Manager, Environmental Programs P.O. Box 120488 San Diego, CA 92112-0488	Karen Holman Manager, Environmental Programs P.O. Box 120488 San Diego, CA 92112-0488

Copermittee	Primary Administrative Contact (Official Mailing Contact)	Primary Technical Contact (Day-to-day Contact)
21. San Diego County Regional Airport Authority	Paul Manasjan Director, Environmental Affairs P.O. Box 82776 San Diego, CA 92138-2776	Richard Gilb Manager, Environmental Affairs P.O. Box 82776 San Diego, CA 92138-2776

1.D BACKGROUND TO ROWD DEVELOPMENT

Prior to initiating work on the ROWD, the Copermittees recognized a need for dialogue on long-term strategic planning. Considerations included:

- In addition to the 2007 Order, Copermittees are faced with new and more stringent water quality mandates, including total maximum daily loads (TMDLs) and Areas of Special Biological Significance (ASBS). There is an urgent need to integrate and streamline the many programs and activities required by these different regulations so that limited resources can be prioritized and put to their best use.

- There is an increasing need for improved efficiency and effectiveness, and reduced redundancy in programs.

- There is a need to connect Copermittee activities to demonstrated improvements in water quality.

- There is an ever-increasing reality of diminishing resources at the local level.

It is in this context that spurred Copermittees to develop an overarching 20-year vision that would help guide watershed management decision-making that is both effective in improving water quality and efficient in the use of public funds. The results of the Copermittees' visioning process, which took place between September and November of 2010, are summarized in Section 1.E. Results from the visioning provide an important foundation upon which specific recommendations in this ROWD are based. The vision will continue to be used beyond the timeframe of this Permit reissuance.

In addition to visioning, the Copermittees conducted an extensive Permit review process between May 2010 and June 2011 that was wholly or partially dedicated to reissuance topics. Some of the more important forums for discussion are discussed below.

Reporting and Assessment Standards Evaluation Workshops. In February 2010, two Copermittee workgroups (the Regional WURMP Workgroup and the Fiscal, Reporting and Assessment Workgroup) jointly initiated a project to begin developing recommended reporting and assessment standards for Jurisdictional Urban Runoff Management Programs (JURMPs). Between May 25 and July 10, 2010, workshops were held to help promote consistency in how Copermittee programs are reported and assessed. The results of the workshops are reflected in the final recommendations of this ROWD.

Meetings with RWQCB Staff. Critical dialogue between Copermittees and RWQCB staff took place on the following dates:

- Feb. 8, 2011
- April 6, 2011
- April 19, 2011

The first meeting dealt with broad conceptual issues. During the meeting, RWQCB staff informed the Copermittees of its intention to issue a single municipal stormwater permit for the San Diego region. Under this scenario, the upcoming San Diego County reissuance would represent the first leg of a process that would eventually bring in south Orange and south Riverside Counties. RWQCB staff also expressed a desire for more emphasis on using water quality monitoring information to drive management actions under the new Permit, with a corresponding decrease in jurisdictional reporting.

The second meeting included an overview of results from the Copermittees' Watershed Visioning workshops, and how they are likely to inform the ROWD. The remainder of the meeting was dedicated to "brainstorming" ideas for a new permit, with much of the discussion focusing on: (1) an overall adaptive management permit framework, (2) watershed and TMDL integration, (3) the role of reporting and assessment, and (4) permit performance standards.

The third meeting focused solely on water quality monitoring issues and approaches. Copermittees presented preliminary results and recommendations from their ongoing extensive review of monitoring programs. That content, which has since undergone additional refinement, is reflected in this ROWD (Section 2.b. and related attachments) as well as the LTEA.

Permit Reissuance Workgroup Meetings. After the initial meeting with RWQCB staff, the Copermittees established a dedicated workgroup (subordinate to the Regional Program Planning Subcommittee) to oversee the development of the ROWD and LTEA. This workgroup was responsible for generating potential content, overseeing consultant support, interfacing with RWQCB staff, and keeping Copermittees informed and updated.

Regional Monitoring ROWD Sub-workgroup Meetings. A dedicated workgroup (subordinate to the Regional Monitoring Workgroup) was also formed to review existing monitoring approaches, develop recommendations for potential changes to monitoring programs, oversee consultant support related to monitoring content in the LTEA and ROWD, interface with RWQCB staff, and ensure Copermittee participation throughout the review process.

Copermittee Permit Reissuance Workshops. To ensure broad and inclusive input from all 21 Copermittees, four workshops were held to allow discussion among Copermittee representatives regarding reissuance topics and potential content.

- Workshop 1: March 29, 2011

- Workshop 2: April 26, 2011
- Workshop 3: May 31, 2011
- Workshop 4: June 16, 2011

The purpose of these workshops was to brief Copermittees on ongoing content development, to seek their input, and to validate and refine potential recommendations developed by the ROWD workgroups described above. The first two workshops addressed both monitoring and broader ROWD content. The third focused solely on monitoring issues. The last workshop provided an opportunity for Copermittees to comment on and discuss the draft ROWD and LTEA documents.

Additional Input from Regional Workgroups. On April 7, 2011, the County of San Diego requested that all Copermittee workgroups provide subject area input on reissuance. Workgroups were specifically asked to identify anything within their respective subject areas that should be modified in, removed from, or added to, the current Permit. Input provided by these workgroups is reflected as applicable in ROWD Section 2.

The recommendations and discussion presented in this ROWD represent a consensus of Copermittees as developed through this extended dialogue. However, it should also be understood that consensus is not always unanimity. Individual jurisdictions reserve the right to dissent from, or address issues not reflected in, the content of this ROWD during the remainder of the permit reissuance process.

1.E A VISION FOR URBAN RUNOFF MANAGEMENT IN SAN DIEGO

The San Diego region continues to face many challenges associated with protecting its precious and finite water resources. Urban runoff has been identified as impacting the water quality of the region's ocean, bays, streams, and other water bodies. Local jurisdictions have important responsibilities to implement programs to protect and improve the quality of these watersheds and water bodies, but often find that progress is hampered by resource limitations and a lack of knowledge or consensus on how best to move forward. This desire for additional clarity and coordination led the Copermittees to pursue a series of visioning workshops in Fall 2010. Over the course of five workshops, the Copermittees identified a consensus-based strategy for protecting water quality and local watersheds in a long-term, sustainable manner. While this strategy addresses some issues that are beyond the scope of the Copermittees' responsibilities under the2007 Order, it provides a comprehensive, iterative, and adaptive strategy that the Copermittees wish to pursue in the next and future permit terms.

1.E.i Visioning Effort

Five regional Copermittee workshops were held to develop consensus-based vision, goals, and objectives for the future state of urban runoff and surface water protection in the San Diego region:

- Workshop 1: September 2, 2010

- Workshop 2: September 14, 2010
- Workshop 3: October 4, 2010
- Workshop 4: October 14, 2010
- Workshop 5: November 30, 2010

Each workshop was professionally facilitated to ensure that all objectives were completed within the projected scope of the workshops, and that all participants had sufficient opportunity to provide input. Ground rules were agreed upon at the first meeting. All workshops were attended by a majority of Copermittees. A planning workgroup also met extensively between the workshops to review and document results, and to prepare materials for ensuing discussion.

1.E.ii Vision, Goals, Objectives

A vision statement and supporting goals were crafted by the Copermittees (**Table 1.3**) to guide the planning of specific activities and programs over a 20-year horizon.

Table 1.3: Watershed Vision, Goals, and Objectives

Vision	Our vision is for the protection of water quality in our streams, bays, ocean, and other water bodies that benefits wildlife, recreation, the environment, and other community needs as supported by sustainable stormwater management.
Goal 1	Protect and restore appropriate beneficial uses for prioritized water bodies impacted by stormwater. <u>Objectives</u> • Establish source, constituent, and water body priorities for each watershed • Promote beneficial use designation and water quality objectives that are scientifically valid • Reduce flows and pollutant loads from stormwater that adversely impact receiving water integrity • Promote watershed stewardship as a social standard • Support the identification and development of sustainable projects that provide diverse habitats and water quality benefits
Goal 2	Achieve sustainable stormwater management that balances social, economic, and environmental needs. <u>Objectives</u> • Promote public policy that supports sustainable stormwater management • Obtain public support for long-term and reliable funding for stormwater programs • Involve the public in understanding and defining sustainable stormwater management
Goal 3	Focus stormwater management on sources and practices that jurisdictions have the ability to affect or control. <u>Objectives</u> • Identify the pollutant of concern loads that are attributable to stormwater • Work with regulatory agencies and other parties to ensure that pollutant sources are re-assigned to the appropriate regulatory process (air, water, and waste) • Promote public policy that reduces pollutants of concern through source product

	replacement/substitution/application
Goal 4	Support development of a regulatory framework and establish an organizational structure that facilitates implementation of the most effective and efficient stormwater management program. <u>Objectives</u> • Focus assessment on information needed to implement the most effective control strategies and adaptive management • Establish and organizational and workload structure that focuses stormwater program implementation at the watershed or other appropriate scale • Streamline program implementation, reporting, and assessment • Develop TMDL implementation plans that integrate sustainable stormwater management.

Although each goal in the Copermittees' Vision is relevant to the programs and activities required under the 2007 Order, Goal 4 is particularly relevant to the reissuance process*. To achieve Goal 4 – Support development of a regulatory framework and establish an organizational structure that facilitates implementation of the most effective and efficient stormwater management program* – the Copermittees have identified a watershed adaptive management framework that should serve as the basis for the Permit renewal process. The framework is described in detail in Section 3.

1.E.iii Key Concepts from the Copermittees' Vision

The following five key concepts were distilled from the visioning workshops. These concepts establish a set of guiding principles for permit reissuance, and inform the remainder of this ROWD.

- *Simplified reporting* (e.g., JURMP checklist, integrating multiple reports into a single watershed-based report)
- *Streamlined and more meaningful assessment* (e.g., collaborative efforts to assess the efficiency of BMPs and pollutant-generating activities)
- *Better coordinated water quality monitoring* (increased regional / watershed efficiencies)
- *Enhanced TMDL focus* (e.g., better integration of WURMP and TMDL programs)
- *Increased emphasis on strategic planning* (e.g., regionally coordinated efforts on addressing program funding, regulatory changes, and true source control initiatives)

1.F GENERAL PERMITTING ISSUES

This section introduces some of the general issues that should be explored in more depth during the Permit reissuance process. Some of these issues are explored in further detail in ROWD Sections 2 and 3.

1.F.i Adoption of a Region-wide Permit

During the south Orange and south Riverside County Permit hearing processes, and in meetings with San Diego Copermittees to date, RWQCB staff has expressed its intention to adopt a single, region-wide

Permit covering the portions of all three Counties within Region 9 boundaries. Under this scenario, San Diego would be the first in, and the others would follow on their next scheduled reissuances (December 2014 and October 2015, respectively), or sooner.

While a single, region-wide Permit might present some potential process efficiencies, there a number of issues that warrant additional discussion with Copermittees and RWQCB staff. Among the outstanding questions to be addressed are the following:

- How would the Permit be structured?
- What other permitting authorities in the U.S. have considered or adopted region-wide permits? Is staff reviewing those permits and re-issuance processes? If so, what were the key issues and concerns raised, and how were they resolved?
- Would all three regions have identical conditions, or would some requirements be unique to individual regions?
- Could specific conditions in any of the individual Permits be omitted from the region-wide Permit, or would the starting point be the sum of all existing conditions in the three Permits?
- Would the three regions be required to collaborate? If so, how?
- Would there be a single region-wide "principal" Copermittee? If so, what would its responsibilities be?

The ideas and recommendations presented in this ROWD can be addressed either within or outside of a consolidated, region-wide Permit structure. It is, however, critical that the details of a proposed Permit structure be put forth as early as possible. We therefore recommend that a dialogue dedicated solely to Permit structure be initiated with RWQCB staff and representatives of all three Permit regions, and that these discussions initially be held independently of those involving other permitting issues.

1.F.ii Watershed-Based Adaptive Management

The Copermittees feel strongly that a reissued Permit must be predicated on an adaptive management framework. Moreover, the watershed appears to be the appropriate scale at which to integrate the many programs and activities targeting water quality improvement. Watershed-based adaptive management will help ensure that programs and activities are effectively addressing the pollutant-generating sources and activities causing each watershed's priority water quality problems. This is critical to ensuring the best use of limited resources. The Watershed Adaptive Management Strategy described in ROWD Section 3 is also in line with the desire expressed by RWQCB staff to issue a watershed-based Permit that is more strategic and less prescriptive.

1.F.iii Timeline for Establishing and Updating Watershed-Based Programs

Under the reissued Permit, it is inevitable that program modifications will initially be necessary in response to new requirements, and also as part of an ongoing adaptive management process. In both cases, it is critical that consistency and quality of effort be foremost considerations, and that Copermittees be provided the time necessary to carry these changes through. Rather than setting out generic schedules for program updates, the reissued Permit should realistically reflect all of the intermediate steps necessary to fully implement each new or modified mandate, and the time needed to complete it. This is particularly true as we transition from the existing JURMP/WURMP structure to a Watershed Plan approach (see Section 3). Among the process considerations that may be relevant to each are the following:

- Collaborative or individual development and approval of new programs, collaborative standards, or Watershed Plans;
- RWQCB review and/or approval of new or modified core programs, Watershed Plans, annual reports, or other key work products;
- Development of reporting and assessment standards to ensure consistency amongst Copermittees, and to allow watershed and regional consolidation of results;
- Development and adoption of ordinances or other legal authorities;
- Modification of individual Copermittee programs in accordance with new Permit requirements, group standards, program implementation results, monitoring results, or other feedback;
- Adoption of modified budgets to support increased implementation costs; and
- Development of new or modified monitoring programs.

1.F.iv MS4 Action Levels

Action Levels, as applied in the south Orange and south Riverside County permits that were recently adopted by the RWQCB, are triggers used to define specific follow up actions to be undertaken by Copermittees when results of monitoring at MS4 outfalls exceed prescribed limits. Both permits incorporate two forms of Action Levels, non-stormwater dry weather action level (NALs) for dry weather discharges and Stormwater Action Levels (SALs) for wet weather discharges.

The Copermittees recognize the presence of NALs and SALs in the Orange and Riverside permits, and acknowledge the stated intention of RWQCB staff to utilize them in the Region-wide Permit. At the same time, RWQCB staff has expressed a desire to issue a Permit that is more strategic, less prescriptive, watershed-based, and more oriented to the evaluation of changes in MS4 discharge quality. While it is

unclear how RWQCB staff propose to use Action Levels to support this updated approach, it is clear that MS4 outfall monitoring would be a critical component of it. Prior to the adoption of the reissued Permit, Copermittees wish to explore with RWQCB staff an appropriate application of Action Levels that would make best use of limited resources and contribute to actual improvements in water quality. Some of the Copermittees' initial considerations for discussion are summarized below. The following is based on the Copermittees' review of the south Orange and south Riverside County Permits, and is intended to further discussions with RWQCB staff.

Potential Use of Action Levels as Triggers for Immediate Investigations

Comparison of MS4 outfall monitoring results to NALs and SALs is not likely to improve the Copermittees' ability to identify and abate illegal connections and illicit discharges (IC/IDs) to the storm drain system. ROWD Section 2.B and Attachment 1-1 discuss how implementation of a similar IC/ID program under the 2007 Order has had a very low success rate in identifying IC/IDs. Since NALs and SALs are assessed at the "end of pipe", an even lower success rate would be expected since the point of monitoring is further downstream and therefore further removed from potential upstream sources. In addition, samples submitted for laboratory analysis can often take weeks to return results. This further reduces the usefulness of NALs and SALs as tools to abate IC/IDs, particularly for discharges that are transient in nature. As explained in ROWD Section 2.B., the Copermittees suggest that a more appropriate trigger for immediate IC/ID investigations would be observations at the time of a field visit.

Potential Use of Action Levels for Long-Term Program Planning

Though limited in their ability to help Copermittees detect IC/IDs, Action Levels could be more useful in guiding the review, analysis, and refinement of Copermittees' programs over a longer-term period. For example, a statistically valid analysis of change in MS4 results over time could be explored as a determinant of program success. However, if sample sizes or analytical timeframes are too limited, the usefulness and validity of results would be compromised. Given the significant cost of water quality monitoring, consideration may need to be given to pooling and analyzing results over broader geographic scales (e.g., regionally) and longer time frames than those envisioned in the south Orange and south Riverside Permits. Moreover, to remain consistent with a strategic and watershed-based approach, Action Levels should be limited to constituents identified as watershed priorities. Information on MS4 outfall results for non-priority constituents could be utilized at periodic intervals to assess the appropriateness of watershed priorities, but follow-up action in the form of programmatic response to results should be limited to firmly established watershed priorities. Finally, the possibility of relief from some prescriptive Permit requirements based on demonstrated progress toward compliance with NALs and/or SALs should be explored. In instances where a Copermittee can demonstrate that core requirements are unrelated to priority water quality problems in the watershed, NAL and SAL results might be used to support a reduction in, or removal of, certain core requirements. This should be further discussed as part of the development of a watershed adaptive management strategy.

1.F.v Unfunded Mandates

The 2007 Order imposes a number of requirements that the Copermittees allege constitute an unfunded state mandate under Government Code Title 2, Division 4, Part 7 (State-Mandated Local Costs). A test claim was filed by the County of San Diego on June 20, 2008, and 19 other Copermittees were added in August 2008. The State Mandates Commission conducted a hearing on March 26, 2010, and issued a final Statement of Decision on March 30, 2010. In it, the Commission partially approved the Copermittees' test claim, finding that the following activities required under the 2007 Order constitute a reimbursable state-mandated new program or higher level of service:

- Street sweeping / reporting [Permit Sections D.3.a.(5) and J.3.a.(3)(c)(x-xv)]
- MS4 cleaning / reporting [Permit Sections D.3.a.(3) andJ.3.a.(3)(c)(iv)-(viii)]
- Educational component [Permit Sections D.5.a.(1)-(2); D.5.b.(1)(c)-(d); D.5.b.(3)]
- Watershed activities [Permit Sections E.2.f and E.2.g]
- Regional URMP [Permit Sections F.1, F.2, and F.3]
- All Copermittee collaboration [Permit Section L.1.a.(3)-(6)]
- Program effectiveness assessment [Permit Sections I.1 and I.2]
- Long-term effectiveness assessment [Permit Section I.5]

The Commission also found that the Low Impact Development and Hydromodification Plan development requirements were new programs or increased levels of service that exceeded the requirements of federal law, but concluded that the Copermittees had adequate fee authority to fund those two program elements. On July 20, 2010, the Department of Finance filed a Petition for Writ of Administrative Mandamus to overturn the Commission's decision. In August 2010, the Copermittees filed a cross-petition also challenging the Commission's decision with respect to the Copermittees' fee authority for Low Impact Development and Hydromodification Plan development, and the use of SB 310 Fee Authority for developing Watershed Management Plans. It is uncertain when a final judicial resolution of this lawsuit will be obtained, but the Copermittees anticipate that a final decision may be issued in 2012.

Assuming that the Commission's decision is at least partially upheld by the courts, some requirements of the 2007 Order, if carried through to the new Permit, will continue to constitute unfunded mandates. As such, the State legislature would either be required to appropriate funding to reimburse Copermittees for these costs, or the mandates would have to be suspended.

This also has bearing on the content of this ROWD. While the Copermittees have worked in good faith to identify and describe potential improvements to existing programs and Permit approaches, it must be

emphasized that the content of this document has not been evaluated against the requirements of Government Code Title 2, Division 4, Part 7. It is our expectation that in developing specific Permit requirements, RWQCB staff will conduct such analysis as they determine necessary, and that responsibility for doing so is entirely with the RWQCB. This position is supported by the Commission's March 2010 Statement of Decision, wherein they specifically contradicted State Board claims that a ROWD can be considered a "proposal" by dischargers, i.e., that ideas put forth by the Copermittees do not constitute unfunded mandates because they suggested them.

The Copermittees maintain that the specific content and suggestions put forth in this ROWD are intended solely to advance ongoing dialogue with RWQCB staff, and to identify potential options to be explored in a reissued permit. As such, the development and adoption of specific permit provisions remain solely the responsibility of the RWQCB and its staff. In addition, as noted in footnote 1 on page 1 of this ROWD, the Copermittees are legally required to submit this ROWD and to address the program changes as set forth in Section J.2.d of the 2007 Order; thus, the content and suggestions in this ROWD are legally mandated and should not be construed as being voluntary.

Section 2 Recommended Modifications to Order R9-2007-0001 Management and Monitoring Programs

Copermittees are currently implementing comprehensive stormwater management programs consistent with the 2007 Order. As part of the development of this Report of Waste Discharge (ROWD) they have carefully evaluated their current programs to identify opportunities for improvement.

ROWD Section 2.A discusses each of the primary jurisdictional program components ("core programs") contained in sections D, I, and J of the 2007 Order , first by providing an brief overview of the current Permit-defined effort and then providing recommendations for modifying the core program. Modifications to Permit Section E (Watershed Urban Runoff Management Program) are not addressed. The Copermittees' recommendations for watershed-based adaptive management contained in ROWD Section 3 should be considered a recommended alternative to Permit Section E. However, given that the Watershed Plans discussed in ROWD Section 3 represent an iterative process whereby specific strategies would be developed and modified over time, it is likely that Copermittees would require, with justification, additional flexibility to modify core programs within a watershed.

Regional Urban Runoff Management Program (Permit Section F) requirements are not addressed here. As discussed in ROWD Section 3.C, the Copermittees recommend that the reissued Permit not contain prescriptive regional implementation requirements, but that they be allowed to use regional activities and programs as an option for partially or wholly satisfying specific Watershed Plan requirements.

ROWD Section 2.B discusses alternatives to the existing monitoring program. Attachments 2.1-2.3 provide detailed analysis to justify these proposed changes.

2.A MODIFICATIONS TO CORE JURISDICTIONAL STORMWATER MANAGEMENT PROGRAMS

This section describes specific recommended modifications to core jurisdictional programs that, if adopted, would be effective on issuance of the new Order. As described in ROWD Section 3, these core requirements would also be subject to modification as part of the development and updating of Watershed Plans.

The Copermittees recommend that, with justification and RWQCB staff approval, the Order allow the future modification of jurisdictional core requirements during the development and updating of the Watershed Plans described in ROWD Section 3. Under the Watershed Plans, Copermittee efforts would increasingly be directed to the constituents and sources of most importance to each Watershed Management Area. Corresponding modifications to core requirements must be allowed to ensure that Copermittee resources can be used where they're most needed.

The remainder of this section applies only to those core requirements effective upon Permit reissuance. This content should be considered to represent a starting point and informational basis for considering and developing the updated core program requirements that will be identified in the new Permit.

During the development of Watershed Plans after the adoption of the new Permit, each Copermittee would optimize the implementation of the various core programs in order to target watershed priorities and maximize the efficiency of its overall implementation efforts in the watershed. These adjustments would need to meet clearly-defined criteria designed to provide reasonable assurance that the adjustments, when considered cumulatively, would enhance the overall efficiency and effectiveness of a Copermittee's actions in a watershed.

In subsequent years after the Watershed Plan has begun implementation, the Copermittees would continue to consider and implement modifications to core programs as part of an iterative, watershed-based adaptive management process that should also be clearly defined in the new Permit.

2.A.i Development Planning Component (Permit Section D.1)

Existing Core Program

Each Copermittee implements a Development Planning Component to minimize the short- and long-term impacts on receiving water quality from new development and redevelopment. Jurisdictions are currently implementing the following general control measures associated with this Component:

- Assessing and modifying general plans to ensure that land use decisions are adequately guided by water quality and watershed protection principles.
- Revising environmental review processes to include requirements for evaluation of water quality effects and identification of appropriate mitigation measures.
- Educating municipal staff and affected parties to ensure their understanding of applicable water quality laws and requirements and methods for minimizing the impact of development on water quality.
- Implementing a development project approval procedure so that priority projects are required to implement: source control BMPs; site design/landscape characteristics, where feasible; structural treatment control BMPs; and buffer zones for natural water bodies, where feasible.
- Requiring the development a Standard Urban Storm Water Mitigation Plan (SUSMP) for all new development and significant redevelopment projects falling under specified priority project categories.
- Requiring all priority projects to mitigate the water quality storm volume or flow through the use of infiltration, filtration or other treatment control BMPs.
- Developing and implementing a hydromodification management plan (HMP). The HMP requires that post-project runoff flow rates and durations do not exceed pre-project flow rates and durations where the increased flow rates and durations result in increased potential for erosion or other adverse impacts on beneficial uses.
- Developing a monitoring program to assess the impacts of the recently adopted Regional HMP.

Recommendations for Program Modification

Limits on Further Updates to Existing SUSMP and HMP Programs

The Copermittees recommend that existing SUSMP and HMP programs be evaluated over the next 5-10 years, and that future Permit modifications not be considered until results have been observed and monitoring data have been collected to provide a sufficient basis to validate and refine existing approaches. Other than allowing minor modifications needed to improve programs and realize efficiencies, changes to SUSMP and HMP requirements should not be considered until such time, i.e., not sooner than the 2017 Permit reissuance.

The 2007 Order required multiple updates to Copermittee SUSMP and HMP initiatives, each of which required an extensive effort on behalf of the Copermittees, e.g., to take documents through their respective adoption processes, to update technical reference manuals, and to re-train staff and the regional consulting community. Copermittees have spent considerable time and money to develop and update these approaches. SUSMP changes under the 2007 Order were substantive and incorporated a whole new LID approach that requires time to validate. These programs need time to mature and for Copermittees and the development community to gain experience in implementing them. They should not be substantively modified in the new Permit. Instead, results should be collected for a minimum of 5-10 years. Any future modifications to the programs should be based on observations made from implementing the SUSMP and HMP programs rather than incorporation of new or different requirements for which such analysis has not yet been conducted.

Limits on the Applicability of SUSMP and HMP Requirements

The Copermittees recommend that the applicability of all existing SUSMP and HMP requirements be evaluated during the reissuance process. We suggest the following principles inform this review and deliberation:

- *Requirements for all projects (small "mom and pop," road widening, etc.) should reflect relative risk and cost-effectiveness. Small projects often do not present the same threat to water quality as larger developments, but the financial burden of meeting Permit requirements can be proportionally much greater than for large developers. Likewise, significant limitations and constraints exist for incorporating HMP requirements into new linear projects (e.g., road widening). The tiering of requirements should be explored, e.g., based on size (for projects between 5000 square feet and 1 acre versus projects greater than an acre) or location (less risk if project is not near an impaired water body). Lower risk projects might be limited to meeting general source control and/or LID requirements, and HMP and TCBMP requirements introduced only above defined thresholds.*
- *Impracticability provisions should apply to HMP facilities. These provisions in the 2007 Order apply only to treatment control BMPs (TCBMPs). However, the same considerations that could make TCBMP placement impracticable also apply to HMP facilities. The Permit should allow impracticability determinations for HMP facilities. As an example, the San Francisco Municipal*

Regional Permit has an impracticability provision that includes considerations of space limitations and reasonable cost.

The Copermittees also believe that additional focused discussions on the applicability of specific SUSMP and HMP requirements would help to better focus the Permit where it will have the greatest impact and cost-efficiency.

Baseline Requirements for HMP Projects

The Copermittees recommend that the "pre-project" baseline used in the 2007 Order for HMP projects be retained in the reissued Permit.

The 2007 Order requires that Copermittee HMP requirements be implemented through local SUSMPs so that post-project runoff discharge rates and durations do not exceed estimated pre-project discharge rates and durations where the increased discharge rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses. Copermittees have put forth considerable effort and expense in meeting these requirements, which is especially difficult for road improvements and redevelopment projects in particular.

Under the south Orange and south Riverside Orders, HMP requirements must be implemented so that estimated post-project runoff discharge rates and durations do not exceed pre-development discharge rates and durations (i.e., naturally occurring conditions). Copermittees are concerned about the potential imposition of this more restrictive standard for the San Diego Region.

Changing the baseline to "pre-development" will make it impracticable for cities to meet increased traffic capacity demands for existing roads and will greatly hamper plans to densify existing urban areas through redevelopment and infill projects as an alternative to continued urban sprawl. Moreover, there is an existing, unanswered legal question about whether the Copermittees' police power authority would provide them with sufficient legal authority to regulate runoff based upon pre-development, as opposed to pre-project, discharge rates and durations. Until there is sufficient legal clarity on the authority of Copermittees to so regulate, the language in the 2007 Order should be maintained. The Copermittees believe that any substantive modifications to current HMP requirements should be based on analysis of data and implementation experience over the next 5-10 years, as well as a thorough analysis of the legal authority needed to support them.

TCBMP Maintenance Inspection Requirements

The Copermittees recommend that the TCBMP maintenance verification requirements of the 2007 Order be modified to reduce duplication, and to increase flexibility in allocating staffing resources.

The 2007 Order requires annual verification of the effective operation and maintenance of each approved treatment control BMP by responsible parties. Moreover, it requires that Copermittees conduct independent inspections of all high priority TCBMPs, 50% of projects with drainage inserts, and a minimum of 20% of the total number of projects with approved treatment control BMPs.

Under the south Orange and south Riverside Orders, Copermittees are given greater flexibility in the selection of methods to verify effective TCBMP operation. In particular, these Copermittees must verify maintenance and effective operation of TCBMPs through a combination of "inspections, self-certifications, surveys, or other equally effective approaches." While both Permits contain minimum inspection requirements for projects with high priority TCBMPs, they do not independently require that the effective operation and maintenance each inventoried TCBMP be annually certified by the responsible party. Moreover, the south Riverside Permit does not require that at least 50 percent of projects with drainage insert treatment control BMPs be inspected annually, as do the San Diego and south Orange County Permits. Clearly, the conditions of the south Orange and south Riverside Permits are more flexible, and allow a more efficient use of Copermittee resources than does the 2007 Order. Moreover, differences in approaches between the three permits should be more fully explored and better aligned in the future.

2.A.ii Construction Activities Component (Permit Section D.2)

Existing Core Program

Each Copermittee implements a Construction Component to minimize the near-term impacts of construction activities on receiving water quality. Jurisdictions are currently implementing the following general control measures associated with this Component:

- Implementing a plan review processes to incorporate jurisdictional requirements.
- Creating a prioritized watershed-based inventory of all construction sites prior to the rainy season.
- Requiring minimum BMPs for high, medium, and low priority construction sites during all phases of construction.
- Inspecting construction sites at defined frequencies during the wet and dry seasons.
- Obtaining legal authority through the jurisdictional construction ordinances and permits to regulate all construction sites.
- Notifying the RWQCB of non-compliant sites via a reporting system.

Recommendations for Program Modification

The Copermittees recommend that they be given greater flexibility in implementing their Construction Components. At a minimum, this should include greater discretion in determining appropriate construction site inspection frequencies.

The 2007 Order establishes both priorities and mandated minimum inspection frequencies for regulated construction sites. This leaves Copermittees very little room in adjusting site requirements or inspection strategies for individual sites. For example, the current Permit does not allow a Copermittee to reduce inspection frequencies on inactive sites that have been stabilized. Moreover, construction sites disturbing greater than one acre of land area are concurrently subject to oversight and inspection by RWQCB staff under the State Construction General Permit (CGP), which has been reissued since the adoption of the 2007 Order . Copermittees should have the ability to take these and other relevant

considerations into account when establishing specific requirements and oversight strategies for these sites. In contrast, Permit Section D.3.b identifies industrial and commercial source types that must be addressed by the program, but leaves critical details such as site prioritization and inspection priorities up to individual Copermittees. Construction program requirements should be structured in a way that similarly allows Copermittees the discretion to best use the resources available to them.

2.A.iii Municipal (Existing Development; Permit Section D.3.a)

The Existing Development Component of the 2007 Order encompasses several sub-components which are addressed in further detail below.

Existing Core Program

Each Copermittee implements a Municipal sub-component to minimize pollutants in runoff from municipal facilities and activities. Municipal operations encompass a wide variety of activities and facility types (i.e., sources), some of which have the potential to generate pollutant loads in runoff. Jurisdictions are currently implementing the following general control measures associated with this sub-component:

- Developing a prioritized, watershed-based inventory of municipal sources, including at least the following high priority sources and activities:
    - Roads, streets, highways, and parking facilities;
    - Flood management projects and flood control devices;
    - Areas and activities tributary to a CWA Section 303(d) impaired water body segment, where an area or activity generates pollutants for which the water body segment is impaired. Areas and activities within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas;
    - Municipal waste facilities (active or closed landfills; publicly-owned treatment works; solid waste transfer facilities; land application sites; corporate yards; and household hazardous waste collection facilities);
    - Municipal airfields;
    - Parks and recreation facilities;
    - Special event venues following special events;
    - Power washing; and
    - Other sources determined to be significant by the Copermittee.
- Requiring and implementing BMPs at these and other specified sources or facilities (MS4s and structural controls; application, storage, and disposal of pesticides, herbicides and fertilizers at municipal areas and activities; and municipal sanitary sewers).
- Inspecting facilities for compliance, including annual inspections at high priority municipal sources.
- Enforcing stormwater ordinances as necessary.

Recommendations for Program Modification

The Copermittees recommend that the reissued Permit provide a mechanism either to entirely avoid the inclusion in their inventories of facilities and activities not considered to contribute a significant pollutant load to the MS4, or to remove them when determined appropriate. Additionally, the new Permit should not establish minimum inspection frequencies for any source or source type.

The 2007 Order prescribes the types of municipal facilities and activities that must be addressed by Copermittee programs, including those that must be considered high priority (and therefore inspected at least annually). In practice, many factors determine the threat-to-water-quality of an individual activity or site. Copermittees have multiple years of experience and inspection data that would often justify a decrease in priority or inspection frequency of an individual site. However, since the prescriptive language of the 2007 Order does not allow them this flexibility, facilities and activities not posing a significant threat-to-water-quality continue to be inventoried and inspected, often tying up limited resources.

As is already the case with Section D.3.b.(1) of the 2007 Order (industrial and commercial source identification), municipal inventories should include only those activities and facilities "that could contribute a significant pollutant load to the MS4" rather than requiring that all sources be addressed regardless of threat-to-water-quality. These changes would allow limited Copermittee resources to be better aligned with actual priorities and needs.

2.A.iv Industrial and Commercial (Existing Development; Permit Section D.3.b)

Existing Core Program

Each Copermittee implements an Industrial and Commercial sub-component to reduce the discharge of pollutants in runoff from business sites and activities. Commercial and industrial operations encompass a wide variety of activities and facility types (i.e., sources), many of which have the potential to generate pollutant loads in runoff. Jurisdictions are currently implementing the following general control measures associated with this sub-component:

- Compiling and prioritizing a watershed-based inventory of industrial sites and all high priority commercial sites "that could contribute a significant pollutant load to the MS4". At a minimum, this includes the business types listed in **Table 2.1**.
- Requiring businesses to implement minimum BMPs.
- Inspecting 100% of high priority sites annually, and 25% of all inventoried sources annually.
- Enforcing ordinances at non-compliant sites.
- Reporting industrial sites that may require coverage under the General Industrial Permit to the RWQCB.
- Participating in the development and implementation of a program to reduce the discharge of pollutants from mobile businesses.

Recommendations for Program Modification

The Copermittees recommend that they be given more flexibility in implementing their Industrial and Commercial Components, at a minimum to include greater discretion in determining appropriate inspection frequencies.

The Copermittees believe it is important to utilize their limited resources to focus on the highest threat to water quality sources. While the 2007 Order provides the Copermittees some flexibility in prioritizing sites and inspections, it does not encourage an efficient use of inspection resources.

For example, the 2007 Order requires that the Copermittees develop an inventory (with minimum facility types prescribed by the Permit) and within that inventory identify and annually inspect all high priority facilities. It further requires that each Copermittee perform inspections at 25% of all of its inventoried sites. In many cases, Copermittee resources would be better spent by increasing their focus on the facilities they consider the highest threat to water quality. For instance, if a Copermittee chooses to re-inspect a high priority facility, subsequent inspections should count toward their total inspection obligations (currently to inspect 25% of the total inventory). This is, however, not allowed under the 2007Order. To address such inefficiencies, it makes more sense to allow Copermittees greater discretion in setting their inspection priorities.

Table 2.1: Minimum requirements for Commercial and Industrial Source Inventories

Commercial Sources
• Automobile/Airplane/Boat/Equipment mechanical repair, maintenance, fueling, cleaning • Auto or other vehicle parking lots and storage facilities • Auto and other vehicle body repair or painting • Painting and coating • Mobile auto or other vehicle washing • Botanical or zoological gardens and exhibits • Retail or wholesale fueling • Nurseries and greenhouses • Pest control services • Masonry • Eating or drinking establishments • Cemeteries • Mobile carpet, drape or furniture cleaning • Pool and fountain cleaning • Cement mixing or cutting • Marinas • Landscaping • Port-a-potty servicing • Other commercial sites/sources that the Copermittee determines may contribute a significant pollutant load to the MS4 • Golf courses, parks and other recreational areas/facilities • Any commercial site or source tributary to a Clean Water Act section 303(d) impaired water body, where the site or source generates pollutants for which the water body is impaired • Any commercial site or source within or directly adjacent to or discharging directly to a coastal lagoon or other receiving water within an environmentally sensitive area
Industrial Sources
• Facility that contributes a significant pollutant load to the Copermittee's MS4 • Industrial facility is subject to section 313 Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) • Industrial site is tributary to a 303(d)-listed water body and generates pollutants for which the water body is impaired • Industrial facilities subject to the statewide General Industrial Permit (SIC codes 0211 through 5171 in particular, although full SWRCB list should be considered • Industrial facilities located within or adjacent to (i.e., within 200 feet) of a coastal lagoon or a receiving water body within an environmentally sensitive area (ESA) or discharges directly to a receiving water body.

2.A.v Residential (Existing Development; Permit Section D.3.c)

Existing Core Program

Copermittees implement a Residential Component to prevent and reduce pollutants in runoff from residential land use areas and activities. Jurisdictions are currently implementing the following general control measures associated with this sub-component:

- Identifying high priority sources. The following activities have been identified as high priority sources of pollutants:
    - Automobile repair, maintenance, washing, and parking;
    - Home and garden care activities and product use (pesticides, herbicides, and fertilizers); and
    - Disposal of household hazardous waste, pet waste, and green waste.
- Additional criteria for identifying minimum high priority residential sources include:
    - Residential sources the Copermittee determines may contribute significant pollutant loads to the MS4;
    - Any residence tributary to a 303(d)-impaired water body, where the residence generates pollutants for which the water body is impaired; and
    - Any residence within or directly adjacent to or discharging directly to a coastal lagoon or other receiving waters within an environmentally sensitive area.
- Requiring BMP implementation.
- Educating residents.
- Responding to complaints.
- Enforcing jurisdictional ordinances, as necessary.

Recommendations for Program Modification

Except as indicated under Education below, the Copermittees do not have recommendations for modification of the residential requirements of the 2007 Order at this time.

2.A.vi Illicit Discharge Detection and Elimination Component (Permit Section D.4)

Existing Core Program

Each Copermittee implements an Illicit Discharge Detection and Elimination Component to eliminate illicit connections and illegal discharges into and from the MS4. Jurisdictions are currently implementing the following general control measures associated with this Component:

- Implementing a program to actively seek and eliminate illicit discharges and connections into its MS4.

- Developing and updating MS4 maps.
- Implementing dry weather field screening and analytical monitoring of MS4 outfalls and other portions of its MS4 to detect illicit discharges and connections.
- Investigating and inspecting potential IC/IDs based on monitoring results and other information.
- Eliminating identified IC/IDs.
- Preventing and responding to sewage and other spills.
- Using public hotlines and other methods to facilitate IC/ID reporting.

Recommendations for Program Modification

As described in Section 2.B.v, the Dry Weather Field Screening and Analytical Monitoring Program, intended to support IC/ID investigations, is not an efficient use of resources, is no longer necessary given other more effective measures that are implemented by the Copermittees (e.g., facility inspections, complaint hotline responses, and public employee surveillance). This program should therefore be discontinued in its current form (see analysis, Attachment1-1) The Copermittees do not have additional recommendations for modification of the IDDEC requirements of the 2007 Order at this time.

2.A.vii Education Component (Permit Section D.5)

Existing Core Program

Each Copermittee implements an Education Component to measurably increase the knowledge of target audiences within its jurisdiction regarding MS4s, the impacts of urban runoff on receiving waters, and potential BMPs. The education component also seeks to provide measurable changes in the behavior of these entities so as to reduce pollutant releases to MS4s and the environment.

The Education Component addresses the following six target audiences:

- Municipal Departments and Personnel
- Construction Site Owners and Developers
- Industrial Owners and Operators
- Commercial Owners and Operators
- Residential Community, General Public, and School Children
- Quasi-Governmental Agencies/Districts (i.e., educational institutions, water districts, sanitation districts)

In addition to these individual efforts, Copermittees implement a Regional Residential Education Program under Section F.1 of the 2007 Order, and within each Watershed Management Area (WMA) develop and implement watershed-based education strategies (Permit Section E.2.f.(4)). For each Permit year, no less than two Watershed Water Quality Activities and two Watershed Education Activities must be in an active implementation phase.

Recommendations for Program Modification

The core educational requirements of the 2007 Order Section D.5 should not be substantially modified at this time. However, the Copermittees recommend that the watershed education requirements of Section E.2.f.(4) and the Regional Residential Education Program required under Section F.1 be removed, and that Copermittees instead be allowed to develop and implement educational activities as needed to support the Watershed Plan strategies described in Section 3 of this ROWD. As described, Copermittees should identify and implement the jurisdictional and regional education activities that they determine to be necessary to support established Watershed Plan objectives.

2.A.viiiPublic Participation (Permit Section D.6)

Existing Core Program

Each Copermittee implements a Public Participation Component to incorporate public participation in the development of its JURMP.

Recommendations for Program Modification

The Copermittees do not have recommendations for modification of the public participation requirements of the 2007 Order at this time.

2.A.ix Reporting and Assessment (Permit Sections I and J)

Existing Core Program

Per Sections I and J of the 2007 Order, Copermittees annually report on and assess the progress and effectiveness of their JURMP, WURMP, and RURMP elements. Annual assessments, which are part of the JURMP Annual Report, typically include:

- Assessment of the effectiveness of:
    - Significant jurisdictional activities and BMPs;
    - Implementation of each major JURMP component (Development Planning, Construction, Municipal, Industrial/Commercial, Residential, Illicit Discharge Detection and Elimination, and Education); and
    - Implementation of the Jurisdictional Urban Runoff Management Program as a whole.
- Identification and utilization of measurable targeted outcomes, assessment measures, and assessment methods for each of the above items.
- Utilization of outcome levels 1-6.
- Utilization of monitoring data and analysis from the Receiving Waters Monitoring Program.

Recommendations for Program Modification

The Copermittees recommend that the reporting and assessment requirements of the 2007 Order be significantly streamlined and simplified. Additional dialogue between the Copermittees and RWQCB

staff should be focused on identifying the most efficient and effective reporting and assessment approaches under a reissued Permit.

The Copermittees also recommend that jurisdictional compliance be monitored through the Watershed annual reports (see Section 3.B.iii).

RWQCB staff would have other means such as meetings and audits available to them to further evaluate jurisdictional compliance. With this change in emphasis, it's unlikely that JURMP Annual Reports would be necessary in the future.

JURMP Annual Reports in particular currently consume an inordinate amount of Copermittee resources to complete. Likewise, their sheer volume makes it very difficult for RWQCB staff to complete timely reviews. This is critical since the 2007 Order relies primarily on the jurisdictional reports for evaluating Copermittee progress and compliance. Assuming a significantly greater focus on watershed programs under the reissued Permit, this will likely be unnecessary. RWQCB staff could instead focus on evaluating Copermittee compliance within the context of each applicable Watershed Annual Report. Other aspects of core jurisdictional compliance could be evaluated in other ways (e.g., audits or specific information requests) and on different time scales (e.g., biannually or as-needed).

2.B MODIFICATIONS TO MONITORING PROGRAMS

The existing monitoring program is summarized in the monitoring attachment of the LTEA report, submitted separately. This section of the ROWD describes preliminary modifications to the monitoring program along with a summary of supporting data analysis. Details of the data analysis are presented in Attachments 2.1 to 2.3. Results from the Copermittees' visioning process informed the Copermittees' modifications to monitoring programs as follows:

- Monitoring results should aid Copermittees in establishing watershed priorities and adjusting watershed plans through the adaptive management strategy (see Goal 1)
- Monitoring should be more responsive to the Copermittees' needs within an adaptive management context (see Goal 4)
- Monitoring activities should be coordinated or leveraged with other monitoring programs including the implementation of TMDLs (see "Key Concepts" in ROWD Section 1.E.iii)
- Monitoring reports should be streamlined (see "Key Concepts", in ROWD Section 1.E.iii)
- Monitoring activities should aid watershed managers in developing watershed priorities based on the contribution of MS4s to identified watershed receiving water issues, the potential for beneficial use impacts, and the Copermittees' ability to control and assess compliance with performance standards, as applicable. (see Goals 1 and 4)

The preliminary monitoring approach emphasizes a Question-Driven Process consistent with the approach taken through the current permit term. In alignment with the Copermittees' proposed adaptive management process, the various monitoring efforts described in this section are designed to inform and assess watershed-based management decisions.

2.B.i Conceptual Monitoring Framework

The Copermittees have developed a Conceptual Watershed Monitoring Framework (Conceptual Framework) designed to serve the needs of the Watershed Plans, and to support the overall goal of reducing discharges of pollutants to the MEP. The Conceptual Framework is shown diagrammatically in **Figure 2.1**.

This framework recognizes that the fundamental purpose of the NPDES permit program is protection of receiving water quality, to support viable beneficial uses of the receiving waters. This underlying purpose then provides the basis for the permit requirements and the content of the Watershed Plans.

The Conceptual Framework incorporates monitoring activities involving two time frames:

- Long-term monitoring (typically conducted for more than 5 years) includes ongoing compliance monitoring of receiving waters, MS4 outfalls, and includes HMP and TMDL compliance monitoring, and
- Short-term monitoring (typically conducted for less than 5 years) involving Targeted Studies that are of limited duration and that are watershed-driven, as-needed, and may include monitoring of receiving waters or MS4 Outfalls, HMP and TMDL monitoring, Source Identification and Prioritization studies, and watershed-specific Targeted Studies, including BMP Effectiveness Studies.

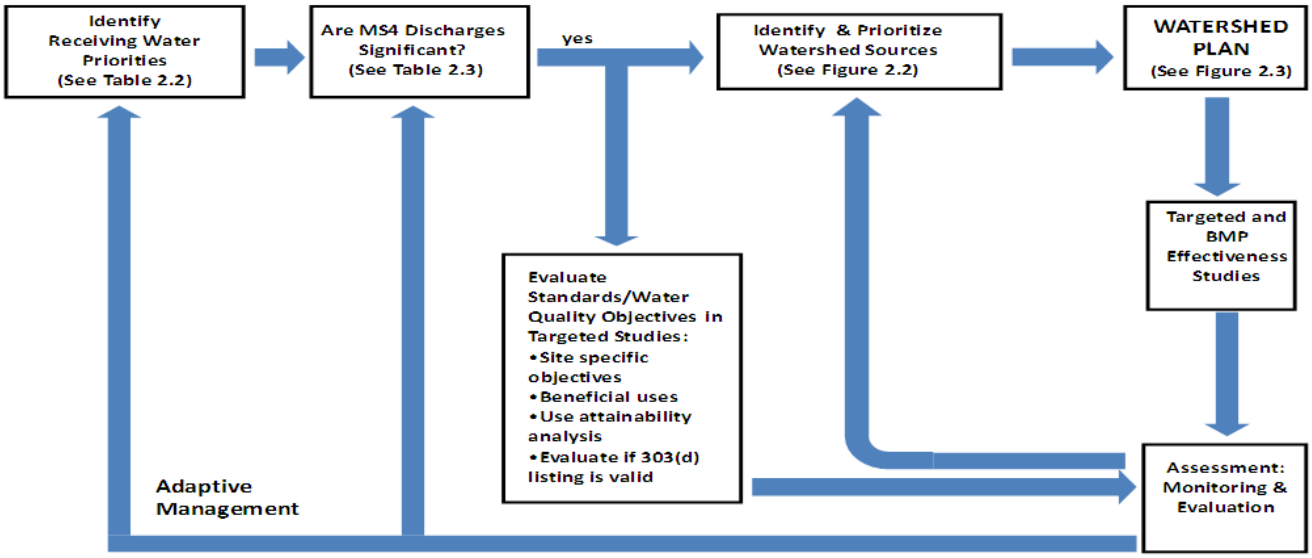

Figure 2.1: Conceptual Framework for Watershed Monitoring

The principal purpose of receiving water monitoring is to assess attainment of designated beneficial uses. Watershed receiving water priorities (Watershed priorities) are well established through prior monitoring of receiving waters in San Diego County (see Attachment 2-1, as well as the LTEA report, submitted separately).

With watershed priorities well established for the next permit cycle, monitoring can be reduced in receiving waters and those efforts refocused to determine to what degree discharges from the MS4s contribute to the identified watershed priorities. Receiving water monitoring may still be necessary to help assess stormwater program effectiveness, as shown in the feedback loop on the Conceptual Framework diagram (Figure 2.1). In this context receiving water priorities also may be revised. The Copermittees' participation in TMDLs also may involve receiving water monitoring to determine the effectiveness of TMDL implementation.

If MS4s are found to contribute significantly to receiving water issues, then follow-up investigation may be implemented within watersheds as indicated in Figure 2-1 (see box under "if yes"). For constituents for which MS4 discharges contribute significantly to confirmed receiving water issues, source identification and prioritization studies may be performed on a constituent-specific basis. Such follow-up investigations may involve monitoring in the form of watershed-driven targeted studies.

The results of the watershed-driven source investigations may then be used in the watershed planning process to develop strategies for reduction of the high priority sources of discharges of the subject constituent.

The Conceptual Framework includes the analysis of appropriate data to evaluate program effectiveness and identify data gaps, if any. This completes the monitoring information cycle to guide the alternate adaptive management approach.

2.B.ii Question-Driven Process

The conceptual framework addresses and clarifies the management questions developed by the Southern California Stormwater Monitoring Coalition (SMC) and listed in the current Permit:

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative urban runoff contribution to the receiving water problem(s)?
4. What are the sources of urban runoff that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

For monitoring of receiving waters and MS4 outfalls, including HMP and TMDL monitoring, – a question-driven approach was used to guide the identification of more specific questions or sub-questions, and from those sub-questions were derived the specific activities that may guide monitoring activities for the next permit term. The sub-questions and associated activities are described below for the receiving water and MS4 outfall monitoring categories.

Approaches for source identification, responses to potential action level exceedances, and potential development of watershed-driven targeted studies, as-needed, are outlined below.

2.B.iii Receiving Water Monitoring

In reviewing available receiving water monitoring data, the Copermittees determined the following:

- Watershed priorities are already well-established for the watersheds of San Diego County, based on prior monitoring by the Copermittees and others.
- Existing mass loading stations (MLS) and temporary watershed assessment stations (TWAS) should be consolidated into a smaller number of representative TWAS, with reduced monitoring frequency. Monitoring of 3 to 5 receiving waters stations once every five years should suffice for assessment of long-term trends of constituents per SMC Question 5 (see analysis, Attachment 2-1). In the future, watershed Copermittees will consider the need for focused receiving water studies as initiated through the Watershed Plans.
- Participation in the SMC Regional Monitoring Program is anticipated to be continued, to provide a statistically-sound, representative sampling of receiving water quality in the region's watersheds.
- The Ambient Bay and Lagoon Monitoring program (ABLM) is anticipated to be coordinated with the periodic Bight program monitoring, and integrated with the Copermittees' responsibility to conform to the Statewide Sediment Quality Objectives regulatory program.
- The 2010 HMP Monitoring Plan will continue to be implemented under the next permit.
- Receiving water monitoring conducted in response to adopted TMDLs should replace receiving water monitoring required by the Permit where applicable.
- Where appropriate, the Permit should allow for the trade-off of required monitoring elements in consideration of participation to support the RWQCB's Basin Planning priorities (i.e., evaluating or validating the appropriateness of beneficial use designations and water quality objectives).
- As under the 2007Order, the new Permit should allow a trade-off of required monitoring elements in consideration of participation in the Southern California Bight Regional Monitoring effort. The benefits of participation include regionally consistent data collection, additional in-depth data analysis and the leveraging of San Diego County resources with resources from outside the county.
- The Coastal Storm Drain Monitoring (CSDM) Program (which includes both MS4 outfall and receiving water monitoring) is essentially complete and should be discontinued (see analysis, Attachment 2-2). The CSDM Program has demonstrated that coastal storm drain flows cause few ocean or bay bacterial standard exceedances during dry weather. Less than 2 percent of paired receiving water and coastal storm drain samples collected from 2007-2010 indicate a "linkage", where elevated storm drain concentrations correlate with observed receiving water exceedances of AB 411 bacterial criteria. Of 1,647 individual receiving water bacteria indicator

samples analyzed, only 32 corresponded with elevated bacteria levels in coastal storm drain outfall discharges (3.5 % of paired samples for *Enteroccocus*, 1.5 % of paired samples for Fecal Coliform, and 0.9 % of paired samples for Total Colifoms).

SMC Management questions 1, 2, and 5 address receiving waters. Question*s* 1 and 2 have been well answered through the receiving water monitoring performed by the Copermittees, as well as work performed by others, including water quality impairments identified per CWA Section 303(d) and Bight Regional Monitoring Studies. Management question 5 addresses the issue of long-term trends; it is assumed that this question will be addressed on a continuing basis over the long term through the Copermittees continued participation in Bight Regional Monitoring Studies.

Preliminary receiving water sub-questions were developed, along with preliminary receiving water monitoring activities to guide the proposed approach in a more targeted manner through the next Permit term, as presented in **Table 2.2**. The management questions shown in Table 2.2 are meant to provide context for the more specific, technical monitoring sub-questions and associated monitoring activities. Monitoring results from any given activity may only partially contribute to answers for the overarching "big picture" management questions.

2.B.iv MS4 Outfall Monitoring

Under an updated approach, the principal role of MS4 Outfall Monitoring in the Conceptual Framework is to provide information on the relative contribution of MS4 discharges of priority constituents to receiving waters. It is recognized that the Permit may include requirements for performance metrics for MS4 discharges, and that outfall monitoring may be required to make the relevant assessments of discharge quality.

In reviewing available MS4 outfall monitoring data collected under the current Permit, the Copermittees determined the following:

- The ongoing MS4 outfall monitoring programs, which include both randomly selected and targeted sites, should be continued, with modifications to the number and distribution of sites as necessary to improve efficiency and value of the data. In particular, outfall monitoring should be evaluated with respect to established watershed priorities and TMDLs, and coordinated so as to provide information on the relative contribution of MS4s to receiving water issues. Outfall monitoring is anticipated to continue during both wet and dry weather conditions where appropriate for safe access and not disturbing critical habitat (Attachment 2-3). Additionally, a focused group of chemical analyses addressing the watershed priorities as is done in the current MS4 Outfall Program should be continued.
- Monitoring of representative outfalls should be considered for TMDL constituents in watersheds where the Copermittees are responsible parties in a TMDL implementation plan and where the outfalls are part of the monitoring plan.
- As described above, the CSDM program (which includes both MS4 outfall and receiving water monitoring) is essentially complete and should be discontinued (see analysis, Attachment 2-2). In addition to the low incidence of correspondence between elevated coastal storm drain outfall bacteria discharge levels and receiving water AB411 exceedances (as described above), the

number of coastal storm drain discharges that reach receiving waters has decreased during the past eight years, from 73 percent to 23 percent. This decrease in discharge flows reaching the receiving waters demonstrates a lower risk of a linkage occurring between coastal storm drains and receiving waters.

- The Dry Weather Field Screening and Analytical Monitoring Program characterizes discharges in the MS4s using a limited list of constituents. This overlaps with the current MS4 Outfall Monitoring Program, which expands the list of constituents and tailors the list to support watershed planning. To avoid this duplication of effort, the MS4 outfall monitoring should be conducted under the MS4 Outfall Monitoring Program instead of the Dry Weather Program (see analysis, Attachment 1-1).

Table 2.2: Preliminary Receiving Water Monitoring Sub-Questions and Activities

Management Question	Preliminary Monitoring Sub-Question	SMC QST No.	Preliminary Monitoring Activity
1. Are the aquatic ecosystems healthy?	What are conditions of benthic fauna in receiving waters?	1,2	Committed to completion of SMC Southern California bioassessment monitoring.
2. How is the health of the streams/rivers affected by urban runoff changing over time?	How are conditions in receiving waters that are affected by urban runoff discharges changing over time?	1,5	Wet Weather: Monitor at 3 to 5 MLS stations (locations to be determined) once per permit term for 3 events during Bight Regional Monitoring Survey. Dry Weather: Monitor at 3 to 5 MLS stations once per permit term (locations to be determined) for 2 events during Bight Regional Monitoring Survey.
3. What are additional receiving water quality problems?	Where data are lacking, what is receiving water quality with respect to watershed priorities and regulatory mandates?	1,2	Focused receiving water monitoring with a minimum of one special study per WMA per permit term coordinated with the Watershed Plans or substitute an equivalent regionally coordinated study (e.g., Bacteria/REC1 Beneficial Use Study) with RWQCB staff approval to evaluate: • Receiving Water Priorities • Triennial Review Priorities • Beneficial Uses and Basin Plan Objectives • 303(d) listings • TMDLs • Impact of MS4 outfalls on receiving waters

Table 2.2: Preliminary Receiving Water Monitoring Sub-Questions and Activities

Management Question	Preliminary Monitoring Sub-Question	SMC QST No.	Preliminary Monitoring Activity
4. How effective are our management actions to meet TMDL requirements?	What is the progress in achieving and complying with adopted TMDLs and WLAs?	1,5, Targeted	Perform compliance monitoring for: • Chollas Creek Diazinon TMDL • Shelter Island Yacht Basin Dissolved Copper TMDL • Chollas Creek Dissolved Copper, Lead and Zinc TMDL • Revised Project 1- Indicator Bacteria TMDLS for Twenty Beaches and Creeks in San Diego Region • Project II – Indicator Bacteria TMDLs in Dana Point Harbor and Shelter Island Shoreline Park in San Diego Bay
5. Are the bays and estuaries healthy and protective of estuarine beneficial uses?	What is the condition of sediments in enclosed bays and estuaries with respect to the statewide sediment quality objectives?	1,2	Submit a Work Plan to comply with the requirements of State Water Resources Control Board Resolution No. 2008-0070 – Adoption of a Water Quality Control Plan for Enclosed bays and estuaries – Part 1 Sediment Quality

Table 2.2: Preliminary Receiving Water Monitoring Sub-Questions and Activities

Management Question	Preliminary Monitoring Sub-Question	SMC QST No.	Preliminary Monitoring Activity
6. How is the Hydromodification Management Plan being implemented?	a. Do field observations confirm that the HMP appropriately defines the flow rate (expressed as a function of the 2-year runoff event) that initiates movement of channel bed or bank materials? b. Are mitigation facilities adequately meeting flow duration design criteria outlined in the HMP? c. What is the effect of development on downstream cross section incision and widening?	Targeted	a.b.c. Per Revised July 14, 2010 Section 8 of the Hydromodification Management Plan and California Regional Water Quality Control Board, San Diego Region, Resolution No. R9-2010-0066

SMC management question 3 addresses the relative contribution of MS4 discharges to receiving water constituent levels. Preliminary focused MS4 outfall monitoring sub-questions were developed along with preliminary MS4 outfall monitoring activities; see **Table 2.3** below. The management questions shown in Table 2.3 are meant to provide context for the more specific, technical monitoring sub-questions and associated monitoring activities. Monitoring results from any given activity may only partially contribute to answers for the overarching "big picture" management questions.

Table 2.3: Preliminary MS4 Outfall Monitoring Sub-Questions to SMC Question No. 3 and Preliminary Activities

Management Question	Preliminary Monitoring Sub-Question	Preliminary Monitoring Activity
1. Are the MS4s a potential source of priority constituents to receiving waters?	How do representative outfall concentrations compare to concentrations of priority constituents in receiving water?	An analysis of the MS4 outfall monitoring results collected under the 2007 Permit will be conducted when program is completed in 3 years.
2. Is it a system-wide or area-specific water quality issue?	How do MS4 outfall discharge characteristics differ within or between watersheds? (Note: Important for regional issues such as TDS & Bacteria)	An analysis of the MS4 outfall monitoring results collected under the 2007 Permit will be conducted when current program is completed in 3 years.
3. When is the best time to focus management actions and/or BMP implementation?	How do wet weather outfall concentrations compare to dry weather within and among watersheds?	An analysis of the MS4 outfall monitoring results collected under the 2007 Permit will be conducted when current program is completed in 3 years.
4. Which factors influence MS4 outfall discharge water quality?	How do wet season dry weather discharges differ from dry season dry weather discharges? What are the patterns and factors affecting wet weather discharge characteristics?	Perform monitoring to distinguish wet season dry weather from dry season dry weather. Perform appropriate data analysis (e.g., multivariate analysis including land use, geology, drainage acreage, antecedent rainfall conditions, etc.).
5. Are MS4 outfalls water quality improving overtime?	How do representative MS4 outlet discharge concentrations, loads, and flows change over time? (i.e. trends)	Continue to monitor at a sub-set of random MS4 outfall sites to assess long-term trend line

Table 2.3: Preliminary MS4 Outfall Monitoring Sub-Questions to SMC Question No. 3 and Preliminary Activities

Management Question	Preliminary Monitoring Sub-Question	Preliminary Monitoring Activity
6. Are MS4s outfalls meeting Permit Action Levels (if applicable)?	Do discharge concentrations at MS4 Outfall discharges meet permit action levels (if applicable)?	Conduct wet and dry weather monitoring at representative selected sites.
7. What outfalls ("priority outfalls") are contributing most to receiving water?	What outfalls contribute most to loadings for constituents identified as receiving waters priorities? (based on representative outfalls)?	Use monitoring results in numbers 1-3 and 5 and perform data analysis which may include modeling
8. To what extent is watershed plan implementation affecting discharge quality at priority MS4 outfalls?	How do discharge characteristics change over longer term (i.e. trends) at priority outfalls?	Monitor outfalls identified in assessment of number 6

2.B.v Source Identification

The principal role of Source Identification in the Conceptual Framework is to identify and prioritize pollutant generating activities and source categories. Identification of high-priority sources is an important step in support of the watershed planning process, to help inform the development of effective pollutant reduction strategies for particular priority constituents in particular watersheds.

In reviewing available source identification information, the Copermittees determined the following:

- The Copermittees should consider developing a more comprehensive approach to source identification, on a *constituent-specific basis*. These source identification efforts should focus on constituents identified as watershed priorities, and would likely include prioritization of sources based on magnitude, controllability, and other factors.
- The ongoing residential source identification program, which provides information on water quality of discharges from residential land uses, should be completed as planned and then discontinued.
- As described above, the CSDM Program (which includes both MS4 outfall and receiving water monitoring) is essentially complete and should be discontinued (see analysis, Attachment 2-2).
    - Only 4 of the 227 (1.7 percent) coastal storm drains monitored over the past three years were linked more than once to a nearby AB411 exceedance in the ocean or bay. These four coastal storm drains have ongoing source abatement programs.
    - In addition, upcoming Bacteria TMDL monitoring will overlap with CSDM Program requirements. The TMDL will require an implementation plan to assess and prioritize receiving water exceedances caused by outfall discharges.
- The Dry Weather Field Screening and Analytical Monitoring Program, intended to support IC/ID investigations, is not an efficient use of resources, has had a very low success rate in identifying

ICs and IDs, and is no longer necessary given other more effective measures that are implemented by the Copermittees (i.e., facility inspections, complaint hotline responses, public employee surveillance). This program should therefore be discontinued in its current form (see analysis, Attachment 1-1). IC/ID investigations as conducted under the Dry Weather Program are less efficient in detecting and eliminating IC/IDs than hotline call responses (over 1,600 annually), business inspections (over 6,000 annually), and visual surveys of the stormwater conveyance system performed during routine system maintenance and/or cleaning. Based on the number of samples collected through the Dry Weather Program over the past three years, only 3.7 percent of samples collected resulted in a successful detection and elimination of an illicit discharge (87 successful IC/ID investigations out of 23,635 sample analyses from 2007-2009). Copermittees observed that more IC/IDs were identified through complaint referrals than through the Dry Weather Program. The City of Oceanside reported in 2009-2010 that 86 out of 87 IC/IDs identified through their hotline were eliminated, whereas only one IC/ID was identified and resolved through their Dry Weather Program.

SMC management question 4 addresses the sources of MS4 discharges that contribute to receiving water constituent levels. The Copermittees will consider approaching this question principally through a source identification process for individual priority constituents.

As shown in **Figure 2.2**, the Copermittees' preliminary constituent-specific source identification process includes the following steps:

- Step 1: Compile known information on the priority constituent. This information includes potential sources and movement of a particular constituent within the urban watershed. Data generated by others and literature research on the priority constituent will be compiled and analyzed as appropriate.
- Step 2: Based on the compiled information generated on the priority constituent, identify data gaps, if any. Targeted studies may be performed where appropriate. For example, targeted studies to improve our understanding of the fate of a constituent in the environment might be considered.
- Step 3: Based on the information compiled, develop an inventory of sources and consider how to prioritize them within the watershed for potential follow-up action. Examples of prioritization criteria include relative magnitude and controllability.

Figure 2.2: Schematic of Preliminary Source Identification Process

The process outlined above is directed at improving the understanding of the fate, transport, and sources of priority constituents within urban watersheds. Steps 1 and 2 may be conducted at a regional scale to reduce costs. Step 3 will likely be applied within a watershed for that particular priority constituent.

2.B.vi Preliminary Watershed Responses to MS4 Monitoring Results

In the event that the RWQCB imposes NALs or SALs in the new permit, Copermittees recommend that the Permit include an iterative approach for responses to potential exceedances of those NALs or SALs. The overall goal is to provide for a range of responses that is comprehensive, consistent and appropriate to the measured outfall levels. The preliminary approach is outlined in **Figure 2.3**.

If initial field observations indicate a potential illegal discharge that is characterized by unusual odor, color, or sheen, etc, then an immediate response will be initiated. If warranted, a field investigation will be initiated to follow the observed flow upstream, in an attempt to observe the source, with additional water quality measurements performed as needed.

If there is no evidence of a potential illegal discharge, then the follow-up actions would fall into one of the following three categories:

- The receiving water has an active TMDL Implementation Plan, in which case the exceedance will be addressed through the relevant Watershed Plan.
- The constituent is an established watershed priority, in which case the constituent is addressed through the preliminary source identification process (see description above) and the data are fed into the watershed planning process.
- For constituents not covered under a TMDL implementation plan and which are not priority constituents, additional follow-up monitoring will be performed to verify the persistence of the exceedance. If the exceedance does persist, the measured outfall levels will be compared to receiving water levels for the constituent to provide an assessment of the relative contribution of the discharge to the in-stream levels. If the discharge is substantially contributing to the receiving water exceedance, then the constituent will be included in the watershed planning process. If the exceedance is not persistent, then no further action is required and routine monitoring will continue.

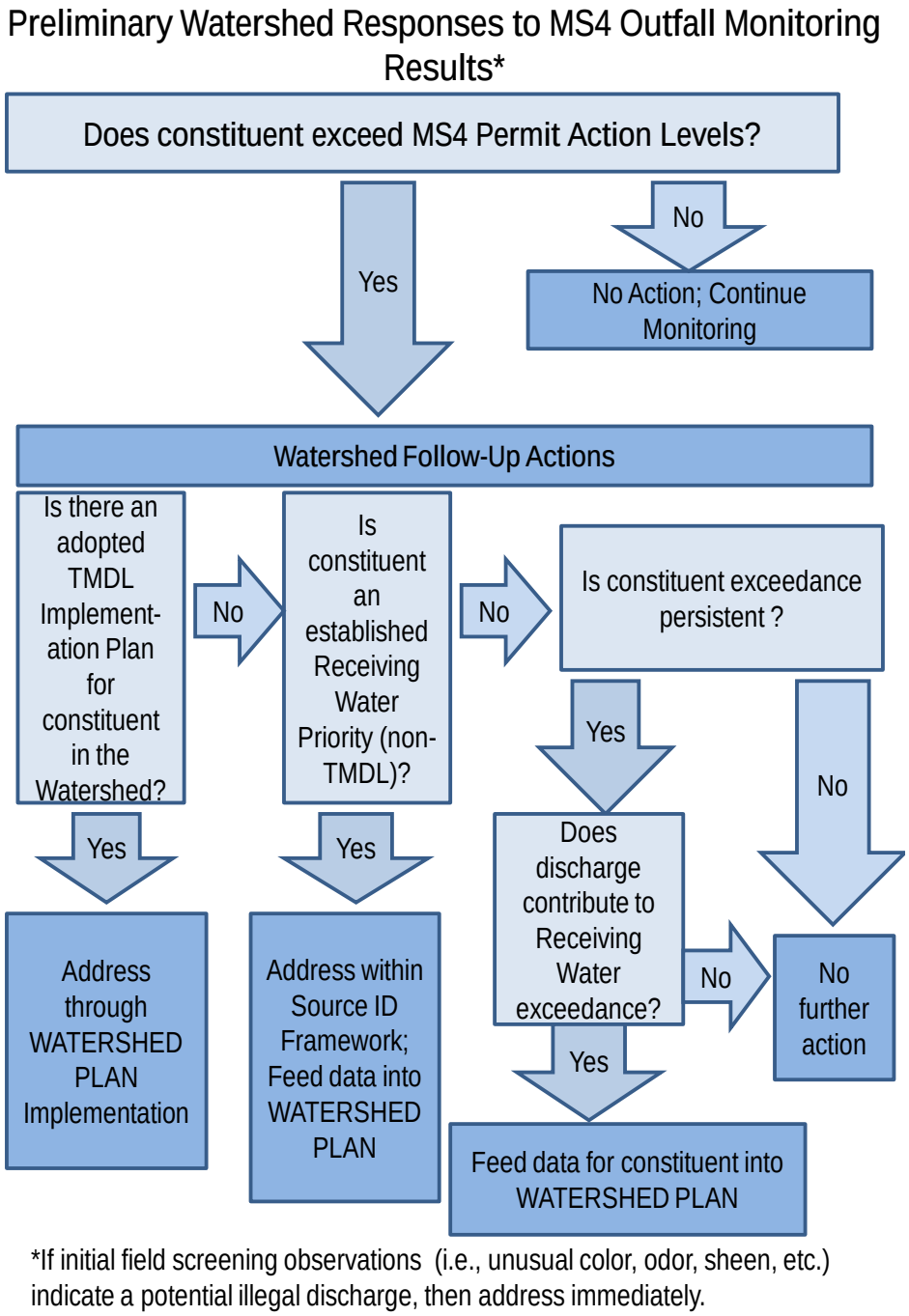

Figure 2.3: Preliminary Strategy for Responses to MS4 Outfall Exceedances

2.B.vii Targeted Studies

Copermittees would periodically evaluate the need for targeted studies to support the watershed adaptive management strategy. Examples of targeted studies include investigation of sources of MS4 contributions to receiving water priorities, participation in Bight Regional Monitoring projects, assessment of TMDL compliance strategies, evaluation of BMP effectiveness, and investigation of the appropriateness of beneficial uses or water quality objectives.

Section 3 Watershed Adaptive Management Strategy

In ROWD Section 1 the concept of watershed adaptive management was presented as the strategy for prioritizing, structuring and directing the Copermittees' stormwater management efforts. The translation of that strategy into an implementation document is represented by the development of a Watershed Plan. The development, implementation, and assessment and iterative updating of these Plans is described below.

3.A WATERSHED ADAPTIVE MANAGEMENT STRATEGY

As noted in Section 1, the Copermittees support a permitting approach that facilitates the implementation of the most effective and efficient stormwater management programs. Consequently, the Permit should be predicated on an adaptive management framework such as the one shown in **Figure 3.1**. As indicated, the Copermittees recognize that the Permit must continue to contain a "core" set of required activities. This is both appropriate and desirable for the purpose of defining what initially constitutes compliance. However, the Permit must also allow for modifications to core requirements when a Copermittee proposes and justifies a more effective or efficient suite of stormwater control measures. Two of the key factors expected to inform adaptive management decisions are watershed water quality priorities and BMP effectiveness data. Over time, core activities – which are typically established as generic preventive measures – should be evaluated with respect to whether they effectively address the pollutant-generating sources and activities causing a watershed's priority water quality problems, and adjusted as determined appropriate by the Copermittee with Regional Board staff approval to enhance efficiency. This is critical to ensuring the best use of limited resources.

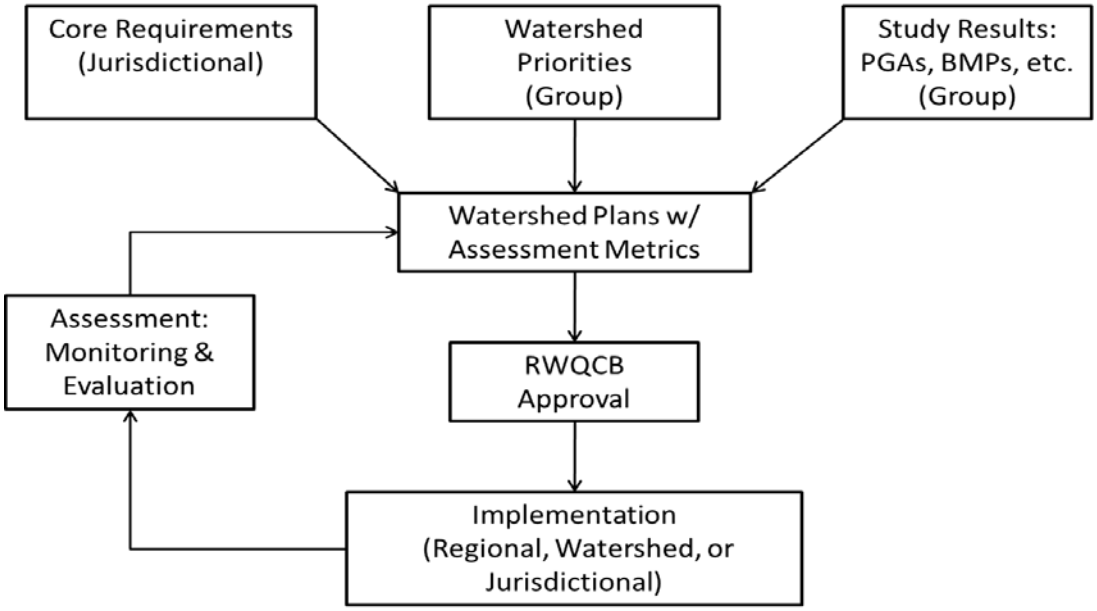

Figure 3.1: Watershed Adaptive Management Strategy

The Copermittees support the development of criteria to govern the adaptive management process so that modifications to core requirements are proposed and justified based on sound and impartial information. These criteria should either be developed during the Permit reissuance process, or as an early deliverable under the new Permit. In either case, to be workable in practice, the Permit's adaptive management provisions must also represent a reasonable balance of specificity and flexibility. Each Copermittee should remain responsible for selecting and proposing the combination of activities and controls that will result in the most effective and efficient stormwater program within its jurisdictional boundaries. A "one-size-fits-all" application of adaptive management requirements is neither effective nor desirable. Similarly, each jurisdiction should be held accountable for the implementation of its jurisdictional program and a determination as to whether it has met the Permit's "maximum extent practicable" performance standard. This is not to say that every jurisdiction should be completely independent in managing its program. For example, Figure 3.1 shows that watershed pollutant and source prioritization, as well as studies to evaluate BMP effectiveness or to characterize pollutant generating activities (PGAs), would be appropriate activities for implementation by groups of Copermittees at the watershed or regional scale. Other activities where economies of scale could be realized through group implementation might include public education and water quality monitoring. In most cases, however, identifying the appropriate scale of implementation is best left to jurisdictional discretion. The establishment of clear assessment metrics will play an important role in determining whether watershed plan implementation is on the right track and achieving desired results.

The Watershed Adaptive Management Strategy would also benefit from a well-defined role for RWQCB staff in reviewing and approving proposed modifications to core requirements. This is necessary not only to evaluate the appropriateness of proposed programs and changes, but to provide Copermittees with a level of certainty with regard to what constitutes compliance.

The central feature of the Copermittees' recommended Watershed Adaptive Management Strategy is the "Watershed Plan" as shown in **Figure 3.1**. A single plan for each watershed (i.e. replacing the URMPs – regional, watershed, and jurisdictional) would help streamline and refocus efforts and make best use of limited resources. The watershed appears to be the appropriate scale at which to integrate the many programs and activities targeting water quality improvement. Furthermore, this scale is consistent with other regulatory programs and policies (e.g. TMDLs and Basin Plans). While it is critical that decision-making remain within the discretion of each jurisdiction, the creation of Watershed Plans would encourage each Copermittee to carefully consider the impact of its management decisions on priority watershed water quality conditions. Enhancing the Permit's watershed focus would also enable Copermittees to better integrate TMDL and ASBS goals into Permit compliance activities. In fact, the Copermittees see the potential for Watershed Plans developed and implemented under the Permit to serve a similar function as the load reduction plans currently required by TMDLs. Better integration of TMDL and Permit programs is consistent with the Copermittees' Vision presented in Section 1 and could provide significant administrative cost savings.

3.B WATERSHED PLAN DEVELOPMENT

The Copermittees support the development of Watershed Plans for the nine major Watershed Management Areas (WMAs) currently identified in the 2007Order. Copermittees might also instead

elect to develop Watershed Plans specific to hydrologic areas within a WMA if determined appropriate (e.g., San Diego Bay and Carlsbad WMAs). Watershed Plans would be developed during the first year and implemented and periodically updated throughout the remainder of the Permit cycle. Watershed leads are summarized in **Table 3.1** below. Watershed Plans will be prepared at the watershed level but specific requirements may be implemented at the regional, watershed, and/or jurisdictional scale.

Table 3.1 Watershed Management Areas (WMAs) and Lead Jurisdictions

WMA	Lead Jurisdiction
Santa Margarita	County of San Diego
San Luis Rey	City of Oceanside
Carlsbad	City of Carlsbad
San Dieguito	City of Escondido
Penasquitos	City of Poway
Mission Bay	City of San Diego
San Diego River	City of El Cajon
San Diego Bay	Port of San Diego
Tijuana	County of San Diego

The Watershed Plans represent a continuation and refinement of the Watershed Urban Runoff Management Programs (WURMPs) developed under the 2007 Order. On the surface the two are very similar. WURMPs were completed for each of the WMAs with the goals of improving Copermittee understanding of water quality issues and concerns, enhancing stakeholder participation, and augmenting jurisdictional programs to more effectively address watershed specific issues. The Watershed Plan would further these goals by strategically focusing jurisdictional, watershed, and regional efforts toward the highest priority constituents and sources in each WMA. By making watersheds the primary foci of Permit programs, Copermittees would also be better able to address other regulatory requirements such as those associated with TMDLs and ASBS programs.

A key feature of Watershed Plans is that they incorporate a combination of planning, implementation, and assessment activities at the most appropriate scales to confer and demonstrate watershed-scale benefits. In essence they provide a unified comprehensive implementation plan for each WMA that identifies the jurisdictional, watershed, and regional activities and control measures that will be pursued. As illustrated in Figure 3.1, the development of the Watershed Plan is described below and includes the following steps:

1. Establishing the watershed priorities(constituents and sources);
2. Modifying jurisdictional core stormwater program implementation strategies to address the highest priority issues and concerns (including the incorporation of BMP effectiveness and source identification findings);
3. Identifying assessment and reporting objectives and metrics; and
4. Obtaining approval by the RWQCB Executive Officer.

3.B.i Establishing Watershed Priorities

In evaluating existing water quality conditions and establishing stormwater management priorities for a watershed, the Copermittees would consider a variety of data and information sources. These include existing water quality data and assessments, WURMPs, WURMP Annual Reports, TMDLs, LTEAs, focused analysis, current monitoring programs, and regulatory requirements. This evaluation will assist in identifying and prioritizing the watershed issues and may support the need to establish different priorities within a watershed. In establishing watershed priorities Copermittees may consider the following: pollutants or issues of concern, watershed characteristics, and a prioritization process to consider multiple issues in determining the watershed priorities. Each is discussed briefly below. Priorities will be established in the beginning of the Permit term and adjusted as needed in subsequent years.

The Copermittees have implemented an extensive monitoring program for many years with the data being used to identify Pollutants and Issues of Concern in previous regulatory documents. Such work provides an excellent foundation for establishing watershed priorities. In addition to pollutants, additional issues of concern may include stream bank erosion or benthic community conditions. In evaluating the previous monitoring programs, consideration will be given to historical trends, land-based pollutant loadings, designated uses, and persistent water quality impacts based on the triad of chemistry, toxicity, and benthic community data. The Copermittees may consider common pollutants/Issues of Concern and choose to prioritize these at the jurisdictional, watershed or regional scale, as defined in the Watershed Plan. In addition consideration may be given to differentiate between wet and dry weather issues.

Key watershed characteristics will vary by watershed but notable characteristics may include sensitive species or ecosystems (i.e., North County Multiple Habitat Conservation Program), 303(d) listed water bodies, ASBS, areas prone to flooding, channel erosion, tidally influenced waterbodies, groundwater recharge areas, presence of septic system, and age of infrastructure. These types of factors will be taken into account when determining the stormwater program activities most effective in each watershed. For example, it may be an effective use of resources to target components of an illicit discharge/illegal connection program in a watershed with aging infrastructure. Additional considerations may also include land use and growth patterns. Understanding the dominant land use within each watershed can help to direct resources on the program components most applicable to each watershed. For example, areas of watersheds predominantly made up of industrial/commercial land uses would benefit from placing emphasis on the industrial/commercial component of their stormwater program over the residential component.

Once the characterization is complete, the Copermittees would consider a number of other factors in prioritizing watershed issues. This prioritization would assist them in identifying the key stormwater program implementation activities that will address the pollutants or issues of concern as discussed above. These factors may include:

- Applicability of regulatory drivers such as 303(d) listing, approved TMDLs, 13267 water quality violations

- Optimizing ongoing implementation efforts (e.g., addressing the PGAs and/or source categories that are the major contributors of the pollutants of concern) to address water quality issues,
- Ability to serve as an "umbrella issue" that encompasses multiple community goals including recreation, habitat enhancement, etc.
- Ability to address primary stakeholder concerns including beach closures, drainage issues, etc.
- Feasibility to address within regulatory and time constraints

3.B.ii Refining Core Stormwater Programs to Address Watershed Priorities

The Copermittees are currently implementing comprehensive, jurisdictional stormwater management programs in a broad-based, preventive manner and consistent with the 2007 Order (see Section 2). In this capacity they've directed their resources to a wide range of activities and pollutants throughout the region. Although the Copermittees will continue to implement the core requirements for each program component, they must remain responsible for selecting and proposing which combination of activities and controls will result in the most effective and efficient stormwater program within their jurisdictional boundaries. Similarly, each Copermittee should also be held accountable for the quality of its jurisdictional program and a determination as to whether it has met the "maximum extent practicable" performance standard established by the Permit. Specific tasks chosen to address the priorities will be identified in each Copermittee's sections of the Watershed Plans. Copermittees should be given the ability to assess and prioritize their current stormwater management programs to identify opportunities for making better use of their resources for the relevant water quality issues in each watershed.

As an example, all Copermittees would be required by the new Permit to have a commercial/industrial program component that includes the following core control measures: maintaining an inventory, prioritizing businesses with the potential to discharge pollutants, inspecting businesses, requiring BMP implementation, and conducting enforcement actions, if necessary. However, depending on the watershed priority, the Copermittees may focus on business categories that have the highest potential to address the watershed priorities. By allowing watershed-based modifications to the core stormwater program, the jurisdictions may optimize their level of effort within one program component or across components (e.g., a jurisdiction may wish to focus on nurseries in a watershed where nutrients are the pollutant of concern and less on automobile repair shops). Likewise the jurisdiction may decide to focus on inspections and less so on outreach material). The intent of the watershed approach is to avoid the creation of additive requirements by focusing core program requirements on the pollutants or issues of concern within a watershed.

Copermittees would also consider previous LTEA findings and any relevant new BMP efficiency findings that may become available after the adoption of the new Permit.

3.B.iii Identifying Assessment and Reporting Metrics

Assessment is a critical component of an iterative adaptive management approach to incrementally improving the measurability of programs. Depending on the specific objectives, assessments and corresponding metrics may reflect different time intervals.

- **Short-term metrics** are typically conducted within intervals less than 5 years in duration.[6] Some assessments (e.g. documenting implementation) might occur annually, with others (e.g., behavior change) requiring more time. In general, short-term metrics would be limited to Outcome Levels 1-4 (implementation of Permit requirements, changes in awareness or behavior, and reduction of pollutant loads).
- **Long-term metrics** would typically be assessed at frequencies ranging from 5 -20 years. They would initially examine changes in urban runoff and receiving water quality. But over time, they could also be used to explore the relationship of program implementation to these "higher" Outcome Levels. In this context, water quality standards represent an ideal for guiding programs in achieving long-term compliance, and for defining the interim measures, actions, and program modifications necessary to achieve that end. As previously discussed, the Copermittees' ability to meaningfully assess long-term changes depends on many critical considerations such as the number and variability of data points and level of changes being measured.

The Copermittees will continue to assess the effectiveness of their Watershed Plans as well as the specific jurisdictional and regional activities implemented in support of them. The establishment of clear assessment metrics will play an important role in determining whether programs are on the right track and achieving desired results. It should be emphasized that reporting and assessment in a group setting (i.e., at the watershed and regional scales) require a higher degree of comparability between results than is currently needed for the jurisdictional analysis of programs and activities. Moreover, even where such comparability exists, the interpretation of common metrics (e.g., summaries of inspection results) can also be compromised if underlying data and information (e.g., classification of violation types, or thresholds for issuing violations) are also dissimilar. Because of this, the Copermittees recognize a need to further explore the development and Copermittee adoption of reporting and assessment standards under the reissued Permit. As such, it is important to remember that the development, adoption, and implementation of standards can take a significant amount of time. In this respect, the new Permit should realistically reflect the work that needs to be completed, and allow sufficient time to do so.

The 2007 Permit also requires the submittal of a number of reports including the JURMP WURMP, and RURMP Annual Reports from the Copermittees. The Watershed Plan will incorporate reporting formats and frequencies developed regionally for use in meeting Permit requirements. In the interest of streamlining this effort, the Copermittees recommend the submittal of one report for each of the nine watersheds (i.e. nine watershed reports). Each report would summarize the Copermittees efforts in the watershed, the assessment of activities and monitoring within the watershed, and, where applicable, activities and other efforts conducted to comply with TMDLs.

3.B.iv Approving Watershed Plans

A well-defined role for RWQCB staff in reviewing and approving any modifications to core requirements is necessary not only to evaluate the appropriateness of proposed programs and changes, but to provide

[6] Municipal Stormwater Program Effectiveness Assessment Guidance, CASQA, May 2007.

Copermittees with a level of certainty with regard to what constitutes compliance. Consequently the Copermittees propose that the Watershed Plans and modifications of such Plans require the approval of the RWQCB Executive Officer. Such approval will also aid in developing budgets and obtaining funds for the Watershed Plan implementation.

3.C WATERSHED PLAN IMPLEMENTATION

Watershed Plans will be prepared at the watershed level but may be implemented at the regional, watershed, and/or jurisdictional scale. This will allow the Copermittees to leverage their resources and provide efficiencies for the stormwater program as appropriate, as well as provide accountability for the Copermittees and RWQCB. This section describes an approach that might be used by the Copermittees in collaboratively addressing regional, watershed, and jurisdictional issues so that there is an effective integration of the programs.

As described, the RWQCB has indicated that they will pursue a region-wide Permit that would encompass the jurisdictions in the urbanized portions of San Diego County, south Orange County and south Riverside County. Once adopted the region-wide Permit would supersede the existing Permit. Notwithstanding the Copermittees comments in Section 1, if a region-wide Permit is developed and adopted, it should support the ability of the Copermittees to develop the Watershed Plans as described within this ROWD.

Regional coordination and collaboration should continue to be encouraged under the new Permit. Under a Region-wide Permit, this might also occur an inter-county basis (between the three counties; San Diego, Orange and Riverside). The emphasis of coordination, however, would likely remain on a countywide basis (between Copermittees within San Diego County). The Copermittees might continue to use the framework that has been established for the Regional Working Bodies, which includes the Regional Management Committee, the Regional Program Planning Subcommittee, and the Regional Workgroups. Some of the program activities that may be the focus of collaboration include:

- Public education;
- Training;
- Monitoring;
- BMP effectiveness assessments;
- Pollutant generating characterization studies; and
- Development of standards, model programs, and guidance documents.

As noted previously, the Watershed Plans will be developed by the Copermittees sharing a watershed. The Copermittees may continue to use the existing framework that has been established for the Watershed Working Bodies or may choose to include other dischargers as part of TMDL programs, or coordinate with other watershed groups and any appropriate regional coordinating groups. Some of the program activities that may be the focus of the watershed collaboration include:

- Establishing watershed priorities;

- TMDL implementation plan strategies and BMPs;
- Monitoring; and
- Pilot projects/studies.

As identified in Section 3.B.ii above, each Watershed Plan would have a jurisdictional (Core Requirements) section that is prepared by the Copermittees to identify how each will implement their stormwater programs to support the Watershed Plans. The jurisdictional section should have clear goals and performance standards so that Copermittees and the RWQCB can assess if the plan has been implemented as intended, whether programs are on the right track and achieving desired results, and to determine if the Copermittee is in compliance.

3.D. WATERSHED PLAN ASSESSMENT AND ACCOUNTABILITY

As noted in Section 3.B.iii the Watershed Plans should include reporting and assessment metrics and include a combination of short-term and long-term metrics that is best suited for demonstrating long-term program success and interim progress toward it. The reporting and effectiveness assessments will be conducted consistent with the California Stormwater Quality Association (CASQA) *Municipal Program Effectiveness Assessment Guidance Manual* (2007, or as amended) and will be focused at the watershed scale to assist the Copermittees and the RWCQB in determining if the goals, targets, waste load allocations (WLAs), or other metrics established by the Copermittees are being achieved or to evaluate progress toward achieving them. One report will be submitted for each Watershed Plan, but jurisdictional results will be included as appropriate.

These effectiveness assessments will allow the Copermittees to determine if the activities identified within the Watershed Plans are achieving the desired outcomes and to assist the Copermittees in allocating their limited resources toward the most effective programs and solutions.

3.E. ADAPTIVE MANAGEMENT

3.E.i Scope of Watershed Plan Modifications

The Watershed Plan modifications may be limited to changes to BMPs or control measures that, when considered in combination, are intended to enhance the overall effectiveness and efficiency of a Copermittee's implementation efforts within a watershed. However, each Copermittee remains responsible for selecting and proposing which combination of activities and controls will result in the most effective and efficient stormwater program within its jurisdictional boundaries and is responsible for the quality of its jurisdictional program. Modifications may include any combination of the following:

- Modifying Core Requirements to increase their effectiveness and efficiency,
- Increasing the implementation rate of more effective and efficient BMPs, or
- Decreasing the implementation rate of less effective and efficient BMPs.

3.E.ii Modifying Watershed Plans

Copermittees will consider and recommend enhancements to core requirements identified in the Watershed Plans when they obtain new BMP effectiveness or source identification findings, or when information is gained from an evaluation of the assessment metrics. Consistent with the initial preparation of the watershed plan there should be a criteria established for identifying and proposing modifications or enhancements that are based on sound and impartial information. Copermittees will identify these enhancements consistent with the time frame established for the assessment metrics (i.e. some enhancement may be identified sooner than others) and as part of the Copermittee's compliance reporting requirements. Ultimately approval by the RWQCB of the modifications in a timely manner will serve all parties well.

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Section 4 Conclusions

Per Section J.2.d of Order No. R9-2007-0001, this Report of Waste Discharge (ROWD) serves as an application for issuance of a new waste discharge permit for the San Diego Municipal Stormwater Copermittees. We are now nearing the end of a third Permit cycle, and have conducted in-depth reviews of our management and monitoring programs with an eye toward continued improvement.

As a whole, the Copermittees have concluded that the next Permit cycle represents an important opportunity for program improvement, but that the way forward is fundamentally different than that embodied in the 2007 Order. This ROWD describes a vision that emphasizes iterative, adaptive urban runoff management approaches, and a predominant focus on watersheds as the focal point of these efforts. This updated approach is largely based on a review of existing programs, but also on an extensive visioning process collaboratively conducted by the Copermittees in Fall 2010, and subsequent discussions with RWQCB staff in early 2011. RWQCB staff has informed the Copermittees of its intention to issue a single Region-wide Order for the San Diego, south Orange, and south Riverside regions, to increasingly emphasize water quality monitoring information as a driver of watershed-based management, and to decrease the current Order's emphasis on detailed jurisdictional reporting.

A core set of principles have guided the Copermittees' development of this ROWD:

- Simplified reporting;
- Streamlined and more meaningful assessment;
- Better coordinated water quality monitoring;
- Enhanced watershed and Total Maximum Daily Load (TMDL) focus; and
- Increased emphasis on strategic planning.

As a starting point for program modification, the Copermittees identified a number of specific recommendations for change to existing management and monitoring requirements. These are identified and discussed in detail in ROWD Section 2. Building on this, ROWD Section 3 further describes a process for modifying program approaches in accordance with established watershed priorities, and as necessary to improve programs over time. In accordance with this approach, the following key principles should guide the development and implementation of Watershed Plans under a reissued Order:

- Watershed Adaptive Management should drive the planning, review, and modification of Copermittee programs;
- Watershed Plans should identify watershed priorities (constituents and sources) and be the vehicle for implementing the Watershed Adaptive Management Strategy;
- Watershed priorities should be the primary driver for determining how individual Copermittees prioritize, develop, and implement stormwater program activities within their jurisdictions;
- Watershed requirements should focus, rather than add to, core jurisdictional program requirements within a watershed;

- Implementation of Watershed Plans should be carried out at the most efficient and effective scale – either jurisdictional, watershed, or regional;
- RWQCB staff should approve the Watershed Plans; and
- With very limited exception, Permit compliance should be assessed at the individual Copermittee level.

Finally, it should be noted that this ROWD represents the results of an extended discussion that can in no way be considered complete. The Copermittees believe that it goes a long way toward describing a workable vision for the future. But, as described throughout, many important details have yet to be discussed (Watershed Plan approvals, mechanisms and standards for program modification, performance metrics, monitoring requirements, etc.). Further discussion of these and other critical details must necessarily precede the finalization or endorsement of any new Permit requirements.

ATTACHMENT 1-1

JURISDICTIONAL ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM AND DRY WEATHER FIELD SCREENING AND ANALYTICAL MONITORING EVALUATION

ATTACHMENT 1-1 JURISDICTIONAL ILLICIT DISCHARGE DETECTION AND ELIMINATION PROGRAM AND DRY WEATHER FIELD SCREENING AND ANALYTICAL MONITORING EVALUATION

The purpose of the Jurisdictional Illicit Discharge Detection and Elimination Program is to detect and eliminate illegal connections and illicit discharges (IC/IDs) to the Municipal Separate Storm Sewer System (MS4). In support of the Illicit Discharge Detection and Elimination Program, a Dry Weather Field Screening and Analytical Monitoring Program (Dry Weather (DWM) Program) is a requirement of the San Diego Regional Water Quality Control Board Municipal Permit (Order No. R9-2007-0001).

An evaluation of the DWM Program was conducted to answer the following question:

Does the DWM Program successfully detect and eliminate illicit dry weather discharges?

Evaluation of the DWM Program found that:

- IC/ID investigations are less efficient in detecting and eliminating IC/IDs than hotline call responses (over 1,600 annually), business inspections (over 6,000 annually), and visual survey of the stormwater conveyance system during routine maintenance and/or cleaning. Based on the number of samples collected through the Dry Weather Program over the past three years, only 3.7 percent of samples collected resulted in a successful detection and elimination of an illicit discharge (87 successful IC/IDs out of 23,635 sample analyses from 2007-2009). Copermittees observed that more IC/IDs were identified through complaint referrals than through the Dry Weather program. The City of Oceanside reported in 2009-2010 that 86 out of 87 IC/IDs identified through their hotline were eliminated whereas only one IC/ID was identified and resolved through their Dry Weather Program.
- In addition to the inefficiency of the DWM Program to detect IC/IDs compared to hotline calls or inspections, the follow-up investigations which are required within two business days are rarely effective. Typically, it takes a week or more for laboratory analytical data to be reported, and if action levels are exceeded, an upstream investigation must be conducted within 2 business days of receipt of the data. With so many transient sources it is unrealistic to expect an upstream investigation conducted over a week after the IC/ID was observed to detect the source of the IC/ID. Requiring that other priorities be shifted to conduct the investigation is not an effective use of resources and does not necessarily result in the elimination of more IC/IDs.
- Identification of an action level exceedance from a storm drain outfall discharge does not necessarily indicate detection of IC/IDs. Exceedances can be caused by other sources, such as ingress of nitrate-bearing groundwater into the storm drain system, resulting in nitrate exceedances. If nitrate reduction subsequently occurs in ponded water, ammonia may also be detected. Exceedances may also be caused by saline intrusion, resulting in high conductivity, or alkalization of the runoff in a concrete channel, resulting in higher pH. Within the current permit, exceedances from these common causes currently still require a prompt upstream investigation by many jurisdictions to confirm that there is no IC/ID upstream, diverting attention away from more effective activities.

- The DWM Program characterizes discharges in the MS4s using a limited number of constituents. This overlaps with the MS4 Outfall Monitoring Program, which expands the list of constituents and tailors the list to support watershed planning. In fact, efficiencies have been gained through incorporating parts of the MS4 Outfall Monitoring Program into the DWM Program. However, the MS4 Outfall Monitoring Program has the advantage of focusing on watershed priority pollutants and not on a standard list of constituents that includes the use of field test kits that may have chemical interferences which can limit their usefulness.
- The MS4 Outfall Monitoring Program could be used to assess discharges from the storm drain system. The detection of IC/IDs could be addressed through those methods proven to be most effective to date: stormwater hotline complaints, facility inspections and public employee surveillance. Additionally, in the modified MS4 Outfall program anticipated in the next Permit, Copermittees propose that if initial field screening observations (i.e., unusual color, odor, sheen, etc.) indicate a potential illegal discharge, then it will be addressed immediately.
- Indicator bacteria are the constituent with the highest frequency above action levels from the period of 2007-2009. IC/ID investigations are typically not successful at identifying sources of bacterial indicators related to anthropogenic activities (e.g. re-growth in storm drains and wildlife scat are common sources as opposed to illicit discharges). The introduction of the Revised Total Maximum Daily Loads for Indicator Bacteria Project I – Twenty Beaches and Creeks in the San Diego Region Total Maximum Daily Load (Bacteria Project – I TMDL) for many watersheds in the region will require additional monitoring, source investigations, and treatment of bacteria. Any IC/ID component incorporating bacteria investigation should simultaneously fulfill other parallel regulatory MS4 requirements to ensure that monitoring efforts are optimized.
- Diazinon and Chlorpyrifos are no longer commercially available. These pesticides have been detected above action levels in no more than 0.3% of samples over the past three years. The analysis of organophosphate compounds is no longer a useful analysis for this program.
- The transient nature of many IC/IDs frequently causes difficulties in identifying the source of an IC/ID, even when a suspected IC/ID is detected. Often, based on exceedances of NPDES dry weather action levels, it can be concluded that an "activity" or group of "activities" have occurred in a sub-drainage area, but the source cannot be pinpointed. The nature of nonpoint source pollution may result in a timing disconnect between the "activity" producing a pollutant (e.g., over fertilizing a lawn) and the transport mechanism of the pollutant into the MS4 system (e.g., runoff from over irrigation hours after the application of the fertilizer). Unless the IC/ID activity is actually occurring and being transported into the MS4 system during the field screening and subsequent upstream investigations, the precise source and location of the IC/ID cannot be identified. In these circumstances the IC/ID is addressed through other means, such as education, and periodic reconnaissance of the area. Additionally, other program elements such as more stringent development standards and inspections of municipal, industrial and commercial facilities are preventive measures to reduce the likelihood of IC/IDs.

Conclusions:

- The conclusion of this evaluation is that the DWM Program should be discontinued in its current form. IC/ID investigations are less efficient in detecting and eliminating IC/IDs than hotline call responses (over 1,600 annually), business inspections (over 6,000 annually), and visual survey of the stormwater conveyance system during routine maintenance activities. During the permit term a comprehensive range of stormwater program elements have been implemented to decrease the likelihood of IC/IDs, and have been shown to be more efficient than the DWM Program. In addition, the MS4 Outfall Monitoring Program also samples outfall discharges. To avoid this duplication of effort, the MS4 outfall monitoring should be conducted under the MS4 Outfall Monitoring Program instead of the DWM Program. Additionally, Copermittees propose that in the MS4 outfall discharge program under the next Permit that if initial field screening observations (i.e., unusual color, odor, sheen, etc.) indicate a potential illegal discharge, then it will be addressed immediately.

Supporting Documentation

Jurisdictions conduct a separate DWM Program as described in each Jurisdictional Urban Runoff Management Program (JURMP) Annual Report. Dry weather samples are collected from the jurisdictions' MS4 to detect and eliminate IC/IDs. Samples are collected from May 1 through September 30 each Permit monitoring year. The results of the 2007, 2008, and 2009 DWM Program are included in the data assessment. The DWM Program primarily answers two core management questions, which address urban runoff discharges in the MS4: 3) What is the relative urban runoff contribution to the receiving water problem(s)? and 4) What are the sources of urban runoff that contribute to receiving water problem(s)?

During the 2007, 2008, and 2009 DWM Program monitoring years, out of 23,635 individual field and analytic samples, 1,258 samples had results measured above the dry weather action levels (Table 1) for an exceedance rate of only 5.3-percent. Table 1 also shows the exceedance rate for each analyte measured under the DWM Program. The analyte with the highest rate of results above the action level for 2007-2009 was total coliforms (25-percent), and Enterococcus was the constituent with the second highest exceedance rate (15-percent). Out of 1,091 dry weather samples collected from the region and analyzed for Diazinon, there was one dry weather action level exceedance. Of 1,089 dry weather samples collected and analyzed for Chlorpyrifos, only one sample (in Point Loma) was reported as an action level exceedance. Among the four dissolved metals for which analyses were conducted (i.e., cadmium, lead, copper, and zinc), the action level exceedance rate was less than 2-percent. Dissolved copper had the greatest number of reported exceedances (21 exceedances in 1,067 samples). Dissolved lead was found to be above the dry weather action level in five of 1,060 samples and dissolved cadmium exceeded the action level in one of 1,065 samples. Six exceedances out of 1,068 samples were reported for dissolved zinc in the region. The dissolved metals action levels are based on the CTR hardness based criteria.

Table 1. 2007, 2008, and 2009 Jurisdictional Dry Weather Program Monitoring Data Summary of Action Level Exceedances

Constituent Group	Constituent	Number of Dry Weather Samples Collected Regionally	Number of Dry Weather Action Level Exceedances	Percentage of Action Level Exceedances (%)
General chemistry	pH	2868	80	3%
	Oil & grease	976	8	1%
	Ammonia (NH_3-N)	2821	164	6%
	Methylene blue active substance (MBAS)	1515	119	8%
Nutrients	Orthophosphate (PO_4-P)	2844	117	4%
	Nitrate (NO_3-N)	2837	156	5%
Metals	Cadmium (dissolved)	1065	1	0%
	Copper (dissolved)	1067	21	2%
	Lead (dissolved)	1060	5	0%
	Zinc (dissolved)	1068	6	1%
Pesticides	Chlorpyrifos	1089	1	0.09%
	Diazinon	1091	1	0.09%
Bacteria	Total coliforms	1111	283	25%
	Fecal coliforms	1112	127	11%
	Enterococci	1111	169	15%
Grand Total		**23,635**	**1.258**	**5.3%**

* For conductivity and turbidity the action levels adopted by the Dry Weather Workgroup are based on best professional judgment and are excluded from this table.

When the Regional Monitoring Program implemented the analysis of organophosphate pesticides in 2001, it was based on the threat of these pesticides entering the region's receiving waters, evidence of persistent exceedances of Diazinon and Chlorpyrifos, and evidence of pesticide-induced acute and chronic toxicity to *Ceriodaphnia dubia*. DWM Program results for Chlorpyrifos and Diazinon over the past seven years are shown in Table 2. The dry weather exceedance rates for Diazinon and Chlorpyrifos have steadily declined over the past six years of monitoring and have been less than 1% in each year over the past five years. With respect to the USEPA ban on the pesticides Diazinon and Chlorpyrifos and the infrequent (or lack of) detections for these analytes in the DWM Program, this analysis could be justifiably removed from the next Permit constituent list..

Table 2. Jurisdictional Dry Weather Monitoring Program Results for Chlorpyrifos and Diazinon for the Period 2003–2009

Monitoring Year	Analyte	Number of Dry Weather Samples Collected Regionally	Number of Dry Weather Action Level Exceedances	Percentage of Action Level Exceedances
2003	Chlorpyrifos	373	117	31.4%
2004	Chlorpyrifos	241	1	0.4%
2005	Chlorpyrifos	285	0	0%
2006	Chlorpyrifos	382	1	0.3%
2007	Chlorpyrifos	333	0	0%
2008	Chlorpyrifos	387	1	0.3%
2009	Chlorpyrifos	369	0	0%
2003	Diazinon	373	129	34.6%
2004	Diazinon	240	6	2.5%
2005	Diazinon	286	2	0.7%
2006	Diazinon	377	2	0.5%
2007	Diazinon	333	0	0%
2008	Diazinon	389	0	0%
2009	Diazinon	369	1	0.3%

During the past three years (2007-2009) an IC/ID was detected for 118 (5-percent) of the action level exceedances. Of the 118 IC/IDs, 87 were resolved (i.e., source was identified and eliminated). Compared to the stormwater hotline and inspection programs, the proportion of IC/IDs that are resolved in the DWM Program is much lower. Methods such as hotline call in programs and inspection programs meet the requirements of non-stormwater discharge elimination to the storm sewers, and Copermittees report the number of IC/IDs eliminated as a result of their hotline call-in program or inspection program in their Annual Jurisdictional Urban Runoff Management Plan Reports.

ATTACHMENT 2-1

RECEIVING WATER ASSESSMENT OF MASS LOADING STATIONS/ TEMPORARY WATERSHED ASSESSMENT STATIONS

ATTACHMENT 2-1: RECEIVING WATER ASSESSMENT OF MASS LOADING STATIONS/ TEMPORARY WATERSHED ASSESSMENT STATIONS

Wet and dry weather samples are collected at mass loading stations (MLS) and temporary watershed assessment stations (TWAS) within nine watershed management areas. Samples are collected per the requirements of Table 1 of the San Diego Regional Water Quality Control Board Order No. R9-2007-001 (Permit). The MLS stations have been consistently sampled for the last 10 to 15 years whereas the TWAS address specific questions beginning with the 2007 Permit and were not designed to be long term monitoring stations.

This monitoring is designed to answer core management questions 1, 2, and 5. The core monitoring management questions per the Permit are as follows:

1. *Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?*
2. *What is the extent and magnitude of the current or potential receiving water problems?*
3. *What is the relative urban runoff contribution to the receiving water problem(s)?*
4. *What are the sources of urban runoff that contribute to receiving water problem(s)?*
5. *Are conditions in receiving waters getting better or worse?*

Analysis of receiving water data was conducted to evaluate progress so far on questions 1, 2 and 5. Additionally, the following sub-questions were analyzed to guide the Copermittees' monitoring recommendations for the next permit:

1. Have priority constituents changed over this current Permit cycle compared to the previous?
2a. How have the TWAS contributed to the understanding of the spatial extent and magnitude of receiving water problems?
2b. How do the monitoring results of the upstream TWAS compare to the downstream MLS?
2c. Can wet weather priority constituents be linked to land uses in the watersheds?
3. *What frequency of sampling at the MLS is necessary to maintain the detection of long-term trends of receiving water quality?*

Statistical analysis of the water quality data from the MLs and TWAS concluded that:

- Receiving water constituent priorities in 2010 are similar to the previous assessment conducted in 2005 for wet weather. Dry weather ambient monitoring was added in the 2007 Permit to address seasonal variability. With few exceptions, priority constituents are the same in all watersheds. Wet weather priorities, in general, are bacteria and sediment. Dry weather priorities, in general, are bacteria, nutrients and total dissolved solids (TDS). Synthetic pyrethroids, not analyzed under the previous Permit, are an emerging regional issue beginning to be addressed at the state and national levels.
- With few exceptions, the constituent priorities at TWAS and MLS across the region are similar. Constituent concentrations and patterns of occurrence are similar at TWAS and MLS in the same watershed.

- Additional constituent priorities were identified in Chollas Creek Watershed (copper and zinc) and Tijuana River Watershed (e.g., ammonia, surfactants (MBAS), and biological chemical oxygen demand). Both of these watersheds have unique characteristics compared to the rest of the region. Tijuana River is subject to periodic sewage discharges from across the international border and Chollas Creek has a high density of industrial facilities and transportation corridors.
- Statistical analysis of 8 to 18 years of wet weather receiving water data indicate that sampling frequency may be reduced from alternate years to once every five years without increasing the amount of time necessary to detect long term trends. Because wet weather data has a higher variability than dry weather data, it is assumed that a reduced frequency for ambient dry monitoring will also be appropriate.
- Statistical analysis of the wet weather receiving water data also showed that if a significant increasing or decreasing trend is observed, a reduction of sampling frequency from alternate years to every five years will not increase the time necessary to detect a significant trend.

Conclusions

Constituent priorities in receiving water are similar in 2010 to the previous 2005 assessment. Additionally, the upstream TWAS and downstream MLS have similar constituent priorities. Therefore, core monitoring questions 1 and 2 (i.e., impact to beneficial uses and the magnitude and lateral extent of problem) have been successfully addressed by the monitoring of the 2007 Permit. Because the constituent concentrations and patterns are generally similar at the TWAS and MLS, especially within a watershed, there is no added value to continuing TWAS monitoring in its current form. The similarity of priority constituents across the region support reducing the number of receiving water stations from the 2007 Permit. Several stations (3 to 5 across the region) close to the mouth of the watershed will be adequate to monitor receiving water conditions in the region. The region has the wet weather constituent priorities of bacteria and sediment and the dry weather constituent priorities of bacteria, nutrients and TDS. Resources can be reduced from receiving water monitoring and redirected to working on how to fix the problems by increasing emphasis on MS4 outfall monitoring, source identification and source abatement activities.

Wet weather sampling at the MLS may be reduced to once every five years. The statistical simulation results show that decreasing the sampling frequency to every five years will not affect the ability to detect long-term trends. This finding is further supported by the finding that receiving water priority constituents have not changed substantially at individual MLS during the past five years. Therefore, reduced receiving water monitoring will still allow for detection of trends in the long-term, answering management question 5.

Supporting Documentation

A list of watershed management area and mass loading station (MLS) acronyms is presented in Table 1.

Table 1. Watershed Management Area and Watershed Acronym List

Watershed Management Area	Watershed Name	Mass Loading Station
Santa Margarita	Santa Margarita River	SMR-MLS; SMR-MLS2
San Luis Rey River	San Luis Rey River	SLR-MLS
Carlsbad Watershed	Loma Alta Creek	LAC-TWAS-1
	Buena Vista Creek	BVC-TWAS-1
	Agua Hedionda Creek	AHC-MLS; AHC-TWAS-1
	Escondido Creek	ESC-MLS; ESC-TWAS-1
San Dieguito River	San Dieguito Creek	SDC-MLS; SDC-TWAS-1; SDC-TWAS-2
Los Peñasquitos River	Los Peñasquitos	LPC-MLS; LPC-TWAS-1; LPC-TWAS-2
Mission Bay and La Jolla	Tecolote Creek	TC-MLS
	Mission Bay	MB-TWAS-1; MB-TWAS-2
San Diego River	San Diego River	SDR-MLS; SDR-TWAS-1; SDR-TWAS-2; SDR-TWAS-3
San Diego Bay	Chollas Creek	CC-SD8(1)-MLS; CC-NF54
	Sweetwater River	SR-MLS; SR-TWAS-1
	Otay River	OR-TWAS-1
Tijuana River	Tijuana River	TJR-MLS; TJR-TWAS-1; TJR-TWAS-2

Sub-Question #1: *Have priority constituents changed over this current Permit cycle compared to the previous?*

Determination of whether or not receiving water priorities remained similar between the Baseline Long Term Effectiveness Assessment (BLTEA) and the current long term effectiveness assessment (LTEA) was made by comparing the two sets of results at the watershed level. The BLTEA analysis was conducted in 2005 and grouped wet and ambient data from the municipal separate storm sewer system (MS4) and the receiving waters, along with whether or not an constituent was included on the Section (§) 303(d) list. The LTEA analysis was conducted in 2010 and evaluated data from the MS4, receiving water (RW), wet, and ambient separately. In addition, inclusion of a constituent on the §303(d) list did not result in that constituent categorized as high priority. Constituent groups are used for the comparison of the BLTEA and the receiving waters LTEA. Priorities within watersheds were also evaluated. The purpose of this evaluation was to determine if the answer to management question #1 (conditions in receiving waters protective of beneficial uses) is the same in 2010 (LTEA) as the 2005 (BLTEA).

As shown in Table 2, wet weather priorities are similar between the BLTEA and the LTEA, as well as across the region. Cells highlighted orange are high priorities (greater than 50-percent exceedance of water quality benchmark (WQB)) and yellow cells are medium priorities (greater than 25-percent exceedance of WQBs, up to and including 50-percent exceedance of WQBs). A comparison of BLTEA and LTEA priority results at each MLS indicates that priorities remain similar between the two evaluations. Due to the dry weather ambient monitoring element initiated in the 2007 Permit, seasonal differences in priority constituents were identified in receiving water. Nutrients were not found to be a priority constituent during wet weather monitoring, but were a high priority constituent across many watersheds during dry weather conditions. These seasonal variations may in part be attributed to the differences in WQBs between seasons.

Since 2005, Copermittees participation in the Stormwater Monitoring Coalition (SMC) Regional Monitoring Program has provided additional ambient dry weather nutrient data. In general, during dry weather bacteria, nutrients, and TDS are constituent priorities found in watershed management areas across the region. In general, during wet weather, bacteria and sediments (total suspended sediments) are region-wide constituent priorities.

Table 2. Comparison of 2005 Baseline Long Term Effectiveness Assessment and 2010 Long Term Effectiveness Assessment Priority Results

Priority Group	BLTEA or LTEA	SMR-MLS	SLR-MLS	AHC-MLS	ESC-MLS	SDC-MLS	LPC-MLS	TC-MLS	SDR-MLS	CC-SD8(1)	SR-MLS	TJR-MLS
Baseline Long Term Effectiveness Assessment Priorities												
Bacteria	BLTEA											
Gross Pollutants	BLTEA											
Heavy Metals	BLTEA											
Nutrients	BLTEA											
Pesticides	BLTEA											
Sediment	BLTEA											
Total Dissolved Solids	BLTEA											
Toxicity	BLTEA											
Turbidity	BLTEA											
2010 Long Term Effectiveness Assessment Wet Weather Priorities												
Bacteria	LTEA-WET											
Gross Pollutants	LTEA-WET											
Heavy Metals	LTEA-WET											
Nutrients	LTEA-WET											
Pesticides	LTEA-WET											
Sediment	LTEA-WET											
Total Dissolved Solids	LTEA-WET											
Toxicity	LTEA-WET											
Turbidity	LTEA-WET											
2010 Long Term Effectiveness Assessment Dry Weather Priorities												
Bacteria	LTEA-DRY											
Gross Pollutants	LTEA-DRY											
Heavy Metals	LTEA-DRY											
Nutrients	LTEA-DRY											
Pesticides	LTEA-DRY											
Sediment	LTEA-DRY											
Total Dissolved Solids	LTEA-DRY											
Toxicity	LTEA-DRY											
Turbidity	LTEA-DRY											

BLTEA Priorities were based on Section 303(d) listing and combined wet and dry weather data
Orange highlights indicate high priorities (>50% exceedance of WQOs/WQBs), and yellow highlights indicate medium priorities (>25-50% exceedance of WQOs/WQBs)

Sub-Question #2a. How have the TWAS contributed to the understanding of the spatial extent and magnitude of receiving water problems?

and

Sub-Question #2b. How do the monitoring results of the upstream TWAS compare to the downstream MLS?

Priority constituents were also examined within watersheds to determine whether or not Priorities remained consistent throughout a watershed, and to help determine whether or not the TWAS have contributed to the understanding of the spatial extent and magnitude of receiving water quality problems. Three watersheds were examined in detail, and are presented in Table 3. The results demonstrate that Priorities remained consistent within the same watershed. Some differences in upstream and downstream relationships may be due to differences in the Basin Plan objectives in a specific hydrologic subarea (e.g. the TDS results for San Diego River stations).

Table 3. Agua Hedionda Creek, Escondido Creek, and San Diego River Mass Loading Station and Temporary Watershed Assessment Station Wet Weather Priority Constituent Comparison

Station	HSA	No. Samples	Assessment Scores - NPDES Monitoring - Wet Weather					
			Chemistry	Toxicity	IBI	Bacterio-logical	Nutrients	TDS
Agua Hedionda Hydrologic Area								
AHC-MLS	Los Monos (904.31)	9	TSS, Turbidity, Bifenthrin	*Hyalella azteca* acute	Very Poor	Fecal Coliforms		TDS
AHC-TWAS-1	Los Monos (904.31)	2	TSS, Turbidity, Chlorpyrifos, Bifenthrin	*Hyalella azteca* acute	Very Poor	Fecal Coliforms		TDS
Escondido Creek Hydrologic Area								
ESC-MLS	San Elijo (904.61)	9	Turbidity, Bifenthrin, TSS		NA	Fecal Coliforms		TDS
ESC-TWAS-1	Escondido (904.62)	2	Turbidity, Bifenthrin, TSS, Diazinon		Very Poor	Fecal Coliforms		TDS
San Diego River Hydrologic Area								
SDR-MLS	Mission San Diego (907.11)	9	Turbidity Bifenthrin		Very Poor	Fecal Coliforms		
SDR-TWAS-1	Mission San Diego (907.11)	2	Turbidity/Bifenthrin Surfactants (MBAS)	*Ceriodaphnia dubia* reproduction	Very Poor	Fecal Coliforms		TDS

Station	HSA	No. Samples	Assessment Scores - NPDES Monitoring - Wet Weather					
			Chemistry	Toxicity	IBI	Bacterio-logical	Nutrients	TDS
SDR-TWAS-2	Santee (907.12)	2	TSS/Turbidity Bifenthrin/Permethrin pH/BOD	*Hyalella azteca* acute survival	Very Poor	Fecal Coliforms		
SDR-TWAS-3	Santee (907.12)	2	Turbidity Bifenthrin		Very Poor	Fecal Coliforms		

-Orange highlights indicate high priorities (>50% exceedance of WQOs/WQBs), yellow highlights indicate medium priorities (>25-50% exceedance of WQOs/WQBs), blue indicates low priorities (≤25% exceedance of WQOs/WQBs). Only group scores of blue (low priority) are presented in the table.
-NA, not applicable no data collected

Sub-Question #2c.Can wet weather priority constituents be correlated to land uses in the watersheds?

A cluster evaluation was conducted to evaluate whether or not watersheds with similar land use also exhibited similar Priority constituent concentrations during wet conditions. The TWAS data were included to evaluate whether or not Priority constituent similarities between MLS and TWAS were found within watersheds.

Land use proportions upstream of each receiving water catchment (MLS or TWAS) were calculated using Geographic Information System (GIS), and compared using cluster analysis. The results of the analysis are presented in Figure 1. A map of the cluster results is presented in Figure 2. Several distinct land use group patterns were found, three of which are discussed here. Cluster "A" is defined by watersheds that contain relatively large proportions of industrial and agricultural land uses, and includes Agua Hedionda Creek (AHC-MLS and AHC-TWAS-1), San Dieguito Creek (SDC-MLS), Loma Alta Creek (LAC-TWAS-1), and Otay River (OR-TWAS-1). Cluster "C1" is defined by the highly urbanized watersheds, and includes relatively high proportions of public facilities, residential, transportation, and commercial land uses. This group includes Buena Vista Creek (BVC-TWAS-1), Sweetwater River (SR-MLS), Chollas Creek (CC-SD8(1)-MLS and CC-NF54-MLS), and portions of San Dieguito (SDC-TWAS-1). Finally, the most rural watersheds are characterized by Clusters "D1, D2, and E", which include relatively large proportions of vacant and undeveloped land, agriculture, and spaced rural residential land uses. Watersheds included in the cluster are portions of San Dieguito (SDC-TWAS-2), San Luis Rey (SLR-MLS and SLR-TWAS-1), Sweetwater River (SR-TWAS-1), Tijuana River (TJR-MLS, TJR-TWAS-1, TJR-TWAS-2), and Santa Margarita River (SMR-MLS and SMR-MLS2).

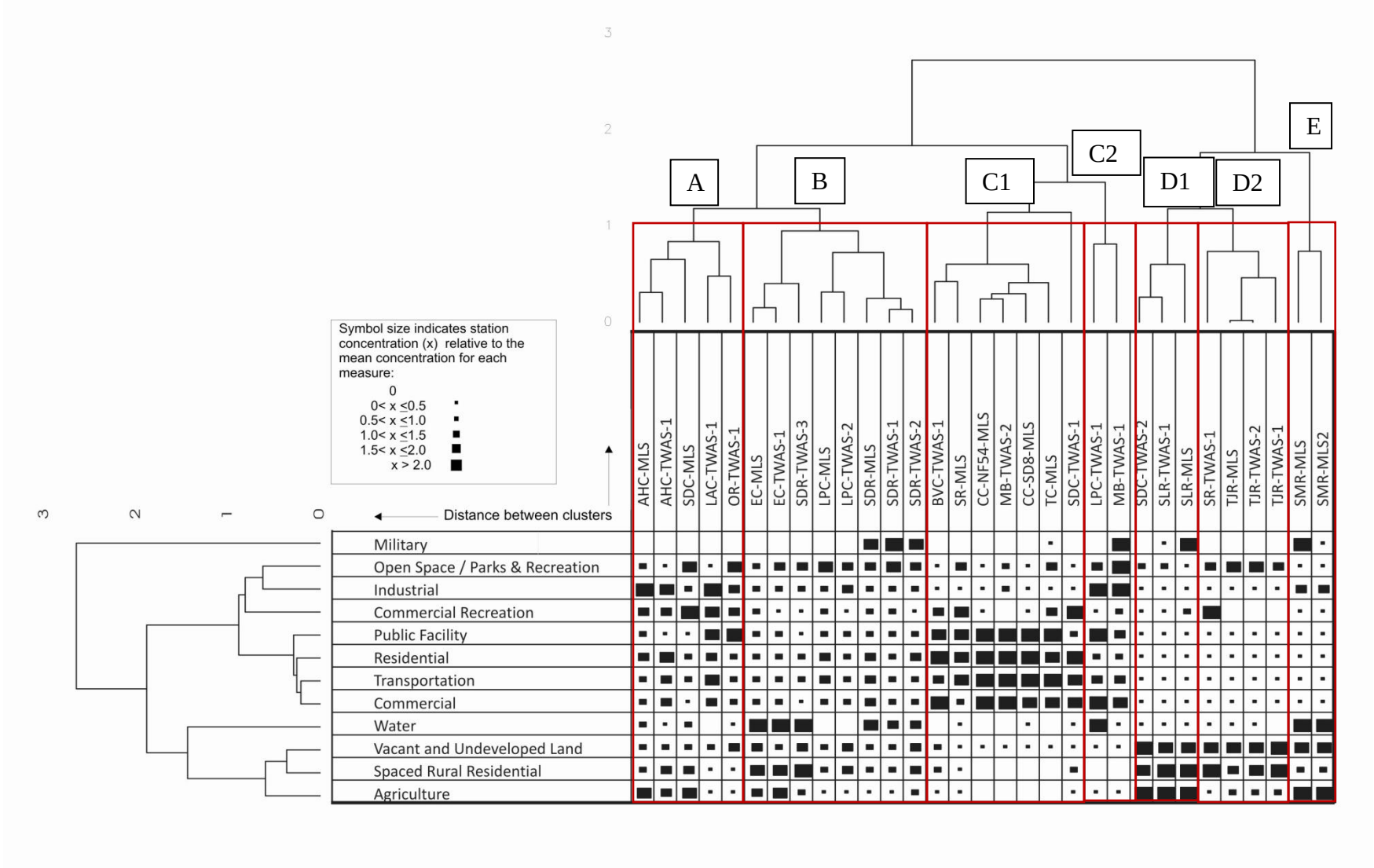


Figure 1. Land Use Cluster Analysis of the Mass Loading Station and Temporary Watershed Assessment Stations

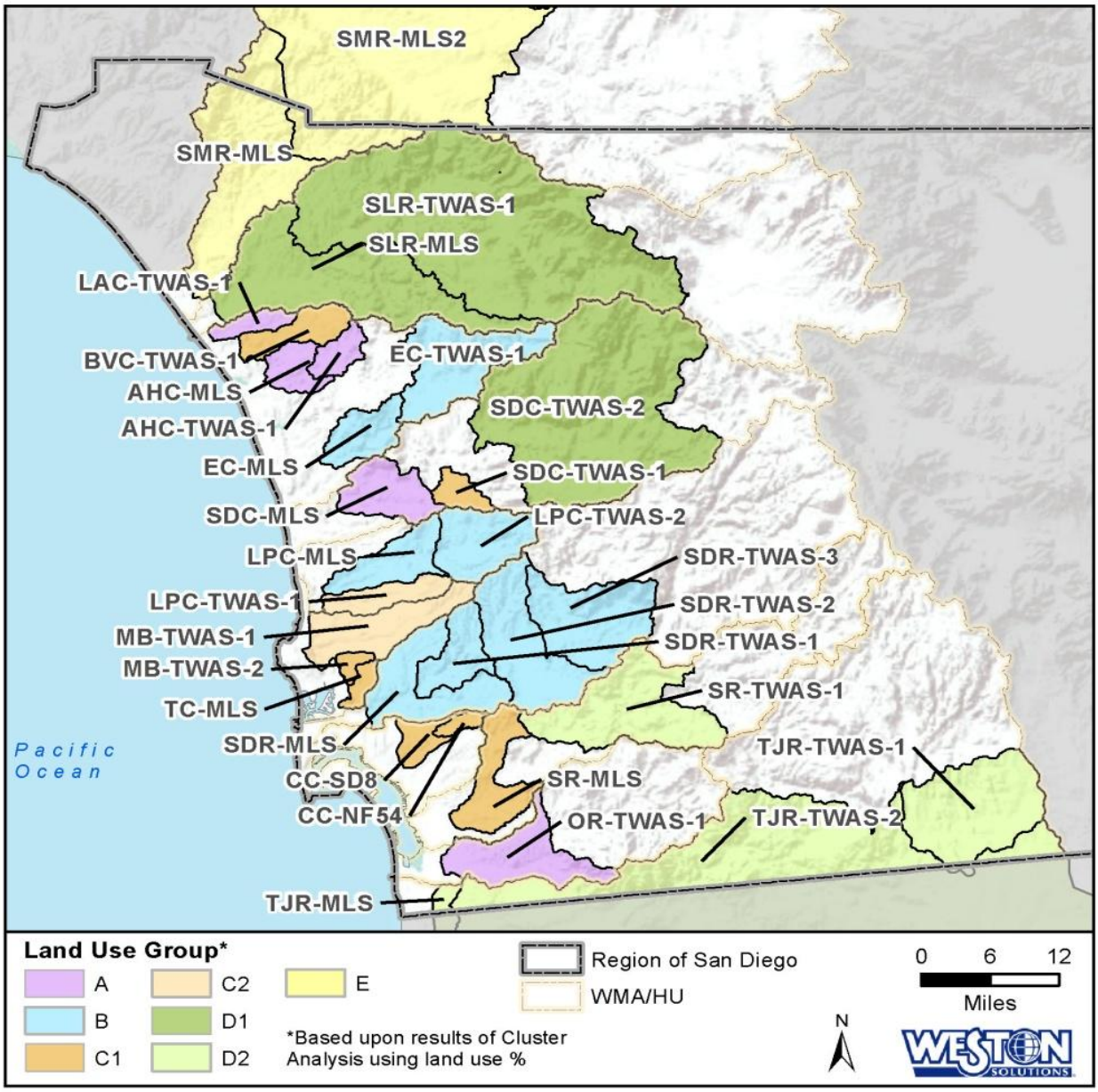


Figure 2. Land Use Cluster Analysis Results

The patterns of constituent concentrations at each MLS and TWAS were also evaluated using cluster analysis. The five-year LTEA dataset was used, and included wet weather data only, as receiving water constituent concentrations are expected to be more related to wash-off during wet events than during ambient conditions.

Results of the analysis are presented in Figure 3. In general, MLS and TWAS samples clustered together over time and a distinct sewage pattern was observed for Tijuana River (TJR-MLS and TJR-TWAS-2, highlighted blue) along with higher toxicity (highlighted orange). Chollas Creek (CC-SD8(1)-MLS) samples exhibited relatively higher concentrations of metals than other MLS and TWAS stations (highlighted purple). However, the groupings based on the water quality data do not directly correspond to the land use cluster analysis results. Therefore, based on constituent

concentrations, there does not appear to be a strong correlation between land use and constituent concentrations (i.e., individual land uses do not relate directly to stormwater concentrations). The exceptions are Tijuana River and Chollas Creek, which have unique activities. Tijuana River is subject to sewage discharge and Chollas Creek has a high density of industrial facilities and transportation corridors. The SDC-TWAS-2 grouping with the Tijuana River (TJR-MLS) sites was due to the post-fire stormwater monitoring results which were highly impacted by the 2007 San Diego Wildfires.

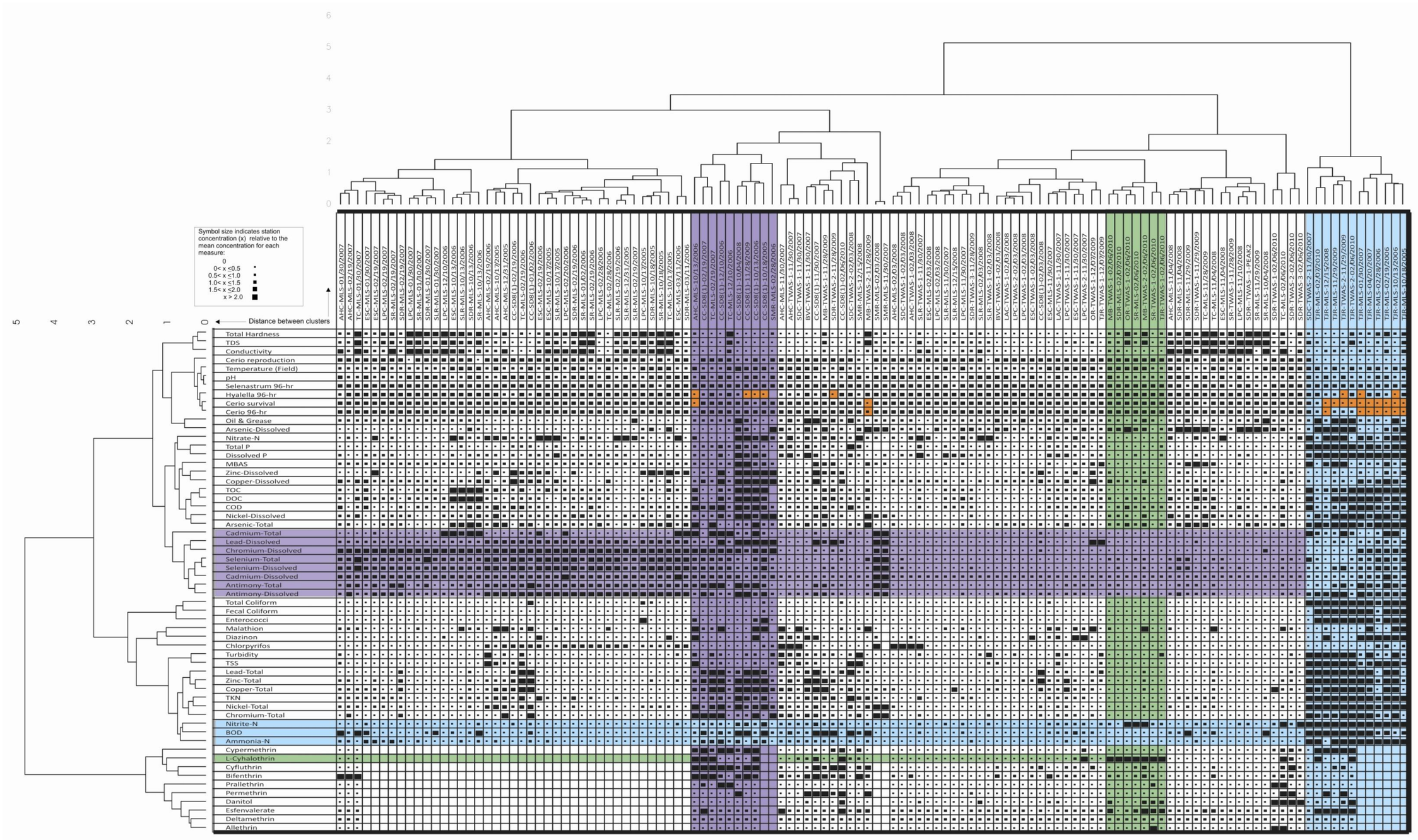


Figure 3. Cluster Analysis Results for Wet Weather Concentrations at Mass Loading Station and Temporary Watershed Assessment Stations during 2005-2010

Sub-Question #3: What frequency of sampling at the MLS is necessary to maintain the detection of long-term trends of receiving water quality?

A statistical analysis was conducted to determine whether or not a reduction in sample frequency from two wet weather events every other year to three wet weather events every five years at the MLS would decrease the Copermittees' ability to detect long-term receiving water trends. In particular, the question of whether a change in sampling frequency would affect Copermittees' ability to detect when the constituent concentrations fall below the WQB (or, for increasing trends, above the WQB) was evaluated.

The statistical analysis utilized the data from the existing program, between 8 and 18 years of data and 113 constituents at 10 MLS. The MLS and constituent combinations included all high priority constituents at each MLS, as well as constituents with greater than 50-percent detection frequency (more than half of the results were greater than the reporting limit). In addition, each MLS and constituent combination was tested for normality and log-normality (results in Attachment 1a). Only constituents that were found to be normal or log-normally distributed were included in the final statistical analysis dataset, because of the statistical method requirements. The final statistical analysis dataset included 66 analytes at 10 MLS. A full explanation of statistical tools utilized to assess the recommended monitoring program compared with the existing program is presented in Attachment 1a.

The existing data were used to evaluate trends (increasing, decreasing, or no trend), and the slope of the line was utilized to project future sampling results. Of the constituents included in the analysis, 2 were found to be significantly decreasing, 11 were found to be significantly increasing, and 53 did not exhibit a significant trend.

The statistical analysis included two scenarios, 1) the current program of two samples every other year and, 2) three samples every five years. The scenarios were compared to determine whether or not a reduction in monitoring frequency will increase the number of years it will take before the measured constituent of concern is observed below the WQO or WQB. Constituents that exhibited significant or non-significant decreasing or increasing trends were included in the analysis.

Comparison of the two scenarios found that, given the continuation of the existing trend line, decreasing the sampling frequency from two storm events every two years (n=5 per permit cycle) to three storm events every five years will not increase the amount of time necessary to detect when a decreasing or increasing trend crosses the WQO with 95-percent confidence. For MLS and constituent combinations that currently exhibit a significant increasing or decreasing trend, decreasing the sampling frequency will not decrease the ability to detect trends. For constituent and MLS combinations that do not exhibit significant trends, there is no difference between the two scenarios to detect when annual average concentrations first fall below or above the WQB or WQO with 95-percent confidence.

TSS was selected to illustrate the simulation results because it is often correlated to other constituents during storm events, including total phosphorus, bacteria, and total metals. Regionally, bacteria and TSS are Priority constituents during wet weather events. Therefore, evaluation to detect when these Priorities fall below WQOs is highlighted in the analysis. Results of the correlation analysis used to justify examination of TSS as a surrogate for other

constituents is included in Attachment 1b. Statistically significant correlations are highlighted yellow in the table (alpha=0.10).

Significantly Decreasing Trends

Only two of the 66 constituent and MLS combinations included in the statistical analysis exhibited statistical decreasing trends. These included total suspended solids (TSS) at Tecolote Creek Mass Loading Station (TC-MLS) and TDS at SLR-MLS. Figure 4 below illustrates the statistical assessment results for TC-MLS. The upper and lower 95-percent confidence interval is shown as a green and light blue line, respectively. Currently, there is a significantly decreasing trend for TSS at this MLS. Observed data are shown as black diamonds, and simulated data are shown as light blue diamonds. The existing program of two wet weather events every other year is compared to three events every five years at TC-MLS. Given the steep decreasing trend at TC-MLS (Figure 4), changes to the frequency of monitoring will not increase the amount of time required to detect when the 95-percent confidence interval falls below the wet weather water quality benchmark of 100 mg/L for TSS (shown in red on the graphs). As shown in Figure 4, the anticipated date to detect TSS concentrations below the WQO is during 2010 for both scenarios (shown as a vertical fuchsia line).

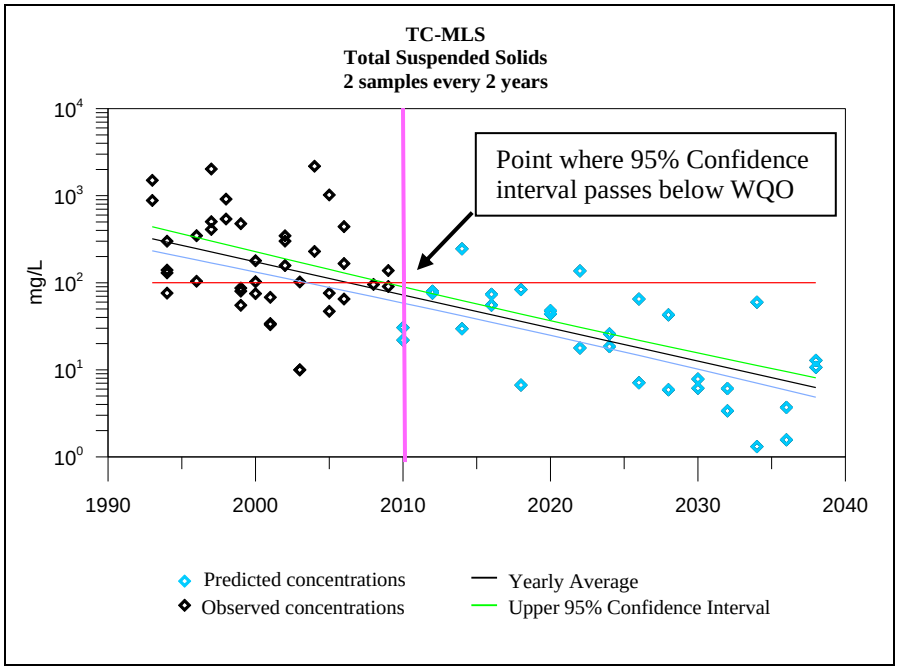
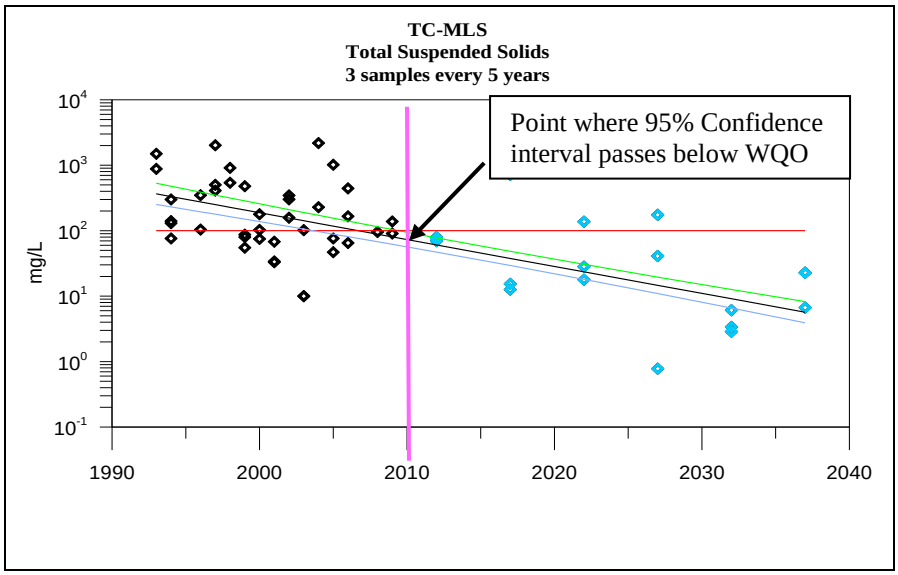


Figure 4. Statistical Analysis Results

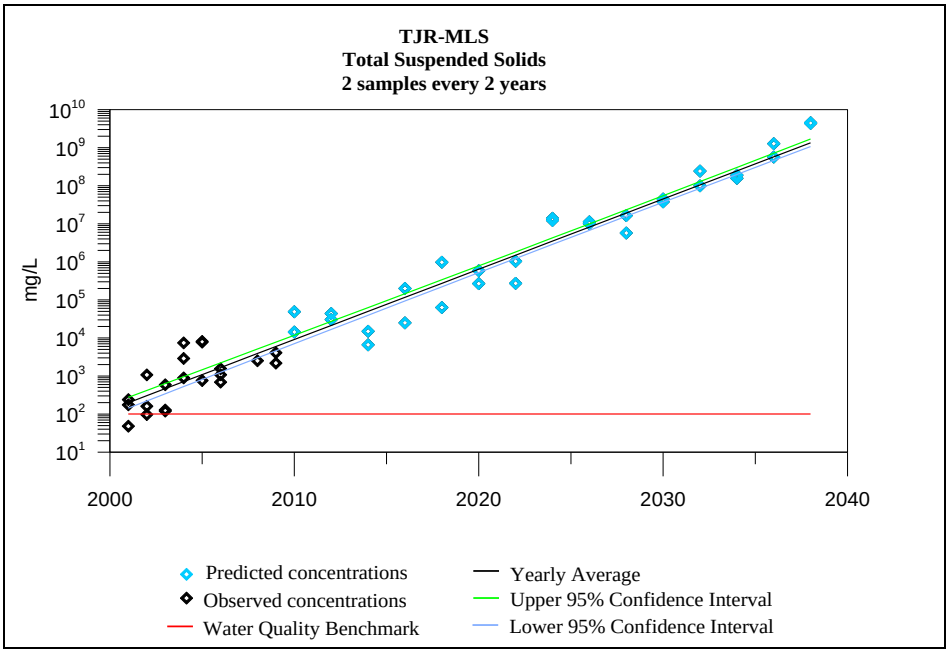


Comparison for Mass Loading Station with Significantly Decreasing Trend, Tecolote Creek Simulated Total Suspended Solids concentrations with Trend Line and 95-percent confidence interval bound

Significantly Increasing Trends

Eleven of the 66 constituent and MLS combinations included in the statistical analysis were found to be statistically increasing over time. Of these 11, four were turbidity, three were Total coliform, two were Fecal coliform, one was for TSS, and one was for total phosphorus.

The increasing trend shown in Figure 5 of TSS at Tijuana River MLS (TJR-MLS) (shown as the black line) illustrates the finding that if a significant increasing trend is observed, a reduction in sampling frequency will not affect the Copermittees' ability to detect it. Additional examples are provided in Attachment 1c that supports this conclusion.



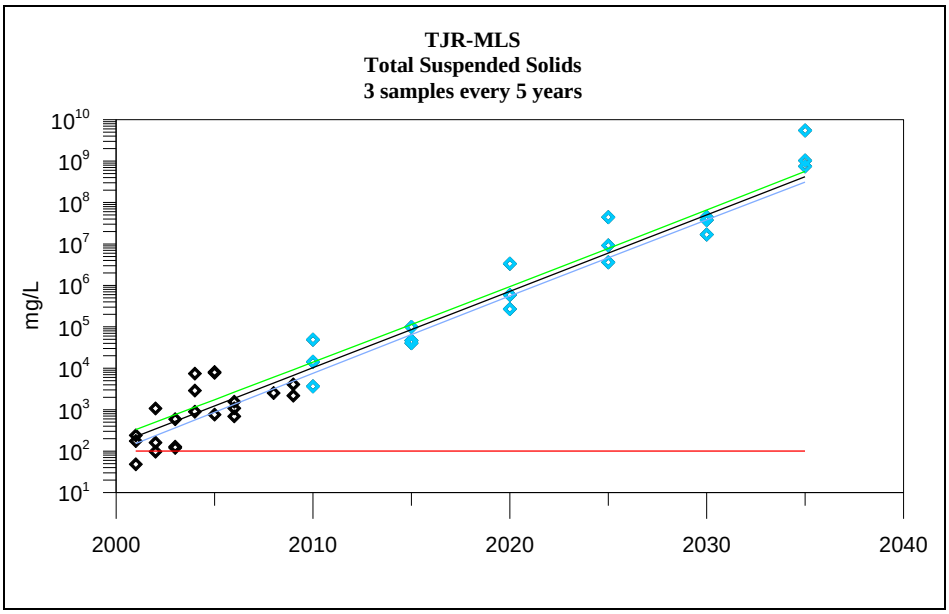


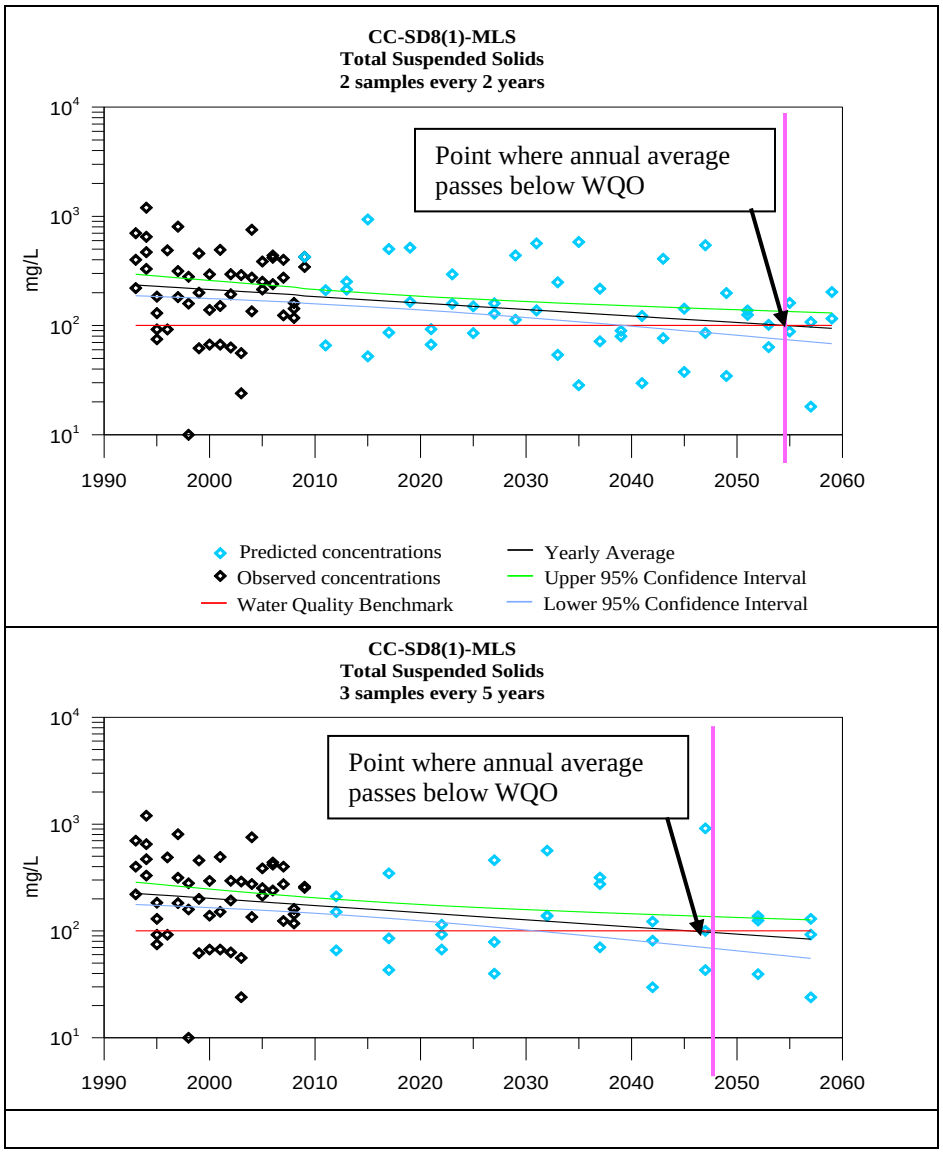
Figure 5. Statistical Analysis Results Comparison for Mass Loading Station with Significantly Increasing Trend, Tijuana River Simulated Total Suspended Solids concentrations with Trend Line and 95-percent confidence interval bound

No Significant Trends

Constituent and MLS combinations for which no significant increasing or decreasing trend has been observed present the worst case scenario for sample frequency reduction (53 of the 66 constituent and MLS pairs analyzed). The two scenarios are compared for TSS at Chollas Creek Mass Loading Station (CC-SD8(1)-MLS) and TSS at San Dieguito River (SDC-MLS) in Figure 6. The trend is generally decreasing at CC-SD8(1) and generally increasing at SDC-MLS.

In the CC-SD8(1) example, because a significant trend is not currently observed, the existing trend line will take a considerable amount of time before the upper 95-percent confident interval passes the WQB. As noted in Figure 6, although the average result is expected to cross the WQB in 2054 at the two year sampling frequency, and 2047 for the five year frequency, the 95-percent confidence interval is not predicted to fall below the WQB before the next 50 years. This finding is based on the variability of the data. Because the data are highly variable, sampling every two years actually makes it more difficult to predict when the average annual TSS concentrations will fall below the WQB. Therefore, decreasing the sample frequency from every other year to every five years will not decrease the Copermittees' ability to detect a decreasing trend. If the existing slope of the line changes to decrease faster, this scenario would result in less time to detect a trend in either instance.

At SDC-MLS a generally increasing TSS trend is observed. This example is included here to illustrate that although the current TSS levels are below the WQB, it is possible to predict when TSS concentrations will meet or exceed the WQB using either the current monitoring program or the reduced sampling frequency to every five years. In this instance, the average annual TSS concentrations are not expected to exceed the WQB within the next 50 years. The lower 95-percent confidence interval does not pass the WQB in this example.


CC-SD8(1)-MLS
Total Suspended Solids
2 samples every 2 years
Point where annual average passes below WQO
mg/L
Predicted concentrations
Observed concentrations
Water Quality Benchmark
Yearly Average
Upper 95% Confidence Interval
Lower 95% Confidence Interval
CC-SD8(1)-MLS
Total Suspended Solids
3 samples every 5 years
Point where annual average passes below WQO
mg/L

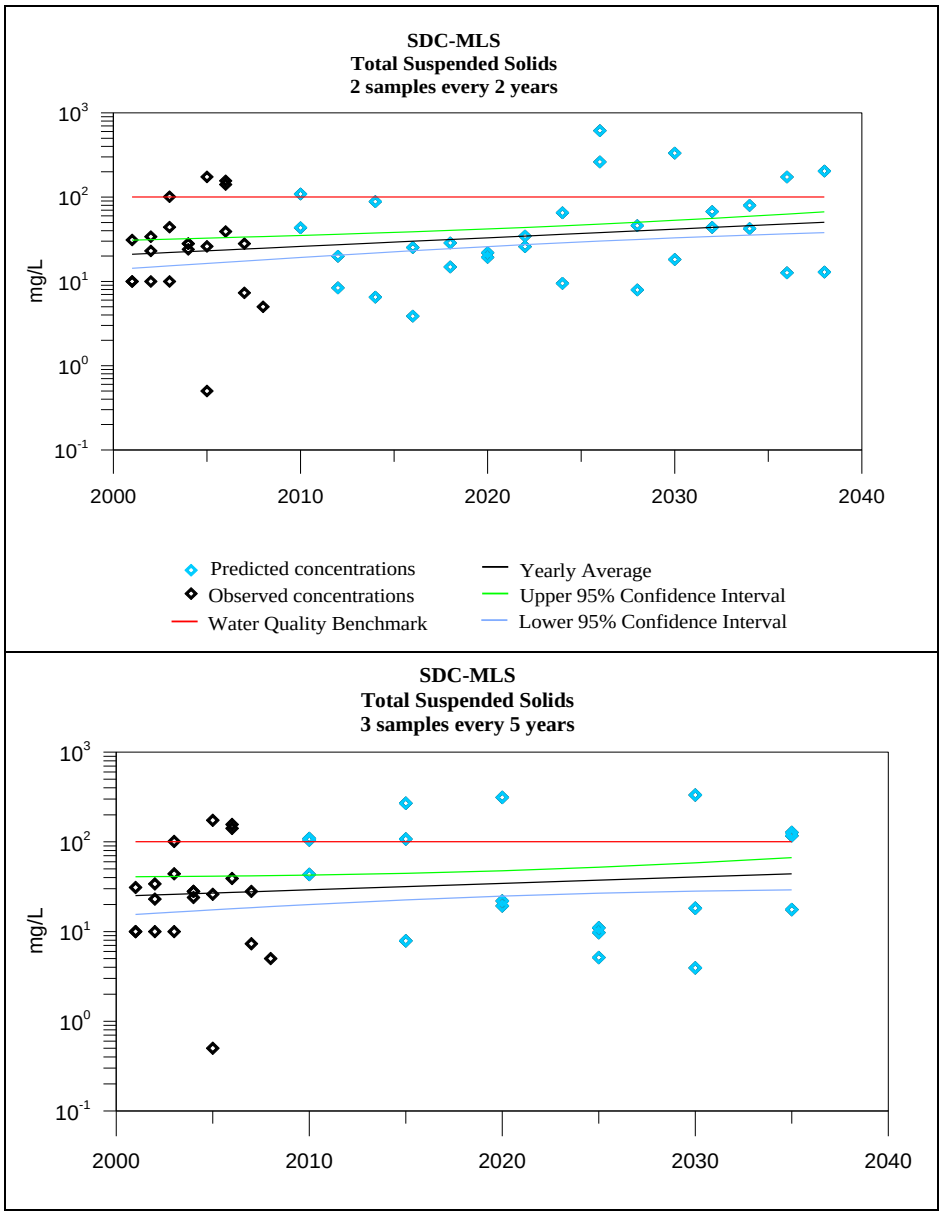


Figure 6. Tecolote Creek and Chollas Creek Simulated Total Suspended Solids concentrations with Trend Line and 95-percent confidence interval bound

ATTACHMENT 2-2

COASTAL STORM DRAIN MONITORING PROGRAM REVIEW

ATTACHMENT 2-2: COASTAL STORM DRAIN MONITORING PROGRAM REVIEW

The Coastal Storm Drain Monitoring Program met the overall monitoring program goals by complying with San Diego Regional Water Quality Control Board Order No. R9-2007-0001 (Permit), characterizing urban runoff discharges, identifying sources of bacteria, and helping to detect and eliminate illegal discharges. The Coastal Storm Drain Monitoring Program provided information that is intended to primarily answer the core management questions addressing urban runoff discharges, particularly core management question 3 and question 4 from the Permit, which are as follows:

3. What is the relative urban runoff contribution to the receiving water problem(s)?
4. What are the sources of urban runoff that contribute to receiving water problem(s)?

The Permit requires monitoring of indicator bacteria levels in urban runoff from coastal storm drain outfalls. Through a paired sampling design of the flowing coastal storm drain that reaches the ocean or bay and the nearby AB411 ocean or bay station, this program evaluates the relationship between coastal storm drain discharges and exceedances of bacteriological water quality standards in the coastal receiving waters.

An evaluation of the CSDM Program was conducted to answer the following question:

What is the impact of dry weather discharges from the coastal storm drains on the REC-1 beneficial use the adjacent coastal beach?

Evaluation of the results of the CSDM Program found that:

- The CSDM Program has demonstrated that coastal storm drain flows cause few ocean or bay bacterial exceedances during dry weather. Less than 2 percent of paired receiving water and coastal storm drain samples collected from 2007-2010 indicate a "linkage", where elevated storm drain concentrations correlate with observed receiving water exceedance of AB 411 bacterial criteria. Of 1,647 individual receiving water bacteria indicator samples analyzed, only 32 corresponded with coastal storm drain outfall discharges (0.9% of Total coliform, 1.5% of Fecal coliform, and 3.4% of *Enterococcus* paired samples). In addition to the low incidence of linked coastal storm drain outfall discharge and receiving water AB411 exceedances, the number of coastal storm drain discharges that reach receiving waters has decreased during the past eight years from 73 percent to 23 percent. The decrease in discharge reaching the receiving waters demonstrates a lower risk of a linkage occurring between coastal storm drains and receiving waters.
- Results of the CSDM Program indicate that few storm drains contribute discharges that are linked to the AB411 exceedances in receiving waters. Only 4 of the 227 (1.7 percent) coastal storm drains monitored over the past three years corresponded more than once to a nearby AB411 exceedance in the ocean or bay. These four coastal storm drains have ongoing source abatement programs. An additional six coastal storm drains over the past three years each corresponded only once with an elevated coastal storm drain discharge to a nearby AB 411 exceedance in the ocean or bay.

- Of the ten coastal storm drain outfalls over the past three years linked to AB411 exceedances in the ocean or bay, five will be included in the implementation plans for the Revised Total Maximum Daily Loads for Indicator Bacteria Project – I Twenty Beaches and Creeks in the San Diego Region (Including Tecolote Creek Bacteria TMDL). The Bacteria TMDL will cover the following hydrologic areas: San Luis Rey River HU 903.00, San Marcos HA 904.50, San Dieguito HU 905.00, Miramar Reservoir HA 906.10, Scripps HA 906.30, Tecolote HA 906.50, San Diego River HU 907.00, and Chollas HSA 908.22. These areas cover much of the coastline and will result in a duplication of effort between the CSDM Program and the Bacteria TMDL monitoring program.

Conclusions

The conclusion of this evaluation is that the CSDM Program should be discontinued, as it has shown that the correspondence between elevated coastal storm drain outfall discharges and AB411 exceedances in the receiving water is minimal (1.9 percent). In addition, upcoming Bacteria TMDL monitoring will overlap with CSDM Program requirements. The TMDL will require an implementation plan to assess and prioritize receiving water exceedances caused by outfall discharges. The very few stations that exhibit a link to AB411 indicator bacterial exceedances in the bay or ocean are addressed by special programs at those stations.

Supporting Documentation

Background

The CSDM Program has been implemented since 2001, and includes the cities of Oceanside, Carlsbad, Encinitas, Solana Beach, Del Mar, San Diego, and the San Diego Unified Port District. The cities of Coronado and Imperial Beach do not currently participate in the program because Coronado participates in a weekly bacteria beach monitoring program, and Imperial Beach coastal storm drains do not flow during dry weather.

Order 2007-0001 require the Copermittees to identify all coastal storm drains and sample those that are flowing on a monthly basis. Current active sites for each jurisdiction were selected based on the following considerations:

- Accessibility
- Safety for samplers
- Outfall conveys urban runoff from the Copermittees' MS4.

Samples were collected from all locations meeting the site selection criteria above, in the manner described below:

1. Samples will be collected at all flowing storm drain outlets, even if the discharge does not come into direct contact with the receiving water.
2. Storm drain outlet samples will be collected if the storm drain discharge infiltrates into the sand before reaching the receiving water.
3. Storm drain outlet samples will be collected if the flowing storm drain results in ponding between the drain and the receiving water.

4. Paired samples (both storm drain sample and receiving water sample) will be collected when storm drain flows are observed to reach the receiving water.

Monthly samples are collected at all flowing coastal storm drain outfalls, and paired samples are collected in the receiving water if the coastal storm drain discharge reaches the receiving water. A total of 471 unpaired samples were collected at coastal storm drain outfalls from 2007-2010, and a total of 549 paired samples were collected during the same timeframe (2007-2008, 2008-2009, and 2009-2010 Coastal Storm Drain Monitoring Program Annual Reports). In total, 1,569 samples were analyzed for *Enterococcus*, Fecal Coliform, and Total Coliform (4,707 analyses total).

Summary of receiving water samples collected from 2007-2010

The geometric mean and range of receiving water results from 2007-2010 are presented in Figure 1 through Figure 3. Except for *Enterococcus*, the geometric mean for all stations and bacteria indicators is below the AB411 benchmark. Coast 36 and CSD010 are the only two stations with geometric means above the AB411 criteria for *Enterococcus* (although there are some single sample exceedances). Fecal coliform has a few single samples that are above the AB411 standard, but no geometric means. Total coliform also has no stations with geometric means above the benchmark, just a few single samples.

These results corroborate the findings of the receiving water and outfall discharge linkage analysis, which demonstrate that 19 Enterococcus, 8 Fecal Coliform, and 5 Total Coliform receiving water exceedances were likely caused by storm drain discharges. In those instances where receiving water results indicated higher concentrations of indicator bacteria than observed in storm drain runoff discharges, there was not a causal relationship demonstrated between storm drain discharge and the receiving water exceedance (see Table 1). Overall, there were more receiving water samples above the AB411 standard than presented in Table 1 because in some samples the receiving water result was much higher than the storm drain discharge concentration. For example, Station CSD021 exceeded the receiving water standard for *Enterococcus* and Fecal coliform on 12/1/2008 (804 MPN/100mL, and 460 MPN/100mL, respectively), but the storm drain concentrations were much lower than the receiving water results (280 MPN/100mL, and 9 MPN/100mL, respectively).

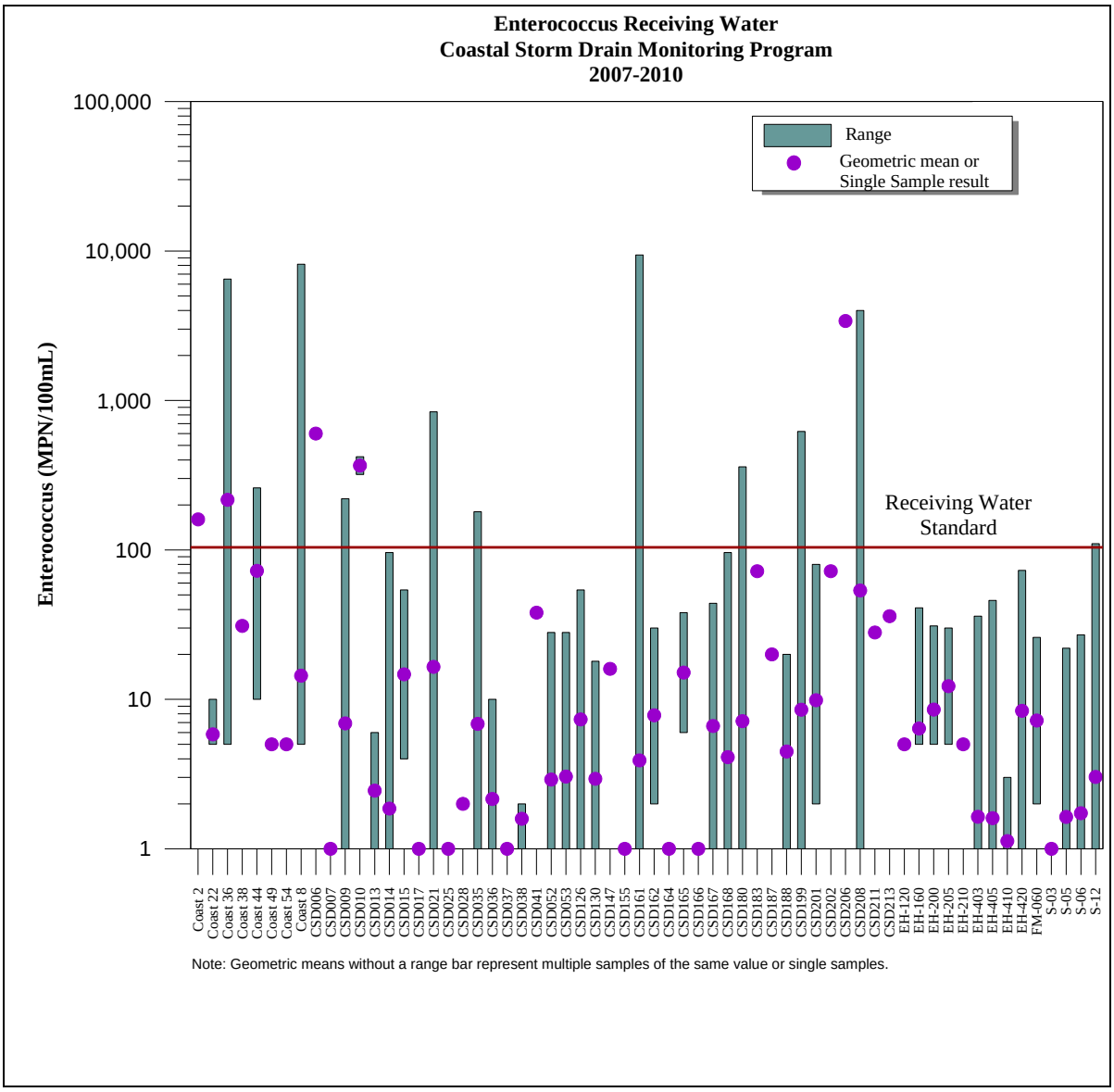


Figure 1. Summary of Coastal Storm Drain Monitoring Program Enterococcus Receiving Water Results 2007-2010

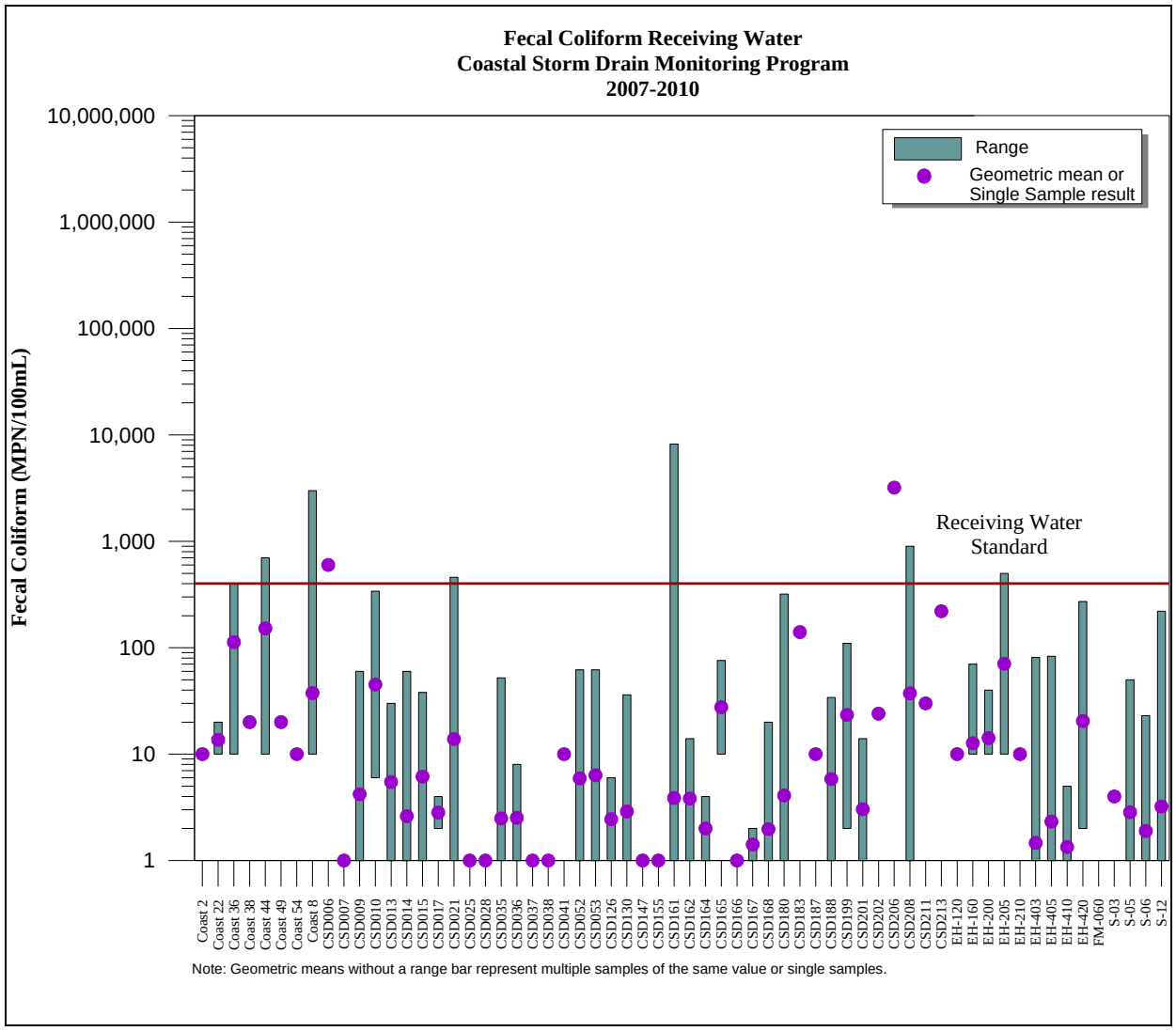


Figure 2. Summary of Coastal Storm Drain Monitoring Program Enterococcus Receiving Water Results 2007-2010

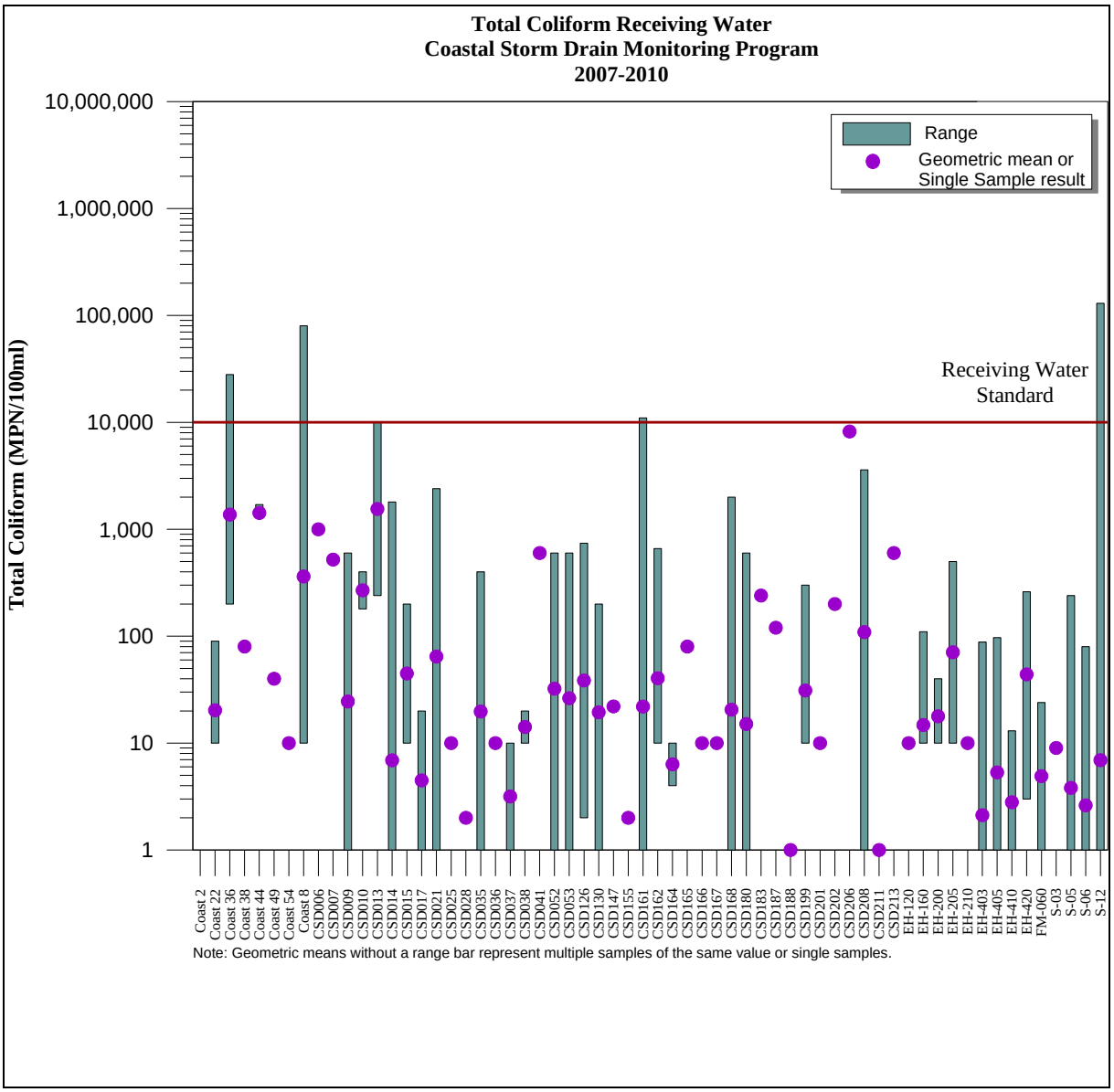


Figure 3. Summary of Coastal Storm Drain Monitoring Program Enterococcus Receiving Water Results 2007-2010

Coastal Storm Drain Outfall Discharge and Receiving Water Linkage Analysis

Sampling of the receiving water occurs when coastal storm drain outfall discharges reach the receiving waters. During the past three years of monitoring (2007-2010) 549 paired samples were collected. A paired sample consisted of one sample from the coastal storm drain outfall discharge and one from the receiving water. Of the 549 paired samples, 1.9 percent showed a link between storm drain outfalls and the receiving water (Table 1).

Table 1. Summary of Coastal Storm Drain Outfall and Receiving Water Linkages

Analyte	Number of Linked Samples	Total Number of Paired Samples	Percent Storm Drain Caused Receiving Water Exceedance
Enterococcus	19	549	3.5%
Fecal Coliform	8	549	1.5%
Total Coliform	5	549	0.9%
Total	**32**	**1,647**	**1.9%**

To further illustrate the relationships between receiving water and storm drain bacteria levels, and receiving water and storm drain action levels, a series of scatter plots referred to as adaptive monitoring diagrams were developed. The adaptive monitoring diagrams stratified the paired sampling data into categories, or quadrants and are essential tools in the implementation of understanding how storm drain flows can impact receiving waters. Figure 4 through Figure 6 summarize the results of Total Coliform, Fecal Coliform, and *Enterococcus* paired samples for 2007-2010.

The scatter plots are divided into five quadrants that are formed by superimposing a line of slope = 1 and two perpendicular lines that delineate the AB411 standard for the indicator of interest. For example, the five quadrants in Figure 1 through Figure 3 are formed by the 1:1 slope line and two lines delineating the AB411 standard line for Total Coliform (10,000 MPN/ 100mL). Receiving water bacteria levels in samples falling within quadrants above the 1:1 slope line (Quadrants II and III, and the upper part of Quadrant I) are higher in bacteria than the corresponding storm drain sample and are therefore, likely influenced by sources in addition to the storm drain discharge. Possible sources include birds, other marine wildlife, discharges from watercraft, and ocean bathers. Quadrant IV of the scatter plots includes the paired samples where elevated storm drain bacteria are likely to have caused or contributed significantly to the AB411 exceedance. Quadrant V includes the elevated storm drain samples that did not result in an AB411 exceedance. Table 2 describes the relationships associated with paired sample data falling into each quadrant.

Table 2. Adaptive Monitoring Description, Recreated from Coastal Storm Drain Monitoring Program 2009-2010 Annual Report

Quadrant	Area	Relationship/Possible Action
Lower Left	I	Storm drain and receiving water levels are below receiving water standards. The receiving waters support beneficial uses
Lower Right	I-A	Storm drain concentration is above receiving water criteria but below 95th percentile action level, receiving water is below receiving water criteria. No action necessary
	V	Storm drain concentration is above 95th percentile action level while receiving water concentration is below receiving water criteria. Highly elevated storm drain concentration does not cause receiving water exceedance, however, the magnitude of the exceedance warrants follow-up and possible investigation.
Upper Left	II	Storm drain less than receiving water standards, while criteria are exceeded in receiving water sample. It does not appear that storm drain flow is responsible for the receiving water exceedance.

Quadrant	Area	Relationship/Possible Action
Upper Right	III	Storm drain and receiving water samples are above receiving water criteria, and storm drain concentration is less than receiving water concentration. Storm drain contamination may contribute to receiving water exceedance, but other sources are also likely.
	IV	Storm drain and receiving water samples are above receiving water criteria, and storm drain concentration is greater than the receiving water concentration. Elevated storm drain concentration likely to have caused receiving water exceedance.

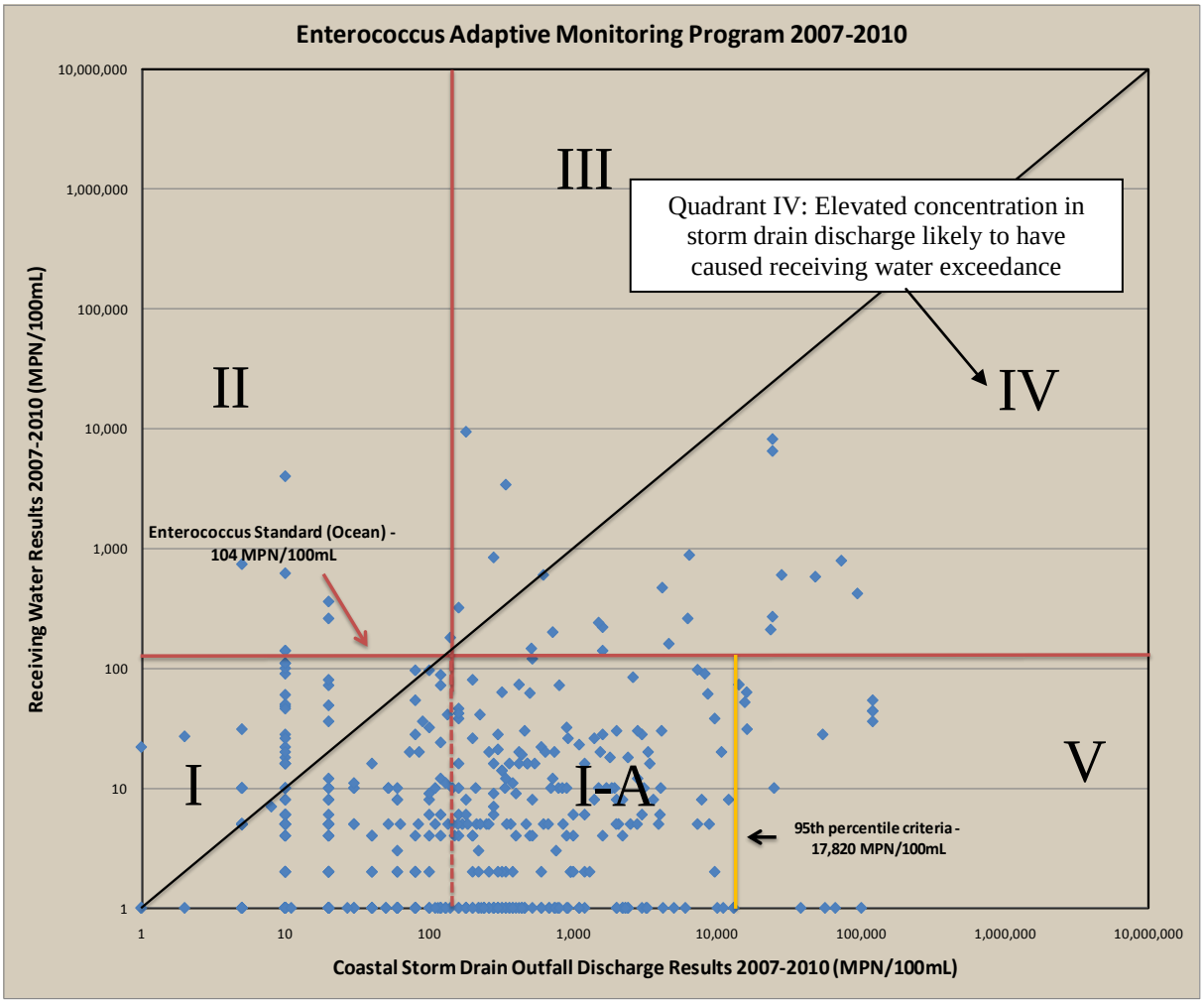


Figure 4. *Enterococcus* Adaptive Monitoring Results 2007-2010

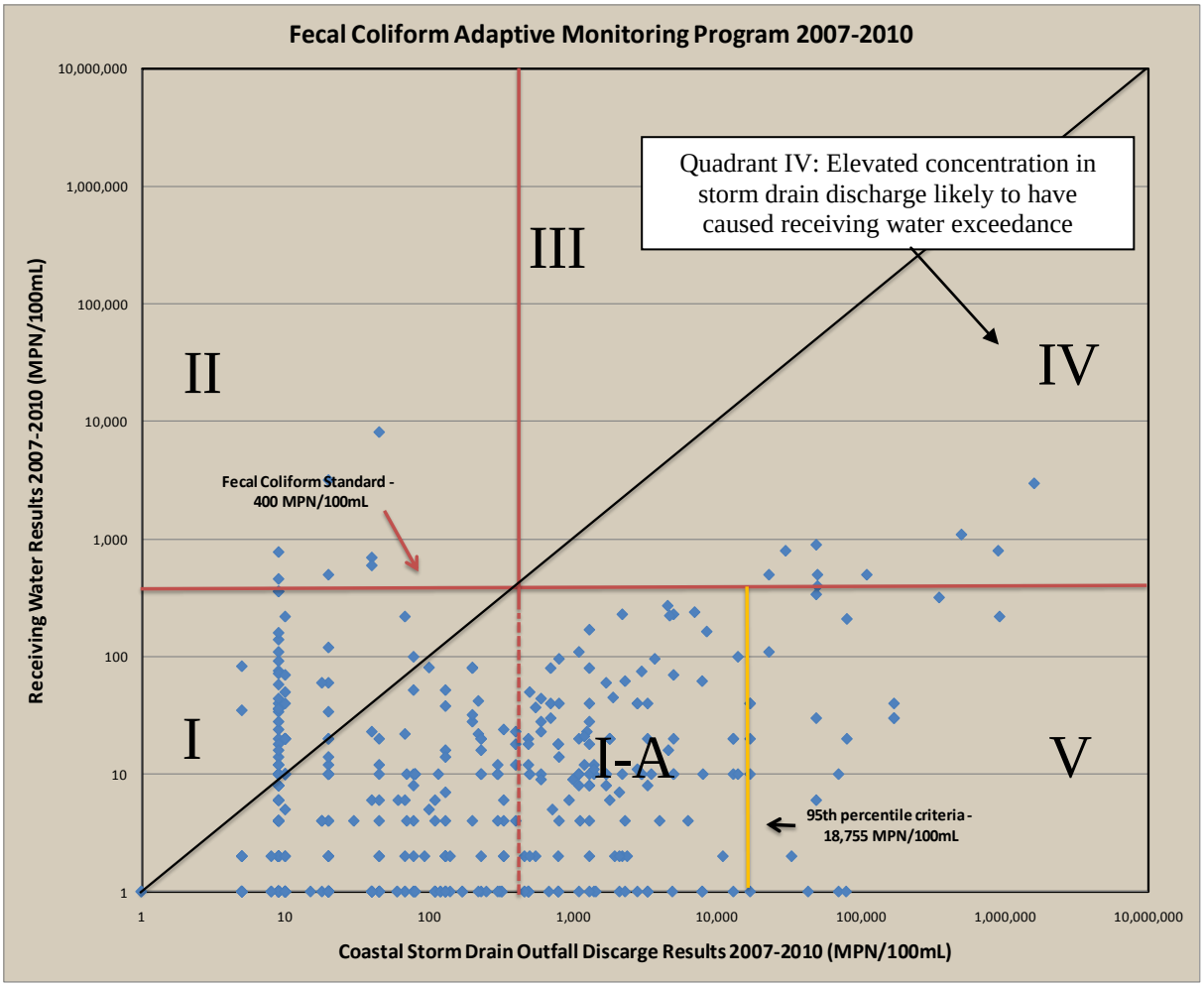


Figure 5. Fecal Coliform Adaptive Monitoring Results 2007-2010

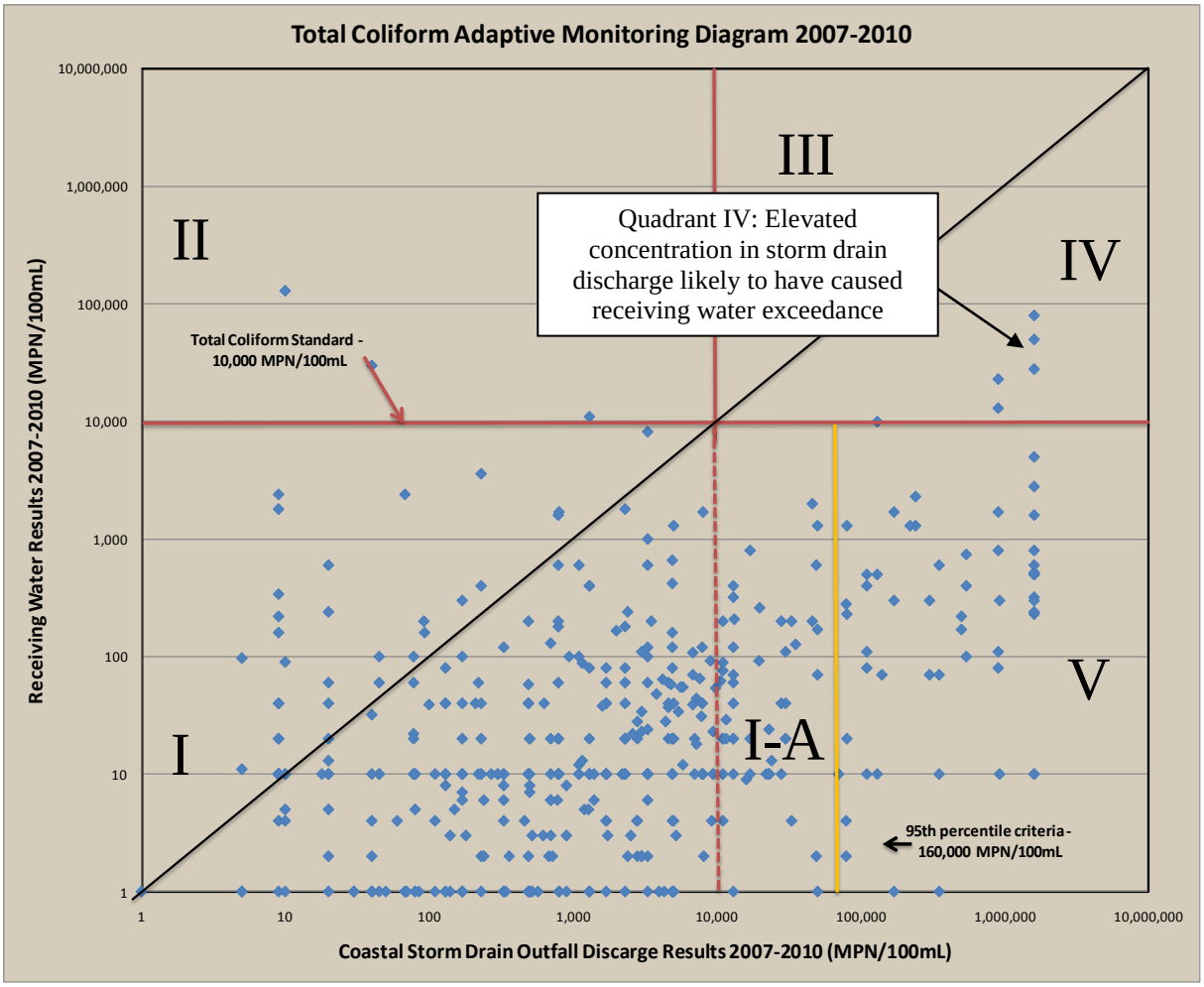


Figure 6. Total Coliform Adaptive Monitoring Results 2007-2010

The samples that fall into Quadrant IV in Figure 4 through Figure 6 are summarized in Table 5, which presents a seasonal breakdown of the coastal storm drain discharge and receiving water results where linkages are present. The majority of linked samples occurred during the winter months (11 of 19 *Enterococcus* samples, 4 of 7 Fecal Coliform, and 4 of 5 Total Coliform).

Table 3. Seasonal Summary of Coastal Storm Drain Discharge and Linked Receiving Water Samples

Month	*Enterococcus*	Fecal Coliform	Total Coliform	Season
May	1	0	0	Dry Season
June	1	1	0	
July	0	1	0	
August	3	1	0	
September	3	0	1	
Summer Total	**8**	**3**	**1**	
October	1	2	1	Wet Season
November	2	0	0	
December	1	0	0	
Jan	4	2	3	
Feb	2	0	0	
March	1	0	0	
April	0	0	0	
Winter Total	**11**	**4**	**4**	

Stations for which a linkage between coastal storm drain discharge and receiving water results has been observed are presented in Table 4. Of 227 stations included in the program, only four of the ten stations with a suspected linkage exhibit a chronic pattern of paired sample exceedances. These four stations represent 1.7 percent of the stations monitored within the CSDM Program. At two of these four stations, additional measures have already been taken to ensure the linkage between coastal storm drain discharges and receiving waters is eliminated. Effectiveness assessment of BMP implementation (Coast 8) is currently underway, and for CSD208 special monitoring is currently underway to understand and eliminate the source of bacteria. The sources of indicator bacteria exceedances at Coast 36 and Coast 44 have been identified. The outfall at Coast 36 is from Camp Pendleton and results have been forwarded to them for action. The two exceedances at Coast 44 were from commercial fishing activity and Oceanside Harbor Maintenance and Oceanside Code Enforcement have worked with the fisherman and the fish distributors to implement appropriate BMPs. The other six stations have exhibited a linkage between storm drain discharge and receiving water bacteria indicator results only once during the past three years. Four of the six stations will be monitored under the upcoming Bacteria TMDL. Therefore, additional special monitoring at these locations is not necessary.

Table 4. Summary of Coastal Storm Drain Outfall Monitoring Stations with Linkages to Receiving Water AB411 Exceedances

Station	Season Linkage Observed	Years Linkage Observed	HU	Water Body	Latitude	Longitude	Ongoing Actions
Coast 2	Winter (2008-2009)	1	902*	Oceanside Harbor	33.21303	-117.39474	Not an ongoing receiving water and storm drain outfall discharge linkage. No further action necessary.
Coast 36	Summer/Winter (2008-2010)	2	902*	Oceanside Harbor	33.21253	-117.39426	Source of flow identified. Results, photos, and details sent to Camp Pendleton for abatement.
Coast 44	Winter (2008-2010)	2	902*	Oceanside Harbor	33.20642	-117.38961	Source of flow identified. Oceanside Harbor Maintenance and Code Enforcement have implemented structural and administrative BMPs for the commercial fisherman and seafood transport and distribution companies.
Coast 8	Summer/Winter (2007-2010)	3	902*	Oceanside Harbor	33.20564	-117.3932	Effectiveness Assessment of BMP implementation ongoing
CSD006	Winter (2008-2009)	1	906	Vallecitos	32.85562	-117.25819	Included in Bacteria TMDL; Not an ongoing receiving water and storm drain outfall discharge linkage. No further action necessary.
CSD009	Winter (2008-2009)	1	906	Roseland Dr	32.852138	-117.26111	Included in Bacteria TMDL; Not an ongoing receiving water and storm drain outfall discharge linkage. No further action necessary.
CSD010	Summer (2008-2009)	1	906	Coast Blvd	32.850346	-117.27297	Included in Bacteria TMDL; Not an ongoing receiving water and storm drain outfall discharge linkage. No further action necessary.
CSD035	Winter (2007-2008)	1	906	Cortez Place	32.818586	-117.27428	Included in Bacteria TMDL; Not an ongoing receiving water and storm drain outfall discharge linkage. No further action necessary.
CSD208	Summer/Winter (2007-2010)	3	906	Cudahy	32.78679	-117.20791	Included in Bacteria TMDL, Special Monitoring through City of San Diego
EH-205	Summer (2008-2009)	1	908	Bessemer St	32.71803	-117.23344	Not an ongoing receiving water and storm drain outfall discharge linkage. No further action necessary.

* Hydrologic Unit designated as 902* is representative of stations in Oceanside Harbor. The harbor is listed as a coastal water body in Table 2-3 of the Water Quality Control Plan for the San Diego Basin (9). A Hydrologic Unit Basin Number has not been assigned to the harbor. According to SanGIS data, the stations fall into the 902 Hydrologic Unit, Santa Margarita.

The sample results shown in Quadrant IV of Figure 4 through Figure 6 are presented in Table 5.

Table 5. Coastal Storm Drain Discharge and Receiving Water Linkage Analysis Individual Results

Station	Date	Analyte	Months	Coastal Outfall Concentration (MPN/100 ml)	Coastal Receiving Water Concentration (MPN/100 ml)
Coast 2	2/4/2009	Enterococcus	Feb	4,611	160
Coast 36	9/2/2008	Enterococcus	Sept	24,196	6,488
Coast 36	6/1/2009	Enterococcus	June	4,150	470
Coast 36	11/9/2009	Enterococcus	Nov	23,500	210
Coast 36	9/1/2010	Enterococcus	Sept	72,700	790
Coast 44	3/10/2008	Enterococcus	March	512	146
Coast 44	1/11/2010	Enterococcus	Jan	6,240	260
Coast 8	1/17/2008	Enterococcus	Jan	24,196	8,164
Coast 8	5/12/2008	Enterococcus	May	24,196	269
CSD006	12/1/2008	Enterococcus	Dec	620	600
CSD009	11/10/2008	Enterococcus	Nov	1,600	220
CSD010	8/4/2008	Enterococcus	Aug	94,000	420
CSD035	1/14/2008	Enterococcus	Jan	1,600	140
CSD208	8/11/2008	Enterococcus	Aug	1,500	240
CSD208	8/5/2009	Enterococcus	Aug	28,000	600
CSD208	10/14/2009	Enterococcus	Oct	48,000	580
CSD208	1/13/2010	Enterococcus	Jan	6,400	880
CSD208	2/1/2010	Enterococcus	February	720	200
CSD208	9/7/2010	Enterococcus	Sept	520	120
Enterococcus: 19 Receiving Water Samples Likely Linked to Storm Drain Discharge					
Coast 44	1/11/2010	Fecal Coliform	Jan	50,000	500
Coast 8	10/8/2007	Fecal Coliform	Oct	500,000	1,100
Coast 8	1/17/2008	Fecal Coliform	Jan	30,000	800
Coast 8	6/2/2008	Fecal Coliform	June	110,000	500
Coast 8	10/21/2009	Fecal Coliform	Oct	1,600,000	3,000
Coast 8	2/15/2010	Fecal Coliform	February	900,000	800
CSD208	8/5/2009	Fecal Coliform	Aug	49,000	900
EH-205	7/23/2009	Fecal Coliform	July	23,000	500
Fecal Coliform: 8 Receiving Water Samples Likely Linked to Storm Drain Discharge					
Coast 36	9/2/2008	Total Coliform	Sept	1,600,000	23,000
Coast 8	1/17/2008	Total Coliform	Jan	1,600,000	50,000
Coast 8	1/31/2008	Total Coliform	Jan	90,000	23,000

Table 5. Coastal Storm Drain Discharge and Receiving Water Linkage Analysis Individual Results

Station	Date	Analyte	Months	Coastal Outfall Concentration (MPN/100 ml)	Coastal Receiving Water Concentration (MPN/100 ml)
Coast 8	1/12/2009	Total Coliform	Jan	90,000	13,000
Coast 8	10/21/2009	Total Coliform	Oct	1,600,000	80,000
Total Coliform: 5 Receiving Water Samples Likely Linked to Storm Drain Discharge					
In Total: 1.9 Percent (32 of 1,647) Receiving Water Samples Likely Linked to Storm Drain Discharge					

Coastal Storm Drain Discharge Frequency

During the time period of 2007-2010, coastal storm drain outfall discharges that reach the receiving water have decreased. Figure 7 illustrates the reduction of coastal storm drain outfall discharges, from approximately 73 percent of coastal storm drains discharging in 2002-2003 down to 23 percent discharging in 2009-2010. The reduced incidence of discharging outfalls translates to a reduced risk of beneficial use impairment in the coastal receiving waters.

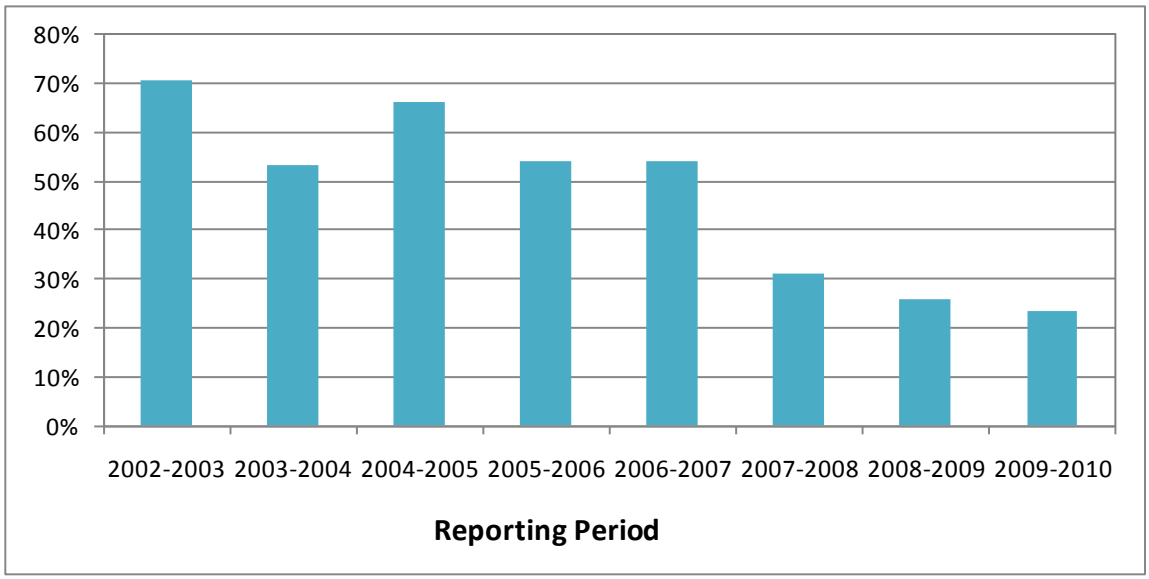


Figure 7. Proportion of Flowing Coastal Storm Drains, Reproduced from Figure 4-10 of Coastal Storm Drain Monitoring Program 2009-2010 Annual Report

ATTACHMENT 2-3

MS4 OUTFALL MONITORING PROGRAM REVIEW

ATTACHMENT 2-3: MS4 OUTFALL MONITORING PROGRAM REVIEW

The 2007 Permit required a municipal separate storm sewer system program (MS4 Program) to characterize constituent discharges from MS4 outfalls and to assess whether these discharges contribute to the water quality problems in the receiving waters. The MS4 Program addresses core management question #3 of the Permit (what is the relative urban runoff contribution to the receiving water problem(s)?). The MS4 Outfall Work Plan (Attachment to Copermittees Scope of Work for 2010-2011, 2010) consists of a random and targeted sampling design during dry weather and wet weather periods (Table 0-1).

Table 0-1: Summary of the MS4 Outfall Monitoring Design

Season	Design Type	Outfall Diameter	Number of Samples
Dry	Random	≥36 inches	54 per year
	Targeted	Any	200 per year
Wet	Random	≥36 inches	54 per year
	Targeted	Any	9 per Permit cycle

The following monitoring questions guide the different components of the MS4 Outfall monitoring program.

Random Program-

1. *What are the characteristics of discharges from MS4 outfalls in regard to high priority pollutants?*
2. *Are constituent loadings changing over time?*

Targeted Program-

3. *Which of the targeted MS4 outfalls have the greatest constituent loading?*
4. *Are the pollutants loading decreasing over time?*

A preliminary assessment of the MS4 Program was conducted to answer those questions that could be addressed with the data collected thus far which include questions 1 and 3. Table 0-2 shows the number of samples collected each year in each element of the five-year program. Except for the targeted wet weather element, which has only one year of data thus far, there were two years of monitoring data for evaluation.

Table 0-2: Summary of MS4 Program Monitoring Data Collection (2007-2010)

Program Year	Random Sites		Targeted Sites	
	Wet Weather	*Dry Weather*	*Wet Weather*	*Dry Weather**
2007-2008	0	0	0	9
2008-2009	39	40	0	178
2009-2010	50	35	3	172

*For targeted dry, number of sites differs by analyte and includes all sites sampled. An additional 28-29 sites visited were dry (~14%) and could not be sampled.

Key Findings

- On a regional basis, dry weather priority constituents from MS4 outfalls included: bacteria, nutrients, and TDS. Wet weather priority constituents included bacteria and TSS.
- In general, these regional MS4 outfall priorities match the priorities in receiving waters.
- MS4 targeted outfalls with the greatest pollutant loading differ somewhat by constituent and year. However, upon further data collection, priority MS4 outfalls will be identified.

Conclusions

The on-going MS4 Program will provide a sound basis for updating the design under the next Permit. In general, priority constituents in dry and wet weather conditions match the receiving water priorities. Preliminary results have indicated that high priority MS4 outfalls will be identified with a more robust data set at the completion of the current MS4 program in three years. When an adequate number of samples are collected, this program will allow for Copermittees to focus on key drainages to identify and abate sources, as warranted.

Supporting Documentation

The analysis of all data collected from the MS4 outfalls throughout the region was used to answer the following question:

> *Question 1: What are the characteristics of discharges from MS4 outfalls in regard to high priority pollutants?*

Storm drain discharge data were compared to receiving water benchmarks to determine if storm drain runoff has the potential to contribute to the receiving water problems.

Dry Weather – Of the ten constituents analyzed in the MS4 random program, dry weather priority constituents for MS4 outfall discharges included: total nitrogen, total phosphorus, TDS, fecal coliform and enterococcus for the region. Note that discharge results were compared to WQOs for receiving waters (RW) to determine priority rating, where greater than 50-percent detections were above WQO was considered high priority and greater than 25-percent frequency and less than or equal to 50-percent was considered medium priority (shown as percent above the receiving water –water quality objective (% above RW-WQB) in the following tables). The high priority and the medium priority constituents were evaluated using all of the data collected in the random and targeted monitoring elements of the MS4 Program. The results of the random program regionally represent the ten constituents sampled at randomly-selected outfalls in each watershed. The results of the targeted program support the regional results for these constituents, and also identify two additional constituents, chloride and sulfate (constituents of TDS), as priorities in some watersheds.

Table 0-3: Summarized Results of MS4 Random Outfalls Dry Weather Sampling

MS4 Random Dry		
Constituent	n	% Above RW-WQB
pH	75	3%
Nitrate as N	75	7%
Nitrate/Nitrite as N	75	7%
Nitrite as N	75	0%
Total Phosphorus	75	79%
Total Nitrogen	75	91%
Total Suspended Solids*	75	17%
Total Dissolved Solids	67	93%
Enterococcus	75	92%
Fecal Coliform	75	43%

Notes:
Discharge results compared to receiving water quality benchmarks.
*TSS-WQO is a narrative standard, the objective is a benchmark based on the overall median values and EMCs from the NSDQ, Version 1.0 (2004).
n= number of samples
High priority constituents shown in orange and medium priority constituents in yellow.

Table 0-4: Summarized Results of MS4 Targeted Outfalls Dry Weather Sampling

MS4 Targeted Dry		
Constituent	n	% Above RW-WQB
pH	95	5%
Nitrate as N	125	14%
Nitrate/Nitrite as N	56	7%
Nitrite as N	96	0%
Total Phosphorus	257	69%
Total Nitrogen	259	88%
Total Suspended Solids	228	4%
Total Dissolved Solids	260	90%
Enterococcus	355	80%
Fecal Coliform	352	42%
Chloride	41	68%
Sulfate	44	98%
Cadmium (Dissolved)	106	0%
Copper (Dissolved)	110	5%
Lead (Dissolved)	106	0%
Nickel (Dissolved)	6	0%
Zinc (Dissolved)	105	1%
Selenium, Total	33	15%
Ammonia as N	51	4%
Dissolved Oxygen	99	12%
Turbidity	52	12%
MBAS	32	22%
Chlorpyrifos	69	1%
Diazinon	73	0%
Malathion	45	0%
Oil & Grease	32	0%

Notes:
Discharge results compared to receiving water quality benchmarks.
Based on 202 different sites; 149 sites sampled in both 2008-2009 and 2009-2010.n= number of samples
High priority constituents shown in orange and medium priority constituents in yellow.

Preliminary dry weather priority ratings for monitored constituents by MLS drainage area are provided in Table 0-5 and Table 0-6 for the random and targeted MS4 outfall discharge results, respectively. These tables identify the number of MS4 samples within each MLS drainage area, and the priority identified based on these data. The ambient receiving water priorities based on the MLS monitoring results are also shown for comparison. In general, the priorities for the MS4 outfall discharges were largely consistent with the priorities identified in the corresponding receiving water.

Table 0-5: MS4 Random Dry Weather Results compared to Receiving Water Priorities by Watershed (MLS Drainage Area)

Constituent	AHC		CC-SD8(1)		EC		LPC		SDC		SDR		SLR		SMR		SR		TC		TJR	
	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB
pH	2	0%	0	NA	1	0%	5	0%	2	0%	4	0%	8	0%	12	0%	4	0%	2	50%	2	50%
Nitrate as N	2	0%	0	NA	1	0%	5	0%	2	0%	4	0%	8	25%	12	25%	4	0%	2	0%	2	0%
Nitrate/Nitrite as N	2	0%	0	NA	1	0%	5	0%	2	0%	4	0%	8	25%	12	25%	4	0%	2	0%	2	0%
Nitrite as N	2	0%	0	NA	1	0%	5	0%	2	0%	4	0%	8	0%	12	0%	4	0%	2	0%	2	0%
Total Phosphorus	2	100%	0	NA	1	100%	5	60%	2	100%	4	75%	8	63%	12	75%	4	75%	2	100%	2	50%
Total Nitrogen	2	100%	0	NA	1	100%	5	60%	2	50%	4	100%	8	88%	12	92%	4	100%	2	100%	2	100%
Total Suspended Solids	2	0%	0	NA	1	0%	5	20%	2	0%	4	0%	8	25%	12	8%	4	0%	2	0%	2	50%
Total Dissolved Solids	2	100%	0	NA	1	100%	5	100%	2	100%	4	100%	8	100%	12	100%	4	100%	0	NA	2	0%
Enterococcus	2	50%	0	NA	1	100%	5	100%	2	100%	4	100%	8	88%	12	92%	4	100%	2	100%	2	100%
Fecal Coliform	2	0%	0	NA	1	0%	5	40%	2	0%	4	50%	8	50%	12	67%	4	50%	2	50%	2	0%
Ambient RW Priorities		Total Nitrogen (medium), TDS, Enterococcus, Fecal coliform, Toxicity (medium)		pH, Dissolved Phosphorus, Total Phosphorus, Total Nitrogen, Ammonia as N (medium), Bacteria (medium), Dissolved Cu, Total Selenium (medium); Toxicity (medium); and Turbidity, MBAS, COD, BOC, Oil and Grease (all medium)		Total Nitrogen, TDS, Enterococcus, Toxicity (medium)		Total Nitrogen (medium), Total Phosphorus, TDS, Enterococcus , Toxicity		Total Phosphorus (medium), Total Nitrogen, TDS, Enterococcus (medium) Fecal coliform (medium), BOD (medium), Toxicity (medium)		Dissolved Phosphorus, Total Phosphorus (medium),		Dissolved Phosphorus, Total Phosphorus, Total Nitrogen (medium), TDS, Enterococci (Med), Fecal Coliforms (Med)		Total Nitrogen, TDS, Chlorpyrifos		Total Phosphorus (medium), Total Nitrogen (medium) TDS, Enterococci (medium), Toxicity		Total Phosphorus (medium), Toxicity		Dissolved Phosphorus, Total Phosphorus, Total Nitrogen, Ammonia as N, Enterococcus, Fecal coliform, BOD, MBAS, Turbidity (medium), COD (medium), Toxicity

Discharge results compared to receiving water quality benchmarks. Ambient RW Priorities based NPDES Regional Program and does not include results from SMC or Third Party data.
NA – Either no data were collected upstream of the mass loading station, or stations were dry and no data collected

Table 0-6: MS4 Targeted Dry Weather Results compared to Receiving Water Priorities by Watershed (MLS Drainage Area)

Constituent	AHC		CC-SD8(1)		EC		LPC		SDC		SDR		SLR		SMR		SR		TC		TJR	
	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB	n	% Above RW-WQB
pH	0	NA	1	0%	12	8%	1	0%	0	NA	25	4%	4	0%	0	NA	0	NA	0	NA	1	0%
Nitrate as N	5	60%	0	NA	16	13%	1	0%	0	NA	15	27%	25	20%	10	0%	5	0%	0	NA	0	NA
Nitrate/Nitrite as N	4	0%	0	NA	0	NA	8	25%	0	NA	20	5%	0	NA	0	NA	0	NA	0	NA	0	NA
Nitrite as N	5	0%	0	NA	6	0%	0	NA	0	NA	15	0%	25	0%	10	0%	5	0%	0	NA	0	NA
Total Phosphorus	9	67%	1	100%	18	50%	18	72%	0	NA	54	63%	28	71%	10	50%	5	60%	8	88%	7	100%
Total Nitrogen	9	78%	1	100%	18	78%	18	89%	0	NA	54	94%	28	96%	10	70%	5	100%	8	75%	7	86%
Total Suspended Solids	11	0%	8	0%	18	6%	18	0%	11	0%	54	6%	3	0%	9	0%	0	NA	8	0%	7	0%
Enterococcus	11	91%	8	88%	18	83%	19	89%	11	64%	54	74%	28	68%	10	60%	17	82%	8	100%	8	75%
Fecal Coliform	11	73%	8	0%	18	67%	19	63%	11	18%	54	35%	28	39%	10	20%	16	13%	8	50%	8	0%
Total Dissolved Solids	11	100%	0	NA	18	100%	19	100%	11	100%	54	81%	28	100%	10	80%	17	88%	0	NA	0	NA
Chloride	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	28	64%	1	0%	0	NA	0	NA	0	NA
Sulfate	11	100%	0	NA	17	100%	0	NA	0	NA	0	NA	0	NA	3	67%	0	NA	0	NA	0	NA
Cadmium (Dissolved)	0	NA	8	0%	10	0%	0	NA	0	NA	0	NA	0	NA	0	NA	16	0%	6	0%	7	0%
Copper (Dissolved)	0	NA	8	0%	10	0%	2	0%	0	NA	0	NA	0	NA	0	NA	16	0%	6	0%	7	0%
Lead (Dissolved)	0	NA	8	0%	10	0%	0	NA	0	NA	0	NA	0	NA	0	NA	16	0%	6	0%	7	0%
Nickel (Dissolved)	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	0	NA	6	0%
Zinc (Dissolved)	0	NA	8	0%	10	0%	0	NA	0	NA	0	NA	0	NA	0	NA	16	0%	6	0%	7	0%
Selenium, Total	9	33%	0	NA	18	11%	0	NA	0	NA	0	NA	3	0%	0	NA	0	NA	0	NA	0	NA
Ammonia as N	0	NA	0	NA	10	10%	1	0%	0	NA	8	0%	1	0%	0	NA	0	NA	0	NA	0	NA
Dissolved Oxygen	0	NA	0	NA	10	0%	0	NA	0	NA	46	7%	4	0%	0	NA	0	NA	0	NA	7	86%
Turbidity	0	NA	0	NA	12	0%	1	0%	0	NA	0	NA	4	0%	0	NA	0	NA	0	NA	0	NA
MBAS	0	NA	0	NA	10	0%	1	0%	0	NA	1	0%	0	NA	0	NA	0	NA	0	NA	0	NA
Chlorpyrifos	5	20%	8	0%	10	0%	0	NA	0	NA	2	0%	0	NA	2	0%	0	NA	0	NA	7	0%
Diazinon	5	0%	8	0%	10	0%	0	NA	0	NA	2	0%	0	NA	2	0%	0	NA	0	NA	7	0%
Malathion	5	0%	8	0%	0	NA	0	NA	0	NA	2	0%	0	NA	2	0%	0	NA	0	NA	0	NA
Oil & Grease	0	NA	0	NA	10	0%	0	NA	0	NA	2	0%	3	0%	0	NA	0	NA	0	NA	0	NA
Ambient RW Priorities		Total Nitrogen (medium), TDS, Enterococcus, Fecal coliform, Toxicity (medium)		pH, Dissolved Phosphorus, Total Phosphorus, Total Nitrogen, Ammonia as N (medium), Bacteria (medium), Dissolved Cu, Total Selenium (medium); Toxicity (medium); and Turbidity, MBAS, COD, BOC, Oil and Grease (all medium)		Total Nitrogen, TDS, Enterococcus, Toxicity (medium)		Total Nitrogen (medium), Total Phosphorus, TDS, Enterococcus , Toxicity		Total Phosphorus (medium), Total Nitrogen, TDS, Enterococcus (medium) Fecal coliform (medium), BOD (medium), Toxicity (medium)		Dissolved Phosphorus, Total Phosphorus (medium),		Dissolved Phosphorus, Total Phosphorus, Total Nitrogen (medium), TDS, Enterococci (Med), Fecal Coliforms (Med)		Total Nitrogen, TDS, Chlorpyrifos		Total Phosphorus (medium), Total Nitrogen (medium) TDS, Enterococci (medium), Toxicity		Total Phosphorus (medium), Toxicity		Dissolved Phosphorus, Total Phosphorus, Total Nitrogen, Ammonia as N, Enterococcus, Fecal coliform, BOD, MBAS, Turbidity (medium), COD (medium), Toxicity

Discharge results compared to receiving water quality benchmarks. Ambient RW Priorities based NPDES Regional Program and does not include results from SMC or Third Party data.
NA – Either no data were collected upstream of the mass loading station, or stations were dry and no data collected

Overall, the five primary dry weather regional priority constituents in the MS4 outfall discharges are the same priorities identified in the receiving water as shown in Table 0-7. This table displays a check mark if the constituent was a priority in both the MS4 and receiving water.

Table 0-7: General Comparison of Dry Weather Regional MS4 Outfall Priority Constituents and Receiving Water Priorities by Watershed Management Area

Dry Weather Regional MS4 Priority Constituents	Receiving Waters by WMA*								
	SMR	SLR	CAR	SDC	LPC	MB	SDR	SDB	TJR
Total Nitrogen	✓	✓	✓	✓	✓	✓	✓	✓	✓
Total Phosphorus	*MS4*	✓	✓	✓	✓	✓	✓	✓	✓
TDS	✓	✓	✓	✓	✓	✓	✓	✓	✓
Enterococci	*MS4*	✓	✓	✓	✓	✓	✓	✓	✓
Fecal Coliform	*MS4*	✓	✓	✓	*MS4*	✓	*MS4*	✓	*RW*

✓=Both RW and MS4; MS4 indicates priority identified for MS4 only; RW indicates priority identified for RW only.

Wet Weather – Analysis of the constituents collected in the MS4 random wet weather program indicated priority constituents of fecal coliform and TSS (Table 0-8). The limited results of the targeted wet weather program (Table 0-9) supported the random regional results, with fecal coliform (high) and TSS (medium) identified as priority constituents. Turbidity was also a priority constituent in two of three sites.

Table 0-8: Summarized Results of MS4 Random Outfalls Wet Weather Sampling

MS4 Random Wet		
Constituent	n	% Above RW-WQB
pH	86	13%
Nitrate as N	73	4%
Nitrate/Nitrite as N	88	3%
Nitrite as N	73	0%
Total Phosphorus	89	0%
Total Dissolved Solids	76	21%
Total Suspended Solids	89	25%
Fecal Coliform	89	75%

No wet weather benchmark for Total Nitrogen or Enterococci
Based on n= 89 sites; analytes not collected at all sites.
Discharge results compared to receiving water quality benchmarks (RW-WQBs).

Table 0-9: Summarized Results of MS4 Targeted Outfalls Wet Weather Sampling

MS4 Targeted Wet		
Constituent	n	% Above RW-WQB
pH	3	0%
Nitrate as N	3	0%
Nitrite as N	3	0%
Total Phosphorus	3	0%
Dissolved Phosphate	3	0%
Total Suspended Solids	3	33%
Total Dissolved Solids	2	0%
Fecal Coliform	3	100%
Chloride	2	0%
Sulfate	2	0%
As (Dissolved)	3	0%
Cd (Dissolved)	3	0%
Cr (Dissolved)	3	0%
Cu (Dissolved)	3	33%
Ni (Dissolved)	3	0%
Pb (Dissolved)	3	0%
Sb (Dissolved)	3	0%
Zn (Dissolved)	3	0%
Selenium, Total	3	0%
Turbidity	3	67%
MBAS	3	33%
Ammonia as N	3	0%
Chemical Oxygen Demand	3	0%
Dissolved Oxygen	3	0%
Chlorpyrifos	3	0%
Diazinon	3	0%
Malathion	3	0%
Oil & Grease	3	0%

No wet weather benchmark for Total Nitrogen or Enterococci
Discharge results compared to wet weather receiving water quality benchmarks (RW-WQBs).

Overall, the two wet weather priority constituents in the MS4 outfall discharges match the priorities identified in the receiving water as shown in Table 0-10. Table 0-10

Table 0-10. General Comparison of Wet Weather Regional MS4 Outfall Priority Constituents and Receiving Water Priorities by Watershed Management Area

Wet Weather Regional MS4 Priority Constituents	Receiving Waters by WMA*								
	SMR	SLR	CAR	SDC	LPC	MB	SDR	SDB	TJR
Fecal Coliform	✓	✓	✓	✓	✓	✓	✓	✓	✓
TSS	✓	✓	RW	✓	RW	✓	RW	RW	✓

✓=Both RW and MS4; MS4 indicates priority identified for MS4 only; RW indicates priority identified for RW only.

Question 3: Which are the Targeted MS4 outfalls with the greatest constituent loading?

The instantaneous loads of the targeted MS4 outfalls from the dry program will be analyzed by constituent when additional data from the 200 monitored outfalls are collected. The MS4 outfall program is beginning year 3 of the 5-year program. Future analyses will consider not only load, but load/unit area to identify priority MS4 outfalls.

Additional questions answered in the MS4 Analysis:

1. *Is it likely that differences can be detected between seasons for analyte concentrations within watersheds, and among watersheds (both within and between seasons) at the end of the 2007 Permit MS4 monitoring program?*

To address this question, the average concentration, as well as the standard error, of an analyte measured in the MS4 program was calculated by season for each watershed management area. In Figure 0-1, these means with standard errors are plotted as side-by-side wet and dry result bars by watershed for the regional priority constituents. The graph demonstrates typically higher concentrations of bacteria and TSS in the wet weather samples. Conversely, total nitrogen and TDS concentrations tend to be higher in dry weather. Total phosphorus is less consistent, with some watersheds being higher in wet while others are higher in dry weather. Given the size of the error bars, however, these differences may not be significant. In general, these results indicate that detection of differences within and among watersheds (both within and between seasons), may be possible for some constituents (total phosphorus, enterococcus, some fecal, TDS, some TSS).

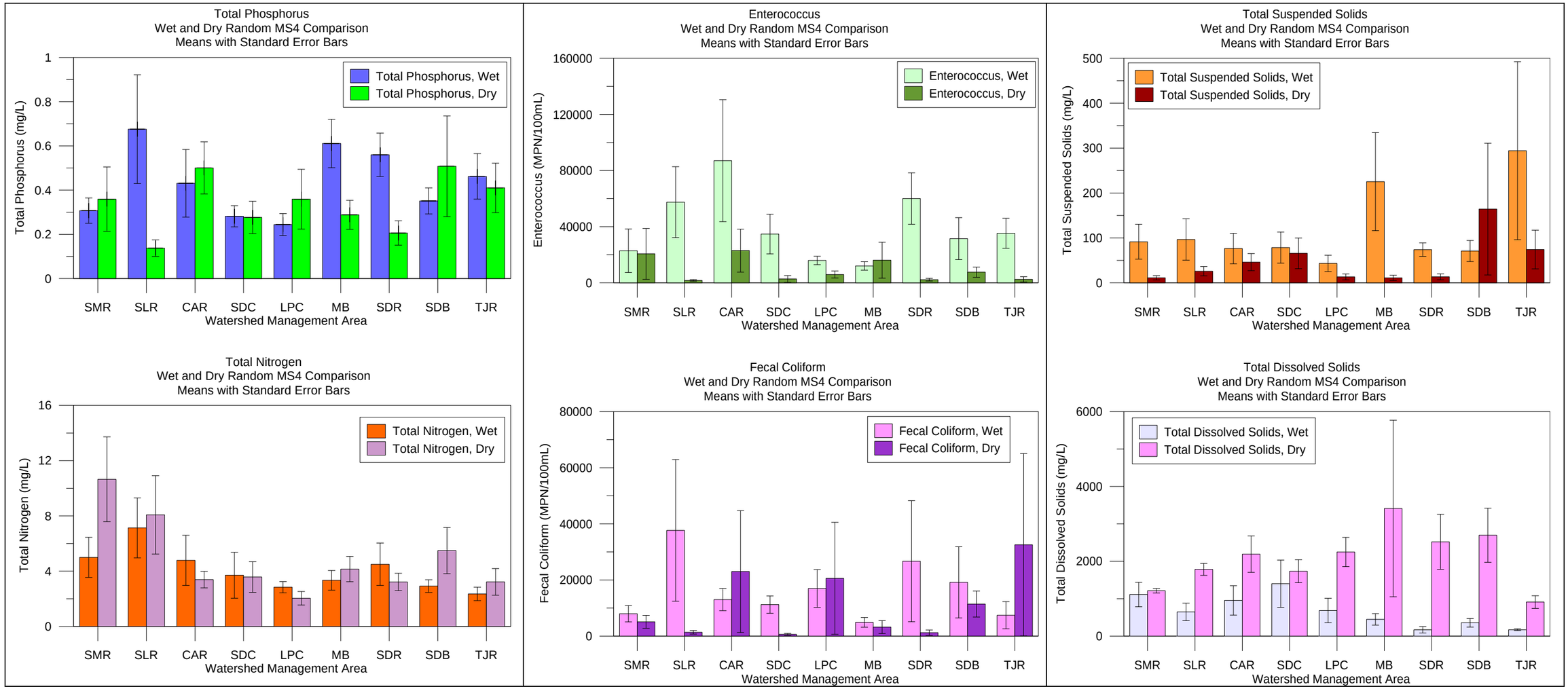


Figure 0-1. Mean Concentration with Standard Error by Analyte and Season for each WM

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

FEB 14 2012

Eric Becker
Senior Water Resources Control Engineer
Southern Watershed Unit
San Diego Regional Water Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft San Diego Regional MS4 Permit

Dear Mr. Becker:

The following are EPA Region 9's comments on the pre-notice draft MS4 permit for the municipal separate storm sewer systems (MS4s) located within the jurisdiction of the San Diego Regional Board, which was forwarded to us for review on January 31, 2012.

Given the relatively short time period provided for review of the permit (which is complex), our review has been somewhat cursory, and we may have additional comments on future drafts. We would also like to arrange a conference call with you to discuss our comments before the public notice version of the permit is released.

A. Permit Expiration Date

As you know, NPDES regulations at 40 CFR 122.46 require that the term of a permit not exceed five years. Consistent with this requirement, the draft MS4 permit (Attachment B.2.b) provides that the permit would expire five years after the adoption date. However, we are somewhat concerned about the discussion in Finding D.12 for the permit suggesting that the Board may administratively extend (deliberately) the permit for a term of perhaps 10 years or more. NPDES regulations at 40 CFR 122.6 provide that a permit may be administratively extended beyond its expiration date, but only a last resort, for example, when time and resource constraints do not allow timely permit reissuance.

We note that certain permittees in Orange and Riverside Counties, which are currently covered under alternate MS4 permits, would be covered by the new regional MS4 permit when their existing MS4 permits expire (in 2014 for Orange County and 2015 for Riverside County). We also understand that the Board would like to not reissue the regional permit until the Orange and Riverside County permittees have been covered for five years (i.e., in 2020 for Riverside County). Unfortunately, we believe this would

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not be possible in light of the five-year limit for the term of a permit at 40 CFR 122.46. As such, we recommend the permit expire (and be reissued) in 2017 for all permittees.

B. Low Impact Development (LID) Requirements

We generally support the proposed LID requirements (beginning on page 61) in the draft permit. However, during our conference call, it would be helpful to confirm our understanding of the proposed approach for biofiltration. Presumably biofiltration is considered "a flow through LID treatment control BMP." Rather than specifying design parameters, the permit provides that these systems should be designed for an appropriate surface loading rate to prevent erosion, scour and channeling within the BMP. This seems appropriate to us. Also, if biofiltration does not result in meeting the retention standard, offsite mitigation is apparently required (but we would like to confirm our understanding of this matter).

We also support the proposed hydromodification provisions which appear to be condensed from the approach used in the San Diego Regional Board's Orange County permit (no Hydromodification Control Plan preparation). During our conference call, we would be interested in hearing what considerations the San Diego Board gave to these new hydromodification provisions.

The proposed permit (page 68) provides for alternative (i.e., offsite) projects only in the event of technical infeasibility onsite. In other Southern California areas (and as noted in the statewide MS4 workgroup) we are hearing the suggestion that offsite projects should be allowed to facilitate groundwater recharge. We are wondering if that has been suggested within the San Diego Board's jurisdiction, and whether the San Diego Board would be interested in allowing this under its permit. We believe the idea has merit given the importance of groundwater recharge in Southern California.

Finally, it appears there may be a typographical error on page 72 concerning the beginning date for the project inventories. For example, you may have intended January 2012 rather than 2002 for the San Diego inventory.

C. Total Maximum Daily Loads (TMDLs)

We generally support the Board's approach for incorporation of applicable TMDL requirements into the MS4 permit. We are pleased to see applicable wasteload allocations (WLAs) widely incorporated as numeric effluent limits since this approach will enhance enforceability and will most clearly ensure consistency with the WLAs. However, it appears section A.3.b needs some revision; we would suggest the following: "Pollutants in the discharges musts be reduced to comply with any effluent limitations expressed as part of any ~~water~~ WQBELs required . . ."

We have not had sufficient time to fully review the requirements of the applicable TMDLs, and the provisions of Attachment E of the permit to ensure all requirements of the TMDLs have been accurately incorporated into the permit. Thus far however, we did note the following:

- For the Rainbow Creek nutrient TMDL, the interim compliance deadlines are included, but not the final compliance deadline (December 31, 2021).

- For the Shelter Island Yacht Basin copper TMDL, the proposed permit provides the permittee may monitor "any (of) its MS4 outfalls. . . " Rather than allowing "any" outfall, we suggest requiring the permittee to monitor a representative outfall in the Shelter Island drainage area (there are 9 outfalls total according to the TMDL) or at least an outfall which drains similar land uses as found in the Shelter Island drainage area.

There are also certain provisions which are somewhat unclear which we would like to discuss further for clarification:

- Section A.2.b; we are unclear on the intent of the prohibition of exceedances of "receiving water limitations expressed as part of any WQBELs . . ." We believe you mean WLAs, established as a strict numeric WQBEL or not, should not exceed receiving WQS. But we would like clarity on this provision.

- In Attachment E (page E-7, section 3.b.1(a)), we are unclear whether the WQBEL is the same as the receiving water limit; we need to have clear language so there is no confusion on what is a WQBEL, whether it is a receiving water limit or an effluent limit.

Regarding monitoring requirements, we believe it is important to specify a minimum number of samples to be collected at the designated MS4 outfalls, and in the receiving water. For example, appropriate requirements were included for the Beaches and Creeks Bacteria TMDL (page E-31, section 2.a.(i)) and similar requirements should be included for all the TMDLs.

Finally, for TMDLs that are approved during the term of the permit, we suggest a provision similar to that recently proposed by the Central Coast Regional Board for the reissuance of the Salinas MS4 permit (section O of permit No. CA0049981) available at: http://www.waterboards.ca.gov/centralcoast/board_info/agendas/2012/feb/Item_21/attachment_6.pdf. The provision requires the development and submittal (within one year of final TMDL approval) of a plan for complying with applicable WLAs. This provision will expedite compliance with the WLAs by the permittees.

D. Water Quality Improvement Plan Review

The draft permit (section F.1, page 90) requires the development and submittal of Water Quality Improvement Plans by co-permittees no later than 12 months after permit adoption. Although the Plans would be made available for review in the Regional Clearinghouse, we believe this may be insufficient to ensure an adequate opportunity for public participation consistent with 2005 decision by the Second Circuit Court in *Waterkeeper Alliance et al. v. EPA*, 399 F.3d 486, and the 2003 decision by the Ninth Circuit Court in *Environmental Defense Center, Inc. v. EPA*, 344 F.3d 832. In addition to providing the Plans in the Clearinghouse, we recommend the Board actively solicit public comment (e.g., provide a 30-day public comment period when a Plan is submitted) and then respond to the comments as appropriate.

We also note that section D.2.d of the permit provides for alternate watershed monitoring requirements in certain circumstances. For the reasons noted above, the permit (or the fact sheet) should clarify that the Board will solicit public comment prior to the approval of alternate plans of this nature.

E. Inspection Program for Construction Sites

We are still reviewing the proposed requirements for construction site management (section E.4). However, we do have certain concerns with the proposed requirements for construction site inspections in section D.4.d. The proposed permit would require inspections "at an appropriate frequency" for the construction project and its phase. The existing San Diego MS4 permit, however, includes specific frequencies for the inspections (such as once/two weeks, or once/month); other recent California MS4 permits such as the San Ana Board's 2009 MS4 permit for Orange County also commonly include specific inspection frequencies. As you know, we are trying to improve the enforceability of MS4 permits and imprecise terms such as "an appropriate frequency" may make enforcement of the permit more difficult. This is an issue we would like to discuss further during our conference call.

F. Action Levels

Section C of the draft permit includes what are termed "action levels" for certain pollutants. However, there do not appear to be any clear actions associated with these concentrations which would be required to be implemented by the permittees (unlike, for example, the San Diego Board's 2009 MS4 permit for Orange County which requires additional BMPs when an action level is exceeded). For the current draft of the regional permit, the values in section C might be more appropriately termed "assessment levels." If the Board's intent is to use the values as a basis for requiring upgrades to the water quality improvement plans, this should be made clearer in the permit.

We appreciate the opportunity to provide our views on the pre-notice draft permit. If you would like to discuss these comments, please contact me at (415) 972-3464 or John Tinger of the NPDES Permits Office at (415) 972-3519.

Sincerely,

David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 11 2013

Wayne Chui
San Diego Regional Water Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123-4340

Re: Draft San Diego Regional MS4 Permit

Dear Mr. Chui:

The following are EPA Region 9's comments on the draft permit for the municipal separate storm sewer system (MS4) located within the jurisdiction of the San Diego Regional Board, which the Board released for public comment on October 31, 2012. We also provided comments on an early draft of this permit in a letter to the Board dated February 14, 2012. For the most part, we are pleased with the latest version of the permit and we commend the Board and its staff for their extensive efforts in developing this draft permit. We also offer the following comments for the Board's consideration:

A. *Total Maximum Daily Loads (TMDLs)*

In our February 14, 2012 letter, we also generally supported the Board's approach for incorporation of applicable TMDL requirements into the permit, i.e., incorporation of applicable wasteload allocations (WLAs) as numeric effluent limits. We urge the Board to retain this approach in the final permit as well since it will enhance enforceability and will most clearly ensure consistency with the WLAs.

Our February 14, 2012 letter had also suggested revisions of certain provisions of the early draft permit related to TMDLs; the October 31, 2012 draft permit has been substantially revised from the early draft and many of our early comments have been addressed. However, as discussed below, we still have certain concerns whether the monitoring requirements of the October 31, 2012 draft permit would be adequate to ensure compliance with the TMDLs.

Sections II.D.1 and 2 set forth the receiving water monitoring and MS4 outfall monitoring requirements of the draft permit. In general, a monitoring program would be developed and conducted by the permittees to assess the impacts of the discharges and the effectiveness of the Water Quality Improvement Plans (WQIPs), focusing on the highest priority water quality conditions. Compliance with applicable WLAs from TMDLs would be one of several competing priorities in selecting monitoring locations in the receiving waters and at MS4 outfalls.

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Attachment E to the draft permit requires monitoring at MS4 outfalls or receiving water locations, but the locations to be monitored are not fully specified. Although TMDL compliance would presumably receive a high ranking in setting the monitoring program priorities, it is still not clear that appropriate monitoring locations would necessarily be selected to measure compliance with WLAs. As such, we recommend that Section II.D of the permit clarify that notwithstanding other monitoring priorities, at a minimum, appropriate monitoring locations must be selected to ensure compliance with all applicable WLAs and associated effluent limitations. The permit should specify that a mix of receiving water and representative end-of-pipe monitoring locations must be selected to ensure that the monitoring data collected will be sufficient to determine compliance with effluent limitations based on WLAs and to determine whether individual copermittees have caused or contributed to observed in-stream noncompliance. The permit should provide that the parties that develop and submit for Regional Board review a monitoring plan for a WQIP agree to the use of monitoring plan results for purposes of compliance determination.

Section II.D.2.c.(2) of the draft permit also requires monitoring at an "appropriate" frequency for the post-transitional period; the transitional monitoring program (Section II.D.2.a.(3)) would require twice/year monitoring during the wet season. We recommend the permit clarify the minimum monitoring frequency for the post-transitional period and suggest maintaining the twice/year frequency.

Attachment E also describes the specific provisions for TMDLs adopted and approved that are applicable to this tentative order. We note that a few of the compliance requirements provided in an existing TMDL were not included in this tentative order. We recommend that all applicable TMDL WLAs and compliance endpoints be included in Attachment E. For instance, the TMDL for Indicator Bacteria Project I – Twenty Beaches and Creeks in San Diego Region (including Tecolote Creek), provided both concentration-based and mass-based TMDLs. All identified TMDL WLAs and endpoints should be included in Attachment E to prevent confusion with the WLA requirements described and adopted in the TMDL.

Provision B.6 identifies the WQIP submittal, updates and implementation. Paragraph 3 under this Provision should clarify that the intent of all monitoring and assessment is to improve our evaluation of the waterbodies' conditions, including the 303(d) listed impaired waterbodies. We recommend paragraph 3 under Provision B.6 be modified to the following:

> *"All State identified impaired waterbodies within the Watershed Management Area should be placed on the 303(d) List as required under CWA Section 303(d) and 40 CFR §130.7(b)(4)). However, in specific cases supported by robust analytical documentation the implementation of the Water Quality Improvement Plans may demonstrate that TMDLs are not necessary for identified impaired waterbodies within the Watershed Management Area if the analytical record demonstrates that technology-based effluent limitations required by the CWA, more stringent effluent*

limitations required by state, local, or federal authority, and/or other pollution control requirements (e.g., best management practices) required by local, state or federal authority are together stringent enough to implement applicable water quality standards associated with the waterbody impairment causes within a reasonable period of time."

Finally, we reiterate our suggestion from the February 14, 2012 letter that a provision be added to the draft permit to address TMDLs approved during the term of the permit; we had suggested a provision similar to section O of the 2012 MS4 permit for the City of Salinas (NPDES permit No. CA0049981) available at: http://www.ci.salinas.ca.us/services/maintenance/pdf/NPDES_Permit.pdf. The provision requires the development and submittal (within one year of final TMDL approval) of a plan for complying with applicable WLAs. Such a provision would expedite compliance with the WLAs by the permittees.

B. Low Impact Development (LID) Requirements

In our February 14, 2012 letter, we generally supported the LID provisions of the early draft permit, and we continue to largely support the proposed LID requirements of the October 31, 2012 draft permit. The proposed requirements in the October 31, 2012 draft (beginning on page 78) are also similar to the requirements in other recent California MS4 permits such as those for Los Angeles and Orange Counties. As you know, Region 9 is encouraging the Boards to include measurable requirements in MS4 permits to enhance clarity and enforceability of the permits. We are pleased to see the inclusion of the measurable requirement for onsite management of the runoff from the 85% storm similar to other recent permits. However, we also note that Section II.E.3.c.(1)(a)(ii) of the October 31, 2012 draft permit provides a new alternative of retaining the volume (determined by modeling) that would retained under natural, undeveloped conditions. We are concerned that this option may create uncertainty and provide opportunities for subjective analyses that would be resource intensive and difficult to review. For this reason, and for consistency with other recent California MS4 permits, we recommend that Section II.E.3.c.(1)(a)(ii) of the proposed permit be removed. However, if this provision is retained, the permit and fact sheet should fully clarify that undeveloped conditions refer to natural conditions prior to any anthropogenic impacts.

We did raise a couple of questions regarding LID in our February 14, 2012 letter which we believe have been adequately addressed in the latest draft. We had been unclear concerning requirements related to biofiltration; the October 31, 2012 permit has been restructured in a way which clarifies the questions we had raised.

We had also suggested that the Board may want to consider off-site water supply augmentation projects as an acceptable alternative when onsite stormwater management is not feasible. Several recent studies have highlighted the many benefits (such as energy

savings) of increased stormwater infiltration for groundwater recharge. We note such a provision has been added to the draft permit, and we support this provision.

C. Water Quality Improvement Plan Review

In our February 14, 2012 letter, we had expressed concern whether the public would have an adequate opportunity to review draft WQIPs consistent with the 2005 decision by the Second Circuit Court in *Waterkeeper Alliance et al. v. EPA*, 399 F.3d 486, and the 2003 decision by the Ninth Circuit Court in *Environmental Defense Center, Inc. v. EPA*, 344 F.3d 832. We are pleased to see the draft permit (section F) and the fact sheet have been revised to clarify that the Board would be soliciting public comment concerning draft WQIPs submitted to the Board for approval during the term of the permit.

The fact sheet and the permit also describe the WQIPs as dynamic and evolving documents which are likely to be updated and modified over time in accordance with the iterative process. Although permittees must solicit public input in developing proposed updates that are submitted to the Board, it does not appear that public comment would necessarily be solicited concerning Board action in approving, disapproving or revising proposed updates; we suggest that an opportunity be provided for public comment on such Board actions similar to that provided when the original WQIPs are submitted.

D. Prescriptive BMP Requirements

In our February 14, 2012 letter, we expressed concern that the early draft permit would only require inspections of construction sites "at an appropriate frequency"; this provision has also been included in the October 31, 2012 draft permit. We noted in our comments that the existing San Diego MS4 permit includes specific frequencies for the inspections (such as once/two weeks, or once/month), as do other recent California MS4 permits such as the San Ana Board's 2009 MS4 permit for Orange County. As noted earlier, we are trying to improve the clarity and enforceability of MS4 permits and terms such as "an appropriate frequency" reduce clarity and make enforcement of the permit more difficult. Such provisions may also be insufficient to ensure compliance with the Clean Water Act's requirement to reduce pollutants in the discharges to the maximum extent practicable (MEP). We recommend that the permit specify the required frequency of construction site inspections.

Certain other provisions of the October 31, 2012 draft permit are also less prescriptive than the existing permit, such as the storm drain maintenance requirements and the inspection requirements for commercial and industrial facilities. We recognize that the Board is attempting to improve the environmental outcome of its stormwater program by shifting the focus from prescriptive BMPs to prescriptive water quality results, and we concur with the increased emphasis on water quality results. However, we are not convinced that the prescriptive BMPs of the existing permit are as significant

a burden as portrayed in the draft fact sheet, and we suggest they be retained for the most part in the new permit to ensure permit clarity, enforceability and compliance with MEP. To the extent the requirements for numeric water quality goals in the WQIPs would also ensure compliance with MEP, such requirements would be acceptable.

We recommend the permit or fact sheet also clarify that the numeric water quality goals (and the schedule for attainment of the goals) in the draft WQIPs would become enforceable permit requirements once the Plans are approved by the Board. EPA's 1999 regulations for Phase II MS4s (64 FR 68722, December 8, 1999) required similar measurable goals for stormwater management programs and intended that "goals" would be enforceable permit requirements once approved. Further, a wide variety of measurable goals were intended to be considered including measurable BMPs and measurable water quality improvements.

E. Action Levels

In our February 14, 2012 letter, we expressed concern that there did not seem to be any clear actions which would be required on the part of permittees if an action level concentration were exceeded. Although the draft fact sheet of October 31, 2012 provides additional insight into the Board's intent, we still believe the clarity and enforceability of the permit would be enhanced by adding clearer provisions for acting upon action level exceedences to the permit similar to the Board's 2009 permit for Orange County.

Footnote 7 in the proposed permit notes that NALs are not intended to be enforceable limitations. Provision II.C.1.b.(2) also provides that some NALs may be based on WLAs established in TMDLs included in Attachment E of the permit. We believe the Board intends the WLAs to be enforceable permit requirements; as such, we recommend NALs not be based on the WLAs. Instead, enforceable effluent limitations should be incorporated that are consistent with and ensure effective implementation of WLAs.

F. Toxicity Testing

The toxicity testing monitoring provisions proposed in the draft permit should be brought up to date with those in MS4 permits recently issued by the State Water Board (Caltrans MS4) and the Los Angeles Regional Water Board (Los Angeles MS4). Following the approach in these permits, only chronic toxicity monitoring should be required and biological toxicity test endpoints should be analyzed using the Test of Significant Toxicity hypothesis testing approach. At minimum, the permit should be revised to reflect the following requirements: (1) monitoring for chronic toxicity in fresh or marine waters shall be estimated as specified in U.S. EPA's short-term chronic toxicity methods in the most recent edition of 40 CFR 136; and (2) for chronic toxicity test samples (either stormwater or non-stormwater), the in-stream waste concentration (IWC) is 100 percent to calculate either a pass or fail test sample result following Appendix A in

National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, June 2010). A pass result indicates no toxicity at the IWC. A fail result indicates toxicity at the IWC.

*G. **Permit Expiration Date***

In our letter of February 14, 2012, we had expressed concern that the Board appeared to be considering a permit term longer than five years to accommodate the expiration dates of the current MS4 permits for Orange County and Riverside County. We noted such a provision would conflict with NPDES regulations at 40 CFR 122.46 which require that the term of a permit not exceed five years. We are pleased to see the proposed permit term has been revised to be consistent with this requirement.

We appreciate the opportunity to provide our views on the draft permit. If you would like to discuss these comments, please contact me at (415) 972-3464 or Eugene Bromley of the NPDES Permits Office at (415) 972-3510.

Sincerely,

David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT
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From:	Bromley.Eugene@epamail.epa.gov
To:	Chiu, Wayne@Waterboards
Cc:	Smith.DavidW@epamail.epa.gov; Becker, Eric@Waterboards; Barker, David@Waterboards; Kemmerer.John@epamail.epa.gov; Lin.Cindy@epamail.epa.gov; Brown.Samuel@epamail.epa.gov; Marincola.JamesPaul@epamail.epa.gov
Subject:	Re: Fw: San Diego Regional Permit Compliance Option for Prohibitions and Receiving Water Limitations
Date:	Tuesday, February 12, 2013 1:31:00 PM
Attachments:	USEPA Review.pdf

Wayne,

Here's a few comments on your new proposal:

1) Regarding compliance with receiving water limitations (RWLs), our first preference would be to just continue using the current RWLs language. However, if you choose to include the new B.3.c compliance option, the proposal should clarify when the potential "safe harbor" period would begin; we would recommend that any such "safe harbor" period begin only after approval of an appropriate WQIP by the Board. Providing "safe harbor" coverage based solely upon submittal by a jurisdiction of a notice of intent to develop a WQIP is legally questionable. This approach could be read to provide the functional equivalent of a compliance schedule without satisfying the requirements that must be met to grant a compliance schedule (e.g., provisions of 40 CFR 122.47 requiring that such schedules result in attainment as soon as possible and include specific interim milestones and schedules leading to attainment of effluent limitations). In reviewing and approving a proposed WQIP, the Board can ensure that the plan will be robust enough to result in attainment within a reasonable period of time.

2) to better ensure that permittees provide a robust demonstration that proposed strategies and activities in a WQIP would lead to compliance with WLAs/RWLs, we suggest revising the second sentence in B.3.c.(2) to the following:

"the results must be included in the water quality improvement plan to quantitatively demonstrate that the implementation of the water quality improvement strategies. . ."

3) in the new proposed B.3.c.(1)(c) the phrase "protect the physical and biological conditions of the receiving waters" is somewhat vague and should be clarified. We believe your overall intent is to require compliance with RWLs (provisions A.1.a, A.1.c and A.2.a of the permit) and B.3.c.(1)(c) would fill in any gaps not covered by B.3.c.(1)(a) and (b). We recommend the requirement to revised to provide this clarification. The phrase "protect the physical and biological conditions of the receiving water" could be read to provide only for protection of existing conditions, not to require reduction of pollutant discharges necessary to result in attainment of applicable water quality standards. It would be much more defensible to simply revise the phrase to something like "protect and restore the physical and biological conditions of receiving waters and attain water quality objectives."

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From: DavidW Smith/R9/USEPA/US
To: Eugene Bromley/R9/USEPA/US@EPA,
Date: 02/07/2013 03:26 PM
Subject: Fw: San Diego Regional Permit Compliance Option for Prohibitions and Receiving Water Limitations

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----- Forwarded by DavidW Smith/R9/USEPA/US on 02/07/2013 03:26 PM -----

From: "Chiu, Wayne@Waterboards" <Wayne.Chiu@waterboards.ca.gov>
To: Cindy Lin/R9/USEPA/US@EPA, John Kemmerer/R9/USEPA/US@EPA, DavidW Smith/R9/USEPA/US@EPA
Cc: "Becker, Eric@Waterboards" <Eric.Becker@waterboards.ca.gov>, "Barker, David@Waterboards" <David.Barker@waterboards.ca.gov>, "Arias, Christina@Waterboards" <Christina.Arias@waterboards.ca.gov>, "Walsh, Laurie@Waterboards" <Laurie.Walsh@waterboards.ca.gov>
Date: 02/06/2013 01:45 PM
Subject: San Diego Regional Permit Compliance Option for Prohibitions and Receiving Water Limitations

Hi John, Cindy and Dave,

We have developed some language that we plan on including in our Regional MS4 Permit to lay out a pathway for demonstrating compliance with the discharge prohibitions and receiving water limitations. I've attached the pertinent sections of the permit to generally show where it would go into the permit.

The attachment begins with an excerpt of most of Provision A, which lays out the discharge prohibitions (A.1) and receiving water limitations (A.2), as well as the "iterative process" language (A.4). We do not plan on making any changes to this language other than Provision A.1.b.

Following the excerpt from Provision A is a new section we plan on putting into the Water Quality Improvement Goals, Strategies and Schedules section of the Water Quality Improvement Plan requirements under Provision B. Provision B.3.c is where we provide the option for each Copermittee to develop a robust set of goals, strategies and schedules that can demonstrate they will achieve the discharge prohibitions and receiving water limitations in Provision A. The review of the goals, strategies, and schedules for the compliance option will go through a rigorous public process, as well as review by a Water Quality Improvement Consultation Panel which is described in Provision F.1.a.(1)(b), before being reviewed for acceptance by the San Diego Water Board.

Provision F.1.a.(1) describes the public participation process that will be required for the development of each Water Quality Improvement Plan. You will find the details about the Water Quality Improvement Consultation Panel under this section.

Provision B.3.c is a fairly important piece of our response to the comments we've heard and received. We are currently trying to finalize the changes we want to make to the permit so we can start responding to all the comments we've received. Our current direction is to get the permit to our Board in April. In order for that to

happen, we need to finalize our changes and finish responding to comments by the end of this month.

We'd like to get your feedback on the language before we finalize it. We need your feedback by February 22 if we want to make sure we have enough time to get all our ducks in a row for the April Board meeting.

Let me know if you have any questions. Otherwise, hope to get your feedback on or before February 22.

Thanks,

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ATTACHMENT
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Administrative Record Page No. 024612

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

APR 24 2013

OFFICE OF THE
REGIONAL ADMINISTRATOR

The Honorable Darrell Issa
U.S. House of Representatives
Attention: Ellen Dargie
2347 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Issa:

Thank you for your letter of April 2, 2013 to Acting EPA Administrator Bob Perciasepe and me concerning the draft Municipal Separate Storm Sewer System (MS4) permit proposed for the San Diego Region by the San Diego Regional Water Quality Control Board (Regional Board).

We have been working closely with the Regional Board in developing the draft San Diego Regional MS4 permit over the past two years, and have carefully reviewed the draft MS4 permit to ensure it implements federal statutory and regulatory requirements and is sensitive to the challenges permittees face in funding and implementing stormwater controls. Stormwater management is a very high priority for us, as urban stormwater runoff is the principal cause of numerous water quality impairments that affect beaches, streams, lakes, and rivers throughout Southern California. (see http://waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml)

The draft MS4 permit represents the fifth iteration of MS4 permits developed by the Regional Board since 1990. Over the past 10 years, the Regional Board also developed six total maximum daily loads (TMDLs) which evaluate discharge sources causing pollution problems and identify needed pollutant load reductions. These TMDLs indicate that substantial reduction of pollutants from municipal stormwater sources is needed to restore the health of beaches and other waters in the San Diego Region. The draft MS4 permit incorporates specific requirements based on these TMDLs to reduce pollutants in stormwater discharges. We believe the draft MS4 permit appropriately reconciles the need for more effective action to restore our polluted waters with the practical realities municipalities face in controlling stormwater pollution.

Your letter expresses concern regarding the potential costs that complying with the draft MS4 permit requirements would entail, particularly those associated with TMDL implementation; similar concerns have been expressed by the permittees. Over the past few months, we have met several times with representatives of San Diego County and other municipal jurisdictions to discuss their concerns.

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The TMDL that has generated the most concern among the permittees is the bacteria TMDL adopted by the Regional Board in 2010. Implementation of the TMDL will result in improved controls on stormwater and other sources that cause bacterial water quality impairment at San Diego area beaches and will address widespread concerns about beach closures and illnesses suffered by swimmers. We recognize stormwater controls are costly, but ineffective stormwater control already imposes high costs to the local economy when swimmers in polluted water get sick and beach visitation declines. The Regional Board recognized that TMDL implementation may require a considerable amount of time and provided for a 20-year timeframe, while indicating it would be willing to consider extending the timeframe, if new information supports those changes. TMDL implementation schedules were based on the best information at the time of adoption, but the State acknowledges the difficulty of accurately forecasting the time needed for implementation. For this reason, the draft MS4 permit recognizes that modification of the initial requirements in the permit implementing the TMDL may be necessary. As set forth in Provision B.5 of the permit, the Board is committed to an iterative, adaptive management process through which permit requirements will be periodically revised as new information becomes available. Provision II.H.4.c also provides a specific permit reopener to modify permit requirements related to TMDLs when appropriate.

The draft MS4 permit would also provide a new, innovative mechanism through which permittees can implement permit requirements through watershed-based implementation plans that allow for focusing first on highest priority, cost-effective pollution controls. Through the development and implementation of these Water Quality Improvement Plans, permittees can have substantial flexibility to determine how best to sequence implementation actions. This planning process would also afford permittees the ability to collect information needed to support potential revisions in permit schedules and requirements. While the draft MS4 permit and associated TMDLs provide several "reopener" opportunities, the permit needs to be renewed every five years, which provides another opportunity for the State, permittees, and other stakeholders to consider revisions in permit implementation requirements and timeframes. Thus, we believe the draft MS4 permit is sensitive to the concerns raised by San Diego County and that its implementation can be reasonably and practicably guided by the permittees' progress.

Your letter also noted that Permittees have raised concerns regarding the science and analysis underlying the TMDLs, in particular the bacteria TMDL. The Regional Board developed the bacteria TMDL through a multi-year process which provided numerous opportunities for input by stakeholders. That process included review of the science underlying the TMDL by third-party peer reviewers, and extensive analysis of TMDL implementation costs prior to State adoption of the TMDL. We also carefully reviewed the basis for the TMDL and believe the science and analysis are sound. Nevertheless, given the TMDL reopener provisions and draft MS4 permit's adaptive management process noted above, the State has clearly signaled its willingness to consider modifying the TMDLs and permit if new information supports changes.

Finally, in response to the request in your letter, EPA held a conference call with your staff on April 9, 2013. We discussed details of the draft MS4 permit and TMDLs and, more generally, opportunities to address the funding concerns raised by San Diego County. We noted

that to help address stormwater control costs, low cost loans are available through the California State Revolving Fund program. We also described EPA's new Clean Water Act integrated planning initiative started in 2012. This initiative provides the opportunity for municipalities to work with States and EPA to develop plans designed to reduce overall compliance costs by considering all wastewater and stormwater management obligations in an integrated fashion and sequencing implementation of control projects to address the most significant water quality issues first. While we have discussed this initiative with many municipalities in California, none have yet opted to pursue this opportunity. Lastly, as mentioned in your letter, EPA is currently working with municipalities to clarify how financial capabilities of local governments should be considered in determining Clean Water Act obligations. We welcome the opportunity to discuss these initiatives further with municipal governments.

We trust this information is helpful in addressing your concerns. If we can be of further assistance, please call me or our Congressional Liaison Officer, Brent Maier at (415) 947-4256.

Sincerely,

Jared Blumenfeld

ATTACHMENT
38

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
ORDER NO. R9-2007-0001
NPDES NO. CAS0108758
WASTE DISCHARGE REQUIREMENTS
FOR DISCHARGES OF URBAN RUNOFF FROM
THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s)
DRAINING THE WATERSHEDS OF THE COUNTY OF SAN DIEGO,
THE INCORPORATED CITIES OF SAN DIEGO COUNTY,
THE SAN DIEGO UNIFIED PORT DISTRICT,
AND THE SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY

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Attachment A – Basin Plan Prohibitions
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RECEIVING WATERS AND URBAN RUNOFF MONITORING AND REPORTING PROGRAM NO. R9-2007-0001

The California Regional Water Quality Control Board, San Diego Region (hereinafter Regional Board), finds that:

A. BASIS FOR THE ORDER

1. This Order is based on the federal Clean Water Act (CWA), the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board (SWRCB), the Water Quality Control Plan for the San Diego Basin adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.

2. This Order renews National Pollutant Discharge Elimination System (NPDES) Permit No. CAS0108758, which was first issued on July 16, 1990 (Order No. 90-42), and then renewed on February 21, 2001 (Order No. 2001-01). On August 25, 2005, in accordance with Order No. 2001-01, the County of San Diego, as the Principal Permittee, submitted a Report of Waste Discharge (ROWD) for renewal of their MS4 Permit.

B. REGULATED PARTIES

1. Each of the persons in Table 1 below, hereinafter called Copermittees or dischargers, owns or operates a municipal separate storm sewer system (MS4), through which it discharges urban runoff into waters of the United States within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.

Table 1. Municipal Copermittees

1.	City of Carlsbad	12.	City of Oceanside
2.	City of Chula Vista	13.	City of Poway
3.	City of Coronado	14.	City of San Diego
4.	City of Del Mar	15.	City of San Marcos
5.	City of El Cajon	16.	City of Santee
6.	City of Encinitas	17.	City of Solana Beach
7.	City of Escondido	18.	City of Vista
8.	City of Imperial Beach	19.	County of San Diego
9.	City of La Mesa	20.	San Diego Unified Port District
10.	City of Lemon Grove	21.	San Diego County Regional Airport Authority
11.	City of National City		

C. DISCHARGE CHARACTERISTICS

1. Urban runoff contains waste, as defined in the California Water Code (CWC), and pollutants that adversely affect the quality of the waters of the State. The discharge of urban runoff from an MS4 is a "discharge of pollutants from a point source" into waters of the U.S. as defined in the CWA.

2. The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa);

heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), and trash.

3. The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses resulting in a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.

4. Pollutants in urban runoff can threaten human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

5. Urban runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.

6. The Copermittees discharge urban runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within ten of the eleven hydrologic units (watersheds) comprising the San Diego Region as shown in Table 2 below. Some of the receiving water bodies have been designated as impaired by the Regional Board and the United States Environmental Protection Agency (USEPA) in 2002 pursuant to CWA section 303(d). Also shown below are the watershed management areas (WMAs) as defined in the Regional Board report, Watershed Management Approach, January 2002.

Table 2. Common Watersheds and CWA Section 303(d) Impaired Waters

REGIONAL BOARD WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT[1]	COPERMITTEES
Santa Margarita River	Santa Margarita (902.00)	Santa Margarita River and Estuary, Pacific Ocean	1. Eutrophic 2. Nitrogen 3. Phosphorus 4. Total Dissolved Solids	1. County of San Diego
San Luis Rey River	San Luis Rey (903.00)	San Luis Rey River and Estuary, Pacific Ocean	1. Bacterial Indicators 2. Eutrophic 3. Chloride 4. Total Dissolved Solids	1. City of Escondido 2. City of Oceanside 3. City of Vista 4. County of San Diego
Carlsbad	Carlsbad (904.00)	Batiquitos Lagoon San Elijo Lagoon Agua Hedionda Lagoon Buena Vista Lagoon And Tributary Streams Pacific Ocean	1. Bacterial Indicators 2. Eutrophic 3. Sedimentation/Siltation 4. Nutrients 5. Total Dissolved Solids	1. City of Carlsbad 2. City of Encinitas 3. City of Escondido 4. City of Oceanside 5. City of San Marcos 6. City of Solana Beach 7. City of Vista 8. County of San Diego

[1] The listed 303(d) pollutant(s) of concern do not necessarily reflect impairment of the entire corresponding WMA or all corresponding major surface water bodies. The specific impaired portions of each WMA are listed in the State Water Resources Control Board's 2002 Section 303(d) List of Water Quality Limited Segments.

REGIONAL BOARD WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT[1]	COPERMITTEES
San Dieguito River	San Dieguito (905.00)	San Dieguito River and Estuary, Pacific Ocean	1. Bacterial Indicators 2. Sulfate 3. Color 4. Nitrogen 5. Phosphorus 6. Total Dissolved Solids	1. City of Del Mar 2. City of Escondido 3. City of Poway 4. City of San Diego 5. City of Solana Beach 6. County of San Diego
Mission Bay	Peñasquitos (906.00)	Los Peñasquitos Lagoon Mission Bay, Pacific Ocean	1. Bacterial Indicators 2. Metals 3. Eutrophic 4. Sedimentation/Siltation 5. Toxicity	1. City of Del Mar 2. City of Poway 3. City of San Diego 4. County of San Diego
San Diego River	San Diego (907.00)	San Diego River, Pacific Ocean	1. Bacterial Indicators 2. Eutrophic 3. pH 4. Total Dissolved Solids 5. Oxygen (Dissolved)	1. City of El Cajon 2. City of La Mesa 3. City of Poway 4. City of San Diego 5. City of Santee 6. County of San Diego
San Diego Bay	Pueblo San Diego (908.00) Sweetwater (909.00) Otay (910.00)	San Diego Bay Sweetwater River Otay River Pacific Ocean	1. Bacterial Indicators 2. Metals 3. Sediment Toxicity 4. Benthic Community Degradation 5. Diazinon 6. Chlordane 7. Lindane 8. PAHs 9. PCBs	1. City of Chula Vista 2. City of Coronado 3. City of Imperial Beach 4. City of La Mesa 5. City of Lemon Grove 6. City of National City 7. City of San Diego 8. County of San Diego 9. San Diego Unified Port District 10.San Diego County Regional Airport Authority
Tijuana River	Tijuana (911.00)	Tijuana River and Estuary Pacific Ocean	1. Bacterial Indicators 2. Low Dissolved Oxygen 3. Metals 4. Eutrophic 5. Pesticides 6. Synthetic Organics 7. Trace Elements 8. Trash 9. Solids	1. City of Imperial Beach 2. City of San Diego 3. County of San Diego

7. The Copermittees' water quality monitoring data submitted to date documents persistent exceedances of Basin Plan water quality objectives for various urban runoff-related pollutants (diazinon, fecal coliform bacteria, total suspended solids, turbidity, metals, etc.) at various watershed monitoring stations. At some monitoring stations, such as Agua Hedionda, statistically significant upward trends in pollutant concentrations have been observed. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of watersheds have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in San Diego County.

8. When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and infiltration abilities of the land are lost. Therefore, runoff leaving a developed urban area is significantly greater in runoff volume, velocity, and peak flow rate than pre-development runoff from the same area. Runoff durations can also increase as a result of flood control and other efforts to control peak flow rates. Increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur

with as little as a 10% conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

9. Urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.

10. Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d) impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particular sensitive environment. Therefore, additional control to reduce pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.

11. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; and (4) ensuring that each drainage feature is adequately maintained in perpetuity.

D. URBAN RUNOFF MANAGEMENT PROGRAMS

1. General

a. This Order specifies requirements necessary for the Copermittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard which evolves over time as urban runoff management knowledge increases, the Copermittees' urban runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices (BMPs), etc. in order to achieve the evolving MEP standard. Absent evidence to the contrary, this continual assessment, revision, and improvement of urban runoff management program implementation is expected to ultimately achieve compliance with water quality standards.

b. Although the Copermittees have generally been implementing the jurisdictional urban runoff management programs required pursuant to Order No. 2001-01 since February 21, 2002, urban runoff discharges continue to cause or contribute to violations of water quality standards. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of pollutants in urban runoff to the MEP and achieve water quality

standards. Some of the new or modified requirements, such as the expanded Watershed Urban Runoff Management Program section, are designed to specifically address these high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.

c. Updated Jurisdictional Urban Runoff Management Plans (JURMPs) and Watershed Urban Runoff Management Plans (WURMPs), and a new Regional Urban Runoff Management Plan (RURMP), which describe the Copermittees' urban runoff management programs in their entirety, are needed to guide the Copermittees' urban runoff management efforts and aid the Copermittees in tracking urban runoff management program implementation. It is practicable for the Copermittees to update the JURMPs and WURMPs, and create the RURMP, within one year, since significant efforts to develop these programs have already occurred.

d. Pollutants can be effectively reduced in urban runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense". Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control BMPs remove pollutants from urban runoff.

e. Urban runoff needs to be addressed during the three major phases of development (planning, construction, and use) in order to reduce the discharge of pollutants to the MEP and protect receiving waters. Development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can impact receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development generates substantial pollutant loads which are discharged in urban runoff to receiving waters.

f. Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees' programs.

2. Development Planning

a. The Standard Urban Storm Water Mitigation Plan (SUSMP) requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the SWRCB on October 5, 2000. In the precedential order, the SWRCB found that the design standards, which essentially require that urban runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SUSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.1 of this Order. The SWRCB also gave Regional Water Quality Control Boards the discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in future SUSMPs.

b. Controlling urban runoff pollution by using a combination of onsite source control and Low Impact Development (LID) BMPs augmented with treatment control BMPs before the runoff enters the MS4 is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.

c. Use of LID BMPs at new development projects can be an effective means for minimizing the impact of urban runoff discharges from the development projects on receiving waters. LID BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of urban runoff.

d. Retail Gasoline Outlets (RGOs) are significant sources of pollutants in urban runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, LID, source control, and treatment control BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more, or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

e. Sites of heavy industry are significant sources of pollutants in urban runoff. Pollutant concentrations and loads in runoff from industrial sites are similar or exceed pollutant concentrations and loads in runoff from other land uses, such as commercial or residential land uses. As with other land uses, LID, source control, and treatment control BMPs are needed at sites of heavy industry in order to meet the MEP standard. These BMPs are necessary where the site of heavy industry is larger than one acre. The one acre threshold is appropriate, since it is consistent with requirements in the Phase II NPDES storm water regulations.

f. If not properly designed or maintained, certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). However, proper BMP design and maintenance can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities and local vector control agencies and the State Department of Health Services during the development and implementation of urban runoff management programs.

3. Construction and Existing Development

a. In accordance with federal NPDES regulations and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from

industrial and construction sites are subject to dual (state and local) storm water regulation. Under this dual system, the Regional Board is responsible for enforcing the General Construction Activities Storm Water Permit, SWRCB Order 99-08 DWQ, NPDES No. CAS000002 (General Construction Permit) and the General Industrial Activities Storm Water Permit, SWRCB Order 97-03 DWQ, NPDES No. CAS000001 (General Industrial Permit), and each municipal Copermittee is responsible for enforcing its local permits, plans, and ordinances, which may require the implementation of additional BMPs than required under the statewide general permits.

b. Identification of sources of pollutants in urban runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to ensure that discharges of pollutants into and from its MS4 are reduced to the MEP. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.

c. Historic and current development makes use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and a receiving water.

d. As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

e. Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed or treated. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges into MS4s must be reduced to the MEP unless treatment within the MS4 occurs.

f. Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every urban runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction.

g. Education is an important aspect of every effective urban runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water

quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions impact receiving water quality and how these impacts can be minimized.

h. Public participation during the development of urban runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.

4. Watershed and Regional Urban Runoff Management

a. Since urban runoff does not recognize political boundaries, watershed-based urban runoff management can greatly enhance the protection of receiving waters within a watershed. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Effective watershed-based urban runoff management actively reduces pollutant discharges and abates pollutant sources causing or contributing to watershed water quality problems; watershed-based urban runoff management that does not actively reduce pollutant discharges and abate pollutant sources causing or contributing to watershed water quality problems can necessitate implementation of the iterative process outlined in section A.3 of the Order. Watershed management of urban runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

b. Some urban runoff issues, such as residential education, can be effectively addressed on a regional basis. Regional approaches to urban runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.

c. Both regionally and on a watershed basis, it is important for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially Caltrans, the Department of Defense, and Native American Tribes, is also important. Establishment of a management structure, within which the Copermittees subject to this Order will fund and coordinate those aspects of their joint obligations, will help promote implementation of urban runoff management programs on a watershed and regional basis in a most cost effective manner.

E. STATUTE AND REGULATORY CONSIDERATIONS

1. The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by the USEPA and established in SWRCB Water Quality Order 99-05, adopted by the SWRCB on June 17, 1999. The RWL in this Order require compliance with water quality standards, which is to be achieved through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Compliance with receiving water limits based on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the

creation of conditions of pollution.

2. The Water Quality Control Plan for the San Diego Basin (Basin Plan), identifies the following beneficial uses for surface waters in San Diego County: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1) Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional beneficial uses are identified for coastal waters of San Diego County: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

3. This Order is in conformance with SWRCB Resolution No. 68-16 and the federal Antidegradation Policy described in 40 CFR 131.12.

4. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Permittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.

5. Section 303(d)(1)(A) of the CWA requires that "Each state shall identify those waters within its boundaries for which the effluent limitations…are not stringent enough to implement any water quality standard (WQS) applicable to such waters." The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish Total Maximum Daily Loads (TMDLs) for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the SWRCB on February 4, 2003 and on July 25, 2003 by USEPA.

6. This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on August 14, 2002 for diazinon in Chollas Creek by establishing Water Quality Based Effluent Limits (WQBELs) for the Cities of San Diego, Lemon Grove, and La Mesa, the County of San Diego, and the San Diego Unified Port District; and by requiring: 1) legal authority, 2) implementation of a diazinon toxicity control plan and a diazinon public outreach/ education program, 3) achievement of the Compliance Schedule, and 4) a monitoring program. The establishment of WQBELs expressed as iterative BMPs to achieve the Waste Load Allocation (WLA) compliance schedule is appropriate and is expected to be sufficient to achieve the WLAs specified in the TMDL.

7. This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on February 9, 2005 for dissolved copper in Shelter Island Yacht Basin (SIYB) by establishing WQBELs expressed as BMPs to achieve the WLA of 30 kg copper / year for the City of San Diego and the San Diego Unified Port District. The establishment of WQBELs expressed as BMPs is appropriate and is expected to be sufficient to achieve the WLA

specified in the TMDL.

8. This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).

9. Requirements in this Order that are more explicit than the federal storm water regulations in 40 CFR 122.26 are prescribed in accordance with the CWA section 402(p)(3)(B)(iii) and are necessary to meet the MEP standard.

10. Urban runoff treatment and/or mitigation must occur prior to the discharge of urban runoff into a receiving water. Federal regulations at 40 CFR 131.10(a) state that in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the U.S. Authorizing the construction of an urban runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. This is consistent with USEPA guidance to avoid locating structural controls in natural wetlands.

11. The issuance of waste discharge requirements and an NPDES permit for the discharge of urban runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with the CWC section 13389.

F. PUBLIC PROCESS

1. The Regional Board has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.

2. The Regional Board has, at public meetings on (date), held public hearings and heard and considered all comments pertaining to the terms and conditions of this Order.

IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in Division 7 of the California Water Code (CWC) and regulations adopted thereunder, and the provisions of the Clean Water Act (CWA) and regulations adopted thereunder, shall each comply with the following:

A. PROHIBITIONS AND RECEIVING WATER LIMITATIONS

1. Discharges into and from municipal separate storm sewer systems (MS4s) in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance (as defined in CWC section 13050), in waters of the state are prohibited.

2. Discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited.[2]

[2] This prohibition does not apply to MS4 discharges which receive subsequent treatment to reduce pollutants to the MEP prior to entering receiving waters (e.g., low flow diversions to the sanitary sewer).

3. Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.

   a. Each Copermittee shall comply with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order through timely implementation of control measures and other actions to reduce pollutants in urban runoff discharges in accordance with the Jurisdictional Urban Runoff Management Program and other requirements of this Order including any modifications. The Jurisdictional Urban Runoff Management Program shall be designed to achieve compliance with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order. If exceedance(s) of water quality standards persist notwithstanding implementation of the Jurisdictional Urban Runoff Management Program and other requirements of this Order, the Copermittee shall assure compliance with section A.3 and section A.4 as it applies to Prohibition 5 in Attachment A of this Order by complying with the following procedure:

      (1) Upon a determination by either the Copermittee or the Regional Board that MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard, the Copermittee shall promptly notify and thereafter submit a report to the Regional Board that describes best management practices (BMPs) that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the annual update to the Jurisdictional Urban Runoff Management Program unless the Regional Board directs an earlier submittal. The report shall include an implementation schedule. The Regional Board may require modifications to the report;

      (2) Submit any modifications to the report required by the Regional Board within 30 days of notification;

      (3) Within 30 days following approval of the report described above by the Regional Board, the Copermittee shall revise its Jurisdictional Urban Runoff Management Program and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required;

      (4) Implement the revised Jurisdictional Urban Runoff Management Program and monitoring program in accordance with the approved schedule.

   b. So long as the Copermittee has complied with the procedures set forth above and is implementing the revised Jurisdictional Urban Runoff Management Program, the Copermittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Board to do so.

   c. Nothing in section A.3 shall prevent the Regional Board from enforcing any provision of this Order while the Copermittee prepares and implements the above report.

4. In addition to the above prohibitions, discharges from MS4s are subject to all Basin Plan prohibitions cited in Attachment A to this Order.

B. NON-STORM WATER DISCHARGES

1. Each Copermittee shall effectively prohibit all types of non-storm water discharges into its MS4 unless such discharges are either authorized by a separate National Pollutant Discharge Elimination System (NPDES) permit; or not prohibited in accordance with sections B.2 and B.3 below.

2. The following categories of non-storm water discharges are not prohibited unless a Copermittee or the Regional Board identifies the discharge category as a significant source of pollutants to waters of the U.S. For such a discharge category, the Copermittee shall either prohibit the discharge category or develop and implement appropriate control measures to reduce the discharge of pollutants to the MEP and report to the Regional Board pursuant to section J.

   a. Diverted stream flows;
   b. Rising ground waters;
   c. Uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to MS4s;
   d. Uncontaminated pumped ground water;
   e. Foundation drains;
   f. Springs;
   g. Water from crawl space pumps;
   h. Footing drains;
   i. Air conditioning condensation;
   j. Flows from riparian habitats and wetlands;
   k. Water line flushing;
   l. Landscape irrigation;
   m. Discharges from potable water sources not subject to NPDES Permit No. CAG679001, other than water main breaks;
   n. Irrigation water;
   o. Lawn watering;
   p. Individual residential car washing; and
   q. Dechlorinated swimming pool discharges.

3. Emergency fire fighting flows (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited. As part of the Jurisdictional Urban Runoff Management Plan (JURMP), each Copermittee shall develop and implement a program to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) identified by the Copermittee to be significant sources of pollutants to waters of the United States.

4. Each Copermittee shall examine all dry weather field screening and analytical monitoring results collected in accordance with section D.4 of this Order and Receiving Waters Monitoring and Reporting Program No. R9-2007-0001 to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in section B.2. Follow-up investigations shall be conducted as necessary to identify and control any non-prohibited discharge category(ies) listed above.

C. LEGAL AUTHORITY

1. Each Copermittee shall establish, maintain, and enforce adequate legal authority to control pollutant discharges into and from its MS4 through ordinance, statute, permit, contract or similar means. This legal authority must, at a minimum, authorize the Copermittee to:

   a. Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity to its MS4 and control the quality of runoff from industrial and construction sites. This requirement applies both to industrial and construction sites which have coverage under the statewide general industrial or construction storm water permits, as well as to those sites which do not. Grading ordinances shall be upgraded and enforced as necessary to comply with this Order.

   b. Prohibit all identified illicit discharges not otherwise allowed pursuant to section B.2 including but not limited to:

      (1) Sewage;
      (2) Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;
      (3) Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;
      (4) Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;
      (5) Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.;
      (6) Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;
      (7) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;
      (8) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and
      (9) Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

   c. Prohibit and eliminate illicit connections to the MS4;

   d. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4;

   e. Require compliance with conditions in Copermittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);

   f. Utilize enforcement mechanisms to require compliance with Copermittee storm water ordinances, permits, contracts, or orders;

   g. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees. Control of

the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as Caltrans, the Department of Defense, or Native American Tribes is encouraged;

h. Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. This means the Copermittee must have authority to enter, monitor, inspect, take measurements, review and copy records, and require regular reports from industrial facilities discharging into its MS4, including construction sites;

i. Require the use of BMPs to prevent or reduce the discharge of pollutants into MS4s to the MEP; and

j. Require documentation on the effectiveness of BMPs implemented to reduce the discharge of pollutants to the MS4 to the MEP.

2. Each Permittee shall include as part of its JURMP a statement certified by its chief legal counsel that the Copermittee has taken the necessary steps to obtain and maintain full legal authority to implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and this Order. This statement shall include:

a. Identification of all departments within the jurisdiction that conduct urban runoff related activities, and their roles and responsibilities under this Order. Include an up to date organizational chart specifying these departments and key personnel.

b. Citation of urban runoff related ordinances and the reasons they are enforceable;

c. Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances and therefore with the conditions of this Order;

d. A description of how urban runoff related ordinances are implemented and appealed; and

e. Description of whether the municipality can issue administrative orders and injunctions or if it must go through the court system for enforcement actions.

D. JURISDICTIONAL URBAN RUNOFF MANAGEMENT PROGRAM

Each Copermittee shall implement all requirements of section D of this Order no later than 365 days after adoption of the Order, unless otherwise specified in this Order. Prior to 365 days after adoption of the Order, each Copermittee shall at a minimum implement its Jurisdictional URMP document, as the document was developed and amended to comply with the requirements of Order No. 2001-01.

Each Copermittee shall develop and implement an updated Jurisdictional Urban Runoff Management Program for its jurisdiction. Each updated Jurisdictional Urban Runoff Management Program shall meet the requirements of section D of this Order, reduce the discharge of pollutants from the MS4 to the MEP, and prevent urban runoff discharges from the MS4 from causing or contributing to a violation of water quality standards.

1. Development Planning Component

Each Copermittee shall implement a program which meets the requirements of this section and (1) reduces Development Project discharges of pollutants from the MS4 to the MEP, (2) prevents Development Project discharges from the MS4 from causing or contributing to a violation of water quality standards, and (3) manages increases in runoff discharge rates and durations from Development Projects that are likely to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

a. GENERAL PLAN

Each Copermittee shall revise as needed its General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) for the purpose of providing effective water quality and watershed protection principles and policies that direct land-use decisions and require implementation of consistent water quality protection measures for Development Projects.

b. ENVIRONMENTAL REVIEW PROCESS

Each Copermittee shall revise as needed their current environmental review processes to accurately evaluate water quality impacts and cumulative impacts and identify appropriate measures to avoid, minimize and mitigate those impacts for all Development Projects.

c. APPROVAL PROCESS CRITERIA AND REQUIREMENTS FOR ALL DEVELOPMENT PROJECTS

For all proposed Development Projects, each Copermittee during the planning process and prior to project approval and issuance of local permits shall prescribe the necessary requirements so that Development Project discharges of pollutants from the MS4 will be reduced to the MEP, will not cause or contribute to a violation of water quality standards, and will comply with Copermittee's ordinances, permits, plans, and requirements, and with this Order. The requirements shall include, but not be limited to, implementation by the project proponent of the following:

(1) Source control BMPs that reduce storm water pollutants of concern in urban runoff, including storm drain system stenciling and signage, properly designed outdoor material storage areas, properly designed trash storage areas, and implementation of efficient irrigation systems;
(2) LID BMPs where feasible which maximize infiltration, provide retention, slow runoff, minimize impervious footprint, direct runoff from impervious areas into landscaping, and construct impervious surfaces to minimum widths necessary;
(3) Buffer zones for natural water bodies, where feasible. Where buffer zones are infeasible, require project proponent to implement other buffers such as trees, access restrictions, etc., where feasible;
(4) Measures necessary so that grading or other construction activities meet the provisions specified in section D.2 of this Order; and
(5) Submittal of proof of a mechanism under which ongoing long-term maintenance of all structural post-construction BMPs will be conducted.

d. STANDARD URBAN STORM WATER MITIGATION PLANS (SUSMPS) – APPROVAL PROCESS CRITERIA AND REQUIREMENTS FOR PRIORITY DEVELOPMENT PROJECTS

Each Copermittee shall implement an updated local SUSMP which meets the requirements of section D.1.d of this Order and (1) reduces Priority Development Project discharges of pollutants from the MS4 to the MEP, (2) prevents Priority Development Project runoff discharges from the MS4 from causing or contributing to a violation of water quality standards, and (3) manages increases in runoff discharge rates and durations from Priority Development Projects that are likely to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.[3]

(1) Definition of Priority Development Project

(a) Priority Development Projects are: a) all new Development Projects that fall under the project categories or locations listed in section D.1.d.(2), and b) those redevelopment projects that create, add or replace at least 5,000 square feet of impervious surfaces on an already developed site that falls under the project categories or locations listed in section D.1.d.(2). Where redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria discussed in section D.1.d.(6)(c) applies only to the addition, and not to the entire development. Where redevelopment results in an increase of more than fifty percent of the impervious surfaces of a previously existing development, the numeric sizing criteria applies to the entire development. Where a new Development Project feature, such as a parking lot, falls into a Priority Development Project Category, the entire project footprint is subject to SUSMP requirements.

(b) In addition to the Priority Development Project Categories identified in section D.1.d.(2), within three years of adoption of this Order Priority Development Projects shall also include all other pollutant generating Development Projects that result in the disturbance of one acre or more of land.[4] As an alternative to this one acre threshold, the Copermittees may collectively identify a different threshold, provided the Copermittees' threshold is at least as inclusive of Development Projects as the one acre threshold.

[3] Updated SUSMP and hydromodification requirements shall apply to all priority projects or phases of priority projects which have not yet begun grading or construction activities at the time any updated SUSMP or hydromodification requirement commences. If a Copermittee determines that lawful prior approval of a project exists, whereby application of an updated SUSMP or hydromodification requirement to the project is infeasible, the updated SUSMP or hydromodification requirement need not apply to the project. Where feasible, the Copermittees shall utilize the SUSMP and hydromodification update periods to ensure that projects undergoing approval processes include application of the updated SUSMP and hydromodification requirements in their plans.

[4] Pollutant generating Development Projects are those projects that generate pollutants at levels greater than background levels.

(2) Priority Development Project Categories

(a) Housing subdivisions of 10 or more dwelling units. This category includes single-family homes, multi-family homes, condominiums, and apartments.
(b) Commercial developments greater than one acre. This category is defined as any development on private land that is not for heavy industrial or residential uses where the land area for development is greater than one acre. The category includes, but is not limited to: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; municipal facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; airfields; and other light industrial facilities.
(c) Developments of heavy industry greater than one acre. This category includes, but is not limited to, manufacturing plants, food processing plants, metal working facilities, printing plants, and fleet storage areas (bus, truck, etc.).
(d) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.
(e) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirement D.1.d.(6)(c) and hydromodification requirement D.1.g.
(f) All hillside development greater than 5,000 square feet. This category is defined as any development which creates 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.
(g) Environmentally Sensitive Areas (ESAs). All development located within or directly adjacent to or discharging directly to an ESA (where discharges from the development or redevelopment will enter receiving waters within the ESA), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.
(h) Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff. Parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.
(i) Street, roads, highways, and freeways. This category includes any paved surface that is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
(j) Retail Gasoline Outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average

Daily Traffic (ADT) of 100 or more vehicles per day.

(3) Pollutants of Concern

As part of its local SUSMP, each Copermittee shall develop and implement a procedure for pollutants of concern to be identified for each Priority Development Project. The procedure shall address, at a minimum: (1) Receiving water quality (including pollutants for which receiving waters are listed as impaired under CWA section 303(d)); (2) Land use type of the Development Project and pollutants associated with that land use type; and (3) Pollutants expected to be present on site.

(4) Low Impact Development (LID) BMP Requirements

Each Copermittee shall require each Priority Development Project to implement LID BMPs which will collectively minimize directly connected impervious areas and promote infiltration at Priority Development Projects:

(a) The following LID site design BMPs shall be implemented at all Priority Development Projects as required below:

i. For Priority Development Projects with landscaped or other pervious areas, drain a portion of impervious areas (rooftops, parking lots, sidewalks, walkways, patios, etc) into pervious areas prior to discharge to the MS4. The amount of runoff from impervious areas that is to drain to pervious areas shall correspond with the total capacity of the project's pervious areas to infiltrate or treat runoff, taking into consideration the pervious areas' soil conditions, slope, and other pertinent factors.
ii. For Priority Development Projects with landscaped or other pervious areas, properly design and construct the pervious areas to effectively receive and infiltrate or treat runoff from impervious areas, taking into consideration the pervious areas' soil conditions, slope, and other pertinent factors.
iii. For Priority Development Projects with low traffic areas and appropriate soil conditions, construct a portion of walkways, trails, overflow parking lots, alleys, or other low-traffic areas with permeable surfaces, such as pervious concrete, porous asphalt, unit pavers, and granular materials.

(b) The following LID BMPs listed below shall be implemented at all Priority Development Projects where applicable and feasible.

i. Conserve natural areas, including existing trees, other vegetation, and soils.
ii. Construct streets, sidewalks, or parking lot aisles to the minimum widths necessary, provided that public safety and a walkable environment for pedestrians are not compromised.
iii. Minimize the impervious footprint of the project.
iv. Minimize soil compaction.
v. Minimize disturbances to natural drainages (e.g., natural swales, topographic depressions, etc.)

(5) Source Control BMP Requirements

Each Copermittee shall require each Priority Development Project to implement source control BMPs. The source control BMPs to be required shall:

(a) Minimize storm water pollutants of concern in urban runoff.
(b) Include storm drain system stenciling or signage.
(c) Include properly designed outdoor material storage areas.
(d) Include properly designed trash storage areas.
(e) Include efficient irrigation systems.
(f) Include water quality requirements applicable to individual priority project categories.

(6) Treatment Control BMP Requirements[5]

Each Copermittee shall require each Priority Development Project to implement treatment control BMPs which meet the following treatment control BMP requirements:

(a) Treatment control BMPs for all Priority Development Projects shall mitigate (infiltrate, filter, or treat) the required volume or flow of runoff (identified in section D.1.d.(6)(c)) from all developed portions of the project, including landscaped areas.

(b) All treatment control BMPs shall be located so as to infiltrate, filter, or treat the required runoff volume or flow prior to its discharge to any waters of the U.S. Multiple Priority Development Projects may use shared treatment control BMPs as long as construction of any shared treatment control BMP is completed prior to the use or occupation of any Priority Development Project from which the treatment control BMP will receive runoff.

(c) All treatment control BMPs for a single Priority Development Project shall collectively be sized to comply with the following numeric sizing criteria:

i. Volume-based treatment control BMPs shall be designed to mitigate (infiltrate, filter, or treat) the volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the County of San Diego's 85th Percentile Precipitation Isopluvial Map; or

ii. Flow-based treatment control BMPs shall be designed to mitigate (infiltrate, filter, or treat) either: a) the maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour, for each hour of a storm event; or b) the maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity (for each hour of a storm event), as determined from the local historical rainfall record, multiplied by a factor of two.

[5] LID BMPs that are correctly designed to effectively infiltrate, filter, or treat runoff can be considered treatment control BMPs.

(d) All treatment control BMPs for Priority Development Projects shall, at a minimum:

i. Be ranked with a high or medium pollutant removal efficiency for the project's most significant pollutants of concern, as the pollutant removal efficiencies are identified in the Copermittees' Model SUSMP and the most current updates thereto. Treatment control BMPs with a low removal efficiency ranking shall only be approved by a Copermittee when a feasibility analysis has been conducted which exhibits that implementation of treatment control BMPs with high or medium removal efficiency rankings are infeasible for a Priority Development Project or portion of a Priority Development Project.
ii. Be correctly sized and designed so as to remove pollutants to the MEP.
iii. Target removal of pollutants of concern from urban runoff.
iv. Be implemented close to pollutant sources (where shared BMPs are not proposed), and prior to discharging into waters of the U.S.
v. Not be constructed within a receiving water.
vi. Include proof of a mechanism, to be provided by the project proponent or Copermittee, under which ongoing long-term maintenance will be conducted.

(7) Update of SUSMP BMP Requirements

The Copermittees shall collectively review and update the BMP requirements that are listed in their local SUSMPs. At a minimum, the update shall include removal of obsolete or ineffective BMPs, addition of LID and source control BMP requirements that meet or exceed the requirements of sections D.1.d.(4) and D.1.d.(5), and addition of LID BMPs that can be used for treatment, such as bioretention cells, bioretention swales, etc. The update shall also add appropriate LID BMPs to any tables or discussions in the local SUSMPs addressing pollutant removal efficiencies of treatment control BMPs. In addition, the update shall include review, and revision where necessary, of treatment control BMP pollutant removal efficiencies.

(8) Update of SUSMPs to Incorporate LID and Other BMP Requirements

(a) In addition to the implementation of the BMP requirements of sections D.1.d.(4-7) within one year of adoption of this Order, the Copermittees shall also develop and submit an updated Model SUSMP that defines minimum LID and other BMP requirements to be incorporated into the Copermittees' local SUSMPs for application to Priority Development Projects. The purpose of the updated Model SUSMP shall be to establish minimum standards to maximize the use of LID practices and principles in local Copermittee programs as a means of reducing stormwater runoff. It shall meet the following minimum requirements:

i. Establishment of LID BMP requirements that meet or exceed the minimum requirements listed in section D.1.d.(4) above.
ii. Establishment of source control BMP requirements that meet or exceed the minimum requirements listed in section D.1.d.(5) above.
iii. Establishment of treatment control BMP requirements that meet or exceed the minimum requirements listed in section D.1.d.(6) above.

iv. Establishment of siting, design, and maintenance criteria for each LID and treatment control BMP listed in the Model SUSMP, so that implemented LID and treatment control BMPs are constructed correctly and are effective at pollutant removal and/or runoff control. LID techniques, such as soil amendments, shall be incorporated into the criteria for appropriate treatment control BMPs.

v. Establishment of criteria to aid in determining Priority Development Project conditions where implementation of each LID BMP listed in section D.1.d.(4)(b) is applicable and feasible.

vi. Establishment of a requirement for Priority Development Projects with low traffic areas and appropriate or amendable soil conditions to construct a portion of walkways, trails, overflow parking lots, alleys, or other low-traffic areas with permeable surfaces, such a pervious concrete, porous asphalt, unit pavers, and granular materials.

vii. Establishment of restrictions on infiltration of runoff from Priority Development Project categories or Priority Development Project areas that generate high levels of pollutants, if necessary.

(b) The updated Model SUSMP shall be submitted within 18 months of adoption of this Order. If, within 60 days of submittal of the updated Model SUSMP, the Copermittees have not received in writing from the Regional Board either (1) a finding of adequacy of the updated Model SUSMP or (2) a modified schedule for its review and revision, the updated Model SUSMP shall be deemed adequate, and the Copermittees shall implement its provisions in accordance with section D.1.d.(8)(c) below.

(c) Within 365 days of Regional Board acceptance of the updated Model SUSMP, each Copermittee shall update its local SUSMP to implement the requirements established pursuant to section D.1.d.(8)(a). In addition to the requirements of section D.1.d.(8)(a), each Copermittee's updated local SUSMP shall include the following:

i. A requirement that each Priority Development Project use the criteria established pursuant to section D.1.d.(8)(a)v to demonstrate applicability and feasibility, or lack thereof, of implementation of the LID BMPs listed in section D.1.d.(4)(b).

ii. A review process which verifies that all BMPs to be implemented will meet the designated siting, design, and maintenance criteria, and that each Priority Development Project is in compliance with all applicable SUSMP requirements.

(9) Implementation Process

As part of its local SUSMP, each Copermittee shall implement a process to verify compliance with SUSMP requirements. The process shall identify at what point in the planning process Priority Development Projects will be required to meet SUSMP requirements. The process shall also include identification of the roles and responsibilities of various municipal departments in implementing the SUSMP requirements, as well as any other measures necessary for the implementation of SUSMP requirements.

(10) Downstream Erosion

As part of its local SUSMP, each Copermittee shall develop and apply criteria to Priority Development Projects so that runoff discharge rates, durations, and velocities from Priority Development Projects are controlled to maintain or reduce downstream erosion conditions and protect stream habitat. Upon adoption of the Hydromodification Management Plan (HMP) by the Regional Board (section D.1.g), individual Copermittee criteria for control of downstream erosion shall be superseded by criteria identified in the HMP.

(11) Waiver Provision

(a) A Copermittee may provide for a project to be waived from the requirement of meeting numeric sizing criteria (sections D.1.d.(6)(c) or D.1.d.(8)(a)iii) if infeasibility can be established. A waiver of infeasibility shall only be granted by a Copermittee when all available BMPs have been considered and rejected as infeasible. Copermittees shall notify the Regional Board within 5 days of each waiver issued and shall include the following information in the notification:

i. Name of the person granting each waiver;
ii. Name of developer receiving the waiver;
iii. Site location;
iv. Reason for waiver; and
v. Description of BMPs required.

(b) The Copermittees may collectively or individually develop a program to require project proponents who have received waivers to transfer the savings in cost, as determined by the Copermittee(s), to a storm water mitigation fund. This program may be implemented by all Copermittees that issue waivers. Funds may be used on projects to improve urban runoff quality within the watershed of the waived project. The waiver mitigation program should, at a minimum, identify:

i. The entity or entities that will manage the storm water mitigation fund (i.e., assume full responsibility for);
ii. The range and types of acceptable projects for which mitigation funds may be expended;
iii. The entity or entities that will assume full responsibility for each mitigation project including its successful completion; and
iv. How the dollar amount of fund contributions will be determined.

(12) Infiltration and Groundwater Protection

To protect groundwater quality, each Copermittee shall apply restrictions to the use of treatment control BMPs that are designed to primarily function as centralized infiltration devices (such as large infiltration trenches and infiltration basins). Such restrictions shall be designed so that the use of such infiltration treatment control BMPs shall not cause or contribute to an exceedance of groundwater quality objectives. At a minimum, each treatment control BMP designed to primarily function as a centralized infiltration device shall meet the restrictions below, unless it is demonstrated that a restriction is not necessary to

protect groundwater quality. The Copermittees may collectively or individually develop alternative restrictions on the use of treatment control BMPs which are designed to primarily function as centralized infiltration devices. Alternative restrictions developed by the Copermittees can partially or wholly replace the restrictions listed below. The restrictions are not intended to be applied to small infiltration systems dispersed throughout a development project.

(a) Urban runoff shall undergo pretreatment such as sedimentation or filtration prior to infiltration;
(b) All dry weather flows containing significant pollutant loads shall be diverted from infiltration devices;
(c) Pollution prevention and source control BMPs shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration treatment control BMPs are to be used;
(d) Infiltration treatment control BMPs shall be adequately maintained so that they remove pollutants to the MEP;
(e) The vertical distance from the base of any infiltration treatment control BMP to the seasonal high groundwater mark shall be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained;
(f) The soil through which infiltration is to occur shall have physical and chemical characteristics (such as appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of urban runoff for the protection of groundwater beneficial uses;
(g) Infiltration treatment control BMPs shall not be used for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries[6]; and other high threat to water quality land uses and activities as designated by each Permittee; and
(h) Infiltration treatment control BMPs shall be located a minimum of 100 feet horizontally from any water supply wells.

e. TREATMENT CONTROL BMP MAINTENANCE TRACKING

(1) Each Copermittee shall develop and utilize a watershed-based database to track and inventory approved treatment control BMPs and treatment control BMP maintenance within its jurisdiction. At a minimum, the database shall include information on treatment control BMP type, location, watershed, date of construction, party responsible for maintenance, maintenance certifications or verifications, inspections, inspection findings, and corrective actions.

(2) Each Copermittee shall develop and implement a program to verify that approved treatment control BMPs are operating effectively and have been adequately maintained. At a minimum, the program shall include the following:

(a) An annual inventory of all approved treatment control BMPs within the Copermittee's jurisdiction. The inventory shall also include all treatment control BMPs approved during the previous permit cycle.

[6] Except with regard to treated nursery runoff or clean storm water runoff.

(b) The prioritization of all projects with approved treatment control BMPs into high, medium, and low priority categories. At a minimum, projects with drainage insert treatment control BMPs shall be designated as at least a medium priority. Prioritization of other projects with treatment control BMPs shall include consideration of treatment control BMP size, recommended maintenance frequency, likelihood of operational and maintenance issues, location, receiving water quality, and other pertinent factors.

(c) 100% of projects with treatment control BMPs that are high priority shall be inspected by the Copermittee annually. 50% of projects with drainage insert treatment control BMPs shall be inspected by the Copermittee annually. Treatment control BMPs that are low priority shall be inspected as needed. All inspections shall verify effective operation and maintenance of the treatment control BMPs, as well as compliance with all ordinances, permits, and this Order. A minimum of 20% of the total number of projects with approved treatment control BMPs, and a maximum of 200% of the average number of projects with treatment control BMPs approved per year, shall be inspected annually.

(d) Requirement of annual verification of effective operation and maintenance of each approved treatment control BMP by the party responsible for the treatment control BMP maintenance.

(3) Operation and maintenance verifications shall be required prior to each rainy season.

(4) Inspections of high priority treatment control BMPs shall be conducted prior to each rainy season.

f. BMP VERIFICATION

Prior to occupancy of each Priority Development Project subject to SUSMP requirements, each Copermittee shall inspect the constructed LID, source control, and treatment control BMPs to verify that they have been constructed in compliance with all specifications, plans, permits, ordinances, and this Order. This initial BMP verification inspection does not constitute an operation and maintenance inspection, as required above in section D.1.e.(2)(c).

g. HYDROMODIFICATION - LIMITATIONS ON INCREASES OF RUNOFF DISCHARGE RATES AND DURATIONS[7]

Each Copermittee shall collaborate with the other Copermittees to develop and implement a Hydromodification Management Plan (HMP) to manage increases in runoff discharge rates and durations from all Priority Development Projects, where such increased rates and durations are likely to cause increased erosion of channel

[7] Updated SUSMP and hydromodification requirements shall apply to all priority projects or phases of priority projects which have not yet begun grading or construction activities at the time any updated SUSMP or hydromodification requirement commences. If a Copermittee determines that lawful prior approval of a project exists, whereby application of an updated SUSMP or hydromodification requirement to the project is infeasible, the updated SUSMP or hydromodification requirement need not apply to the project. Where feasible, the Copermittees shall utilize the SUSMP and hydromodification update periods to ensure that projects undergoing approval processes include application of the updated SUSMP and hydromodification requirements in their plans.

beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force. The HMP, once approved by the Regional Board, shall be incorporated into the local SUSMP and implemented by each Copermittee so that post-project runoff discharge rates and durations shall not exceed estimated pre-project discharge rates and durations where the increased discharge rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in the discharge rates and durations.

(1) The HMP shall:

(a) Identify a standard for channel segments which receive urban runoff discharges from Priority Development Projects. The channel standard shall maintain the pre-project erosion and deposition characteristics of channel segments receiving urban runoff discharges from Priority Development Projects as necessary to maintain or improve the channel segments' stability conditions.

(b) Utilize continuous simulation of the entire rainfall record to identify a range of runoff flows[8] for which Priority Development Project post-project runoff flow rates and durations shall not exceed pre-project runoff flow rates and durations, where the increased flow rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in the flow rates and durations. The lower boundary of the range of runoff flows identified shall correspond with the critical channel flow that produces the critical shear stress that initiates channel bed movement or that erodes the toe of channel banks. The identified range of runoff flows may be different for specific watersheds, channels, or channel reaches.

(c) Require Priority Development Projects to implement hydrologic control measures so that Priority Development Projects' post-project runoff flow rates and durations (1) do not exceed pre-project runoff flow rates and durations for the range of runoff flows identified under section D.1.g.(1)(b), where the increased flow rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in the flow rates and durations, and (2) do not result in channel conditions which do not meet the channel standard developed under section D.1.g.(1)(a) for channel segments downstream of Priority Development Project discharge points.

(d) Include other performance criteria (numeric or otherwise) for Priority Development Projects as necessary to prevent urban runoff from the projects from increasing erosion of channel beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

(e) Include a review of pertinent literature.

(f) Include a protocol to evaluate potential hydrograph change impacts to downstream watercourses from Priority Development Projects.

(g) Include a description of how the Copermittees will incorporate the HMP requirements into their local approval processes.

[8] The identified range of runoff flows to be controlled should be expressed in terms of peak flow rates of rainfall events, such as "10% of the pre-project 2-year peak flow up to the pre-project 10-year peak flow."

(h) Include criteria on selection and design of management practices and measures (such as detention, retention, and infiltration) to control flow rates and durations and address potential hydromodification impacts.
(i) Include technical information supporting any standards and criteria proposed.
(j) Include a description of inspections and maintenance to be conducted for management practices and measures to control flow rates and durations and address potential hydromodification impacts.
(k) Include a description of pre- and post-project monitoring and other program evaluations to be conducted to assess the effectiveness of implementation of the HMP.
(l) Include mechanisms for addressing cumulative impacts within a watershed on channel morphology.
(m) Include information on evaluation of channel form and condition, including slope, discharge, vegetation, underlying geology, and other information, as appropriate.

(2) The HMP may include implementation of planning measures (e.g., buffers and restoration activities, including revegetation, use of less-impacting facilities at the point(s) of discharge, etc.) to allow expected changes in stream channel cross sections, vegetation, and discharge rates, velocities, and/or durations without adverse impacts to channel beneficial uses. Such measures shall not include utilization of non-naturally occurring hardscape materials such as concrete, riprap, gabions, etc.

(3) Section D.1.g.(1)(c) does not apply to Development Projects where the project discharges stormwater runoff into channels or storm drains where the pre-existing channel or storm drain conditions result in minimal potential for erosion or other impacts to beneficial uses. Such situations may include discharges into channels that are concrete-lined or significantly hardened (e.g., with rip-rap, sackrete, etc.) downstream to their outfall in bays or the ocean; underground storm drains discharging to bays or the ocean; and construction of projects where the sub-watersheds below the projects' discharge points are highly impervious (e.g., >70%) and the potential for single-project and/or cumulative impacts is minimal. Specific criteria for identification of such situations shall be included as a part of the HMP. However, plans to restore a channel reach may re-introduce the applicability of HMP controls, and would need to be addressed in the HMP.

(4) <u>HMP Reporting</u>

The Copermittees shall collaborate to report on HMP development as required in section J.2.a of this Order.

(5) <u>HMP Implementation</u>

180 days after approval of the HMP by the Regional Board, each Copermittee shall incorporate into its local SUSMP and implement the HMP for all applicable Priority Development Projects. Prior to approval of the HMP by the Regional Board, the early implementation of measures likely to be included in the HMP shall be encouraged by the Copermittees.

(6) Interim Hydromodification Criteria for Projects Disturbing 50 Acres or More

Within 365 days of adoption of this Order, the Copermittees shall collectively identify an interim range of runoff flow rates for which Priority Development Project post-project runoff flow rates and durations shall not exceed pre-project runoff flow rates and durations (Interim Hydromodification Criteria), where the increased discharge flow rates and durations will result in increased potential for erosion or other significant adverse impacts to beneficial uses, attributable to changes in flow rates and durations. Development of the Interim Hydromodification Criteria shall include identification of methods to be used by Priority Development Projects to exhibit compliance with the criteria, including continuous simulation of the entire rainfall record. Starting 365 days after adoption of this Order and until the final Hydromodification Management Plan standard and criteria are implemented, each Copermittee shall require Priority Development Projects disturbing 50 acres or more to implement hydrologic controls to manage post-project runoff flow rates and durations as required by the Interim Hydromodification Criteria. Development Projects disturbing 50 acres or more are exempt from this requirement when:

(a) The project would discharge into channels that are concrete-lined or significantly hardened (e.g., with rip-rap, sackcrete, etc.) downstream to their outfall in bays or the ocean;
(b) The project would discharge into underground storm drains discharging directly to bays or the ocean; or
(c) The project would discharge to a channel where the watershed areas below the project's discharge points are highly impervious (e.g. >70%).

h. ENFORCEMENT OF DEVELOPMENT SITES

Each Copermittee shall enforce its storm water ordinance for all Development Projects and at all development sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include appropriate sanctions to achieve compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit or occupancy denials for non-compliance.

2. Construction Component

Each Copermittee shall implement a construction program which meets the requirements of this section, reduces construction site discharges of pollutants from the MS4 to the MEP, and prevents construction site discharges from the MS4 from causing or contributing to a violation of water quality standards.

a. ORDINANCE UPDATE AND APPROVAL PROCESS

(1) Within 365 days of adoption of this Order, each Copermittee shall review and update its grading ordinances and other ordinances as necessary to achieve full compliance with this Order, including requirements for the implementation of all designated BMPs and other measures.

(2) Prior to approval and issuance of local construction and grading permits, each Copermittee shall:

(a) Require all individual proposed construction sites to implement designated BMPs and other measures so that pollutants discharged from the site will be reduced to the maximum extent practicable and will not cause or contribute to a violation of water quality standards.
(b) Prior to permit issuance, require and review the project proponent's storm water management plan to verify compliance with their grading ordinance, other ordinances, and this Order.
(c) Verify that project proponents subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, (hereinafter General Construction Permit), have existing coverage under the General Construction Permit.

b. SOURCE IDENTIFICATION

Each Copermittee shall maintain and update monthly a watershed based inventory of all construction sites within its jurisdiction. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended.

c. BMP IMPLEMENTATION

(1) Each Copermittee shall designate a minimum set of BMPs and other measures to be implemented at construction sites. The designated minimum set of BMPs shall include, at a minimum:

(a) General Site Management

i. Pollution prevention, where appropriate.
ii. Development and implementation of a storm water management plan.
iii. Minimization of areas that are cleared and graded to only the portion of the site that is necessary for construction;
iv. Minimization of exposure time of disturbed soil areas;
v. Minimization of grading during the wet season and correlation of grading with seasonal dry weather periods to the extent feasible.
vi. Limitation of grading to a maximum disturbed area as determined by each Copermittee before either temporary or permanent erosion controls are implemented to prevent storm water pollution. The Copermittee has the option of temporarily increasing the size of disturbed soil areas by a set amount beyond the maximum, if the individual site is in compliance with applicable storm water regulations and the site has adequate control practices implemented to prevent storm water pollution.
vii. Temporary stabilization and reseeding of disturbed soil areas as rapidly as feasible;
viii. Preservation of natural hydrologic features where feasible;
ix. Preservation of riparian buffers and corridors where feasible;
x. Maintenance of all BMPs, until removed; and
xi. Retention, reduction, and proper management of all pollutant discharges on site to the MEP standard.

(b) Erosion and Sediment Controls

i. Erosion prevention, to be used as the most important measure for keeping sediment on site during construction, but never as the single method;
ii. Sediment controls, to be used as a supplement to erosion prevention for keeping sediment on-site during construction;
iii. Slope stabilization on all inactive slopes during the rainy season and during rain events in the dry season;
iv. Slope stabilization on all active slopes during rain events regardless of the season; and
v. Permanent revegetation or landscaping as early as feasible.

(2) Each Copermittee shall require implementation of advanced treatment for sediment at construction sites that are determined by the Copermittee to be an exceptional threat to water quality. In evaluating the threat to water quality, the following factors shall be considered by the Copermittee:

(a) Soil erosion potential or soil type;
(b) The site's slopes;
(c) Project size and type;
(d) Sensitivity of receiving water bodies;
(e) Proximity to receiving water bodies;
(f) Non-storm water discharges;
(g) Ineffectiveness of other BMPs; and
(h) Any other relevant factors.

(3) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order at each construction site within its jurisdiction year round. However, BMP implementation requirements can vary based on wet and dry seasons. Dry season BMP implementation must plan for and address rain events that may occur during the dry season.

(4) Each Copermittee shall implement, or require implementation of, additional controls for construction sites tributary to CWA section 303(d) water body segments impaired for sediment as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for construction sites within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section Attachment C of this Order) as necessary to comply with this Order.

d. INSPECTION OF CONSTRUCTION SITES

Each Copermittee shall conduct construction site inspections for compliance with its local ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and this Order.

(1) During the wet season, each Copermittee shall inspect at least biweekly (every two weeks), all construction sites within its jurisdiction meeting the following

criteria:

(a) All sites 50 acres or more in size and grading will occur during the wet season;
(b) All sites 1 acre or more, and tributary to a CWA section 303(d) water body segment impaired for sediment or within or directly adjacent to or discharging directly to a receiving water within an ESA; and
(c) Other sites determined by the Copermittees or the Regional Board as a significant threat to water quality. In evaluating threat to water quality, the following factors shall be considered:

i. soil erosion potential;
ii. site slope;
iii. project size and type;
iv. sensitivity of receiving water bodies;
v. proximity to receiving water bodies;
vi. non-storm water discharges;
vii. past record of non-compliance by the operators of the construction site; and
viii. any other relevant factors.

(2) During the wet season, each Copermittee shall inspect at least monthly, all construction sites with one acre or more of soil disturbance not meeting the criteria specified above in section D.2.c.(1).

(3) During the wet season, each Copermittee shall inspect as needed, construction sites less than 1 acre in size.

(4) Each Copermittee shall inspect all construction sites as needed during the dry season.

(5) Based upon site inspection findings, each Copermittee shall implement all follow-up actions (i.e., reinspection, enforcement) necessary to comply with this Order.

(6) Inspections of construction sites shall include, but not be limited to:

(a) Check for coverage under the General Construction Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.) during initial inspections;
(b) Assessment of compliance with Permittee ordinances and permits related to urban runoff, including the implementation and maintenance of designated minimum BMPs;
(c) Assessment of BMP effectiveness;
(d) Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff;
(e) Education and outreach on storm water pollution prevention, as needed; and
(f) Creation of a written or electronic inspection report.

(7) The Copermittees shall track the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required.

e. ENFORCEMENT OF CONSTRUCTION SITES

Each Copermittee shall develop and implement an escalating enforcement process that achieves prompt corrective actions at construction sites for violations of the Copermittee's water quality protection permit requirements and ordinances. This enforcement process shall include authorizing the Copermittee's construction site inspectors to take immediate enforcement actions when appropriate and necessary. The enforcement process shall include appropriate sanctions such as stop work orders, non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

f. REPORTING OF NON-COMPLIANT SITES

In addition to the notification requirements in section 5(e) of Attachment B, each Copermittee shall notify the Regional Board when the Copermittee issues a stop work order or other high level enforcement to a construction site in their jurisdiction as a result of storm water violations.

3. Existing Development Component

a. MUNICIPAL

Each Copermittee shall implement a municipal program which meets the requirements of this section, reduces municipal discharges of pollutants from the MS4 to the MEP, and prevents municipal discharges from the MS4 from causing or contributing to a violation of water quality standards.

(1) Source Identification

Each Copermittee shall annually update a watershed based inventory of municipal areas and activities. The inventory shall include the name, address (if applicable), and a description of the area/activity, which pollutants are potentially generated by the area/activity, and identification of whether the area/activity is tributary to a CWA section 303(d) water body segment and generates pollutants for which the water body segment is impaired. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended when applicable, but not required.

(2) BMP Implementation

(a) Each Copermittee shall implement pollution prevention methods in its municipal program and shall require their use by appropriate municipal departments and personnel, where appropriate.

(b) Each Copermittee shall designate a minimum set of BMPs for all municipal areas and activities. The designated minimum BMPs for municipal areas and activities shall be area or activity specific as appropriate.

(c) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order for each municipal area or activity within its

jurisdiction.

(d) Each Copermittee shall evaluate existing flood control devices to determine if retrofitting the device to provide additional pollutant removal from urban runoff is feasible. When conducting flood control device retrofit projects, each Copermittee shall incorporate permanent pollutant removal measures into the projects, where feasible.

(e) Each Copermittee shall implement, or require implementation of, any additional controls for municipal areas and activities tributary to CWA section 303(d) impaired water body segments (where an area or activity generates pollutants for which the water body segment is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for municipal areas and activities within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order) as necessary to comply with this Order.

(f) Each Copermittee shall implement, or require implementation of, additional controls for special events within their jurisdiction that are expected to generate significant trash and litter. Controls to consider shall include:

i. Temporary screens on catch basins and storm drain inlets;
ii. Temporary fencing to prevent windblown trash from entering adjacent water bodies and MS4 channels;
iii. Proper management of trash and litter;
iv. Catch basin cleaning following the special event and prior to an anticipated rain event;
v. Street sweeping of roads, streets, highways and parking facilities following the special event; and
vi. Other equivalent controls.

(3) <u>Operation and Maintenance of Municipal Separate Storm Sewer System and Structural Controls</u>

(a) Each Copermittee shall implement a schedule of inspection and maintenance activities to verify proper operation of all municipal structural treatment controls designed to reduce pollutant discharges to or from its MS4s and related drainage structures.

(b) Each Copermittee shall implement a schedule of maintenance activities for the MS4 and MS4 facilities (catch basins, storm drain inlets, open channels, etc). The maintenance activities shall, at a minimum, include:

i. Inspection at least once a year between May 1 and September 30 of each year for all MS4 facilities that receive or collect high volumes of trash and debris. All other MS4 facilities shall be inspected at least annually throughout the year.
ii. Following two years of inspections, any MS4 facility that requires inspection and cleaning less than annually may be inspected as needed, but not less that every other year.

iii. Any catch basin or storm drain inlet that has accumulated trash and debris greater than 33% of design capacity shall be cleaned in a timely manner. Any MS4 facility that is designed to be self cleaning shall be cleaned of any accumulated trash and debris immediately. Open channels shall be cleaned of observed anthropogenic litter in a timely manner.
iv. Record keeping of the maintenance and cleaning activities including the overall quantity of waste removed.
v. Proper disposal of waste removed pursuant to applicable laws.
vi. Measures to eliminate waste discharges during MS4 maintenance and cleaning activities.

(4) Management of Pesticides, Herbicides, and Fertilizers

The Copermittees shall implement BMPs to reduce the contribution of pollutants associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from municipal areas and activities to MS4s. Important municipal areas and activities include municipal facilities, public rights-of-way, parks, recreational facilities, golf courses, cemeteries, botanical or zoological gardens and exhibits, landscaped areas, etc.

Such BMPs shall include, at a minimum: (1) educational activities, permits, certifications and other measures for municipal applicators and distributors; (2) integrated pest management measures that rely on non-chemical solutions; (3) the use of native vegetation; (4) schedules for irrigation and chemical application; and (5) the collection and proper disposal of unused pesticides, herbicides, and fertilizers.

(5) Sweeping of Municipal Areas

Each Copermittee shall implement a program to sweep improved (possessing a curb and gutter) municipal roads, streets, highways, and parking facilities. The program shall include the following measures:

(a) Roads, streets, highways, and parking facilities identified as consistently generating the highest volumes of trash and/or debris shall be swept at least two times per month.

(b) Roads, streets, highways, and parking facilities identified as consistently generating moderate volumes of trash and/or debris shall be swept at least monthly.

(c) Roads, streets, highways, and parking facilities identified as generating low volumes of trash and/or debris shall be swept as necessary, but no less than once per year.

(6) Infiltration From Sanitary Sewer to MS4/Provide Preventive Maintenance of Both

Each Copermittee shall implement controls and measures to prevent and eliminate infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Copermittee that

operates both a municipal sanitary sewer system and a MS4 shall implement controls and measures to prevent and eliminate infiltration of seepage from the municipal sanitary sewers to the MS4s that shall include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

(7) Inspection of Municipal Areas and Activities

(a) At a minimum, each Copermittee shall inspect the following high priority municipal areas and activities annually:

i. Roads, Streets, Highways, and Parking Facilities.
ii. Flood Management Projects and Flood Control Devices.
iii. Areas and activities tributary to a C WA section 303(d) impaired water body segment, where an area or activity generates pollutants for which the water body segment is impaired. Areas and activities within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).
iv. Municipal Facilities.
[1] Active or closed municipal landfills;
[2] Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewage collection systems;
[3] Solid waste transfer facilities;
[4] Land application sites;
[5] Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles; and
[6] Household hazardous waste collection facilities.
v. Municipal airfields.
vi. Parks and recreation facilities.
vii. Special event venues following special events (festivals, sporting events, etc.)
viii. Power washing.
ix. Other municipal areas and activities that the Copermittee determines may contribute a significant pollutant load to the MS4.

(b) Other municipal areas and activities shall be inspected as needed.

(c) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

(8) Enforcement of Municipal Areas and Activities

Each Copermittee shall enforce its storm water ordinance for all municipal areas and activities as necessary to maintain compliance with this Order.

b. INDUSTRIAL AND COMMERCIAL

Each Copermittee shall implement an industrial and commercial program which meets the requirements of this section, reduces industrial and commercial discharges of pollutants from the MS4 to the MEP, and prevents industrial and commercial discharges from the MS4 from causing or contributing to a violation of water quality standards.

(1) Source Identification

Each Copermittee shall annually update a watershed-based inventory of all industrial and commercial sites/sources within its jurisdiction (regardless of ownership) that could contribute a significant pollutant load to the MS4. The inventory shall include the following minimum information for each industrial and commercial site/source: name; address; pollutants potentially generated by the site/source (and identification of whether the site/source is tributary to a Clean Water Act section 303(d) water body segment and generates pollutants for which the water body segment is impaired); and a narrative description including SIC codes which best reflects the principal products or services provided by each facility. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended.

At a minimum, the following sites/sources shall be included in the inventory:

(a) Commercial Sites/Sources:

i. Automobile repair, maintenance, fueling, or cleaning;
ii. Airplane repair, maintenance, fueling, or cleaning;
iii. Boat repair, maintenance, fueling, or cleaning;
iv. Equipment repair, maintenance, fueling, or cleaning;
v. Automobile and other vehicle body repair or painting;
vi. Mobile automobile or other vehicle washing;
vii. Automobile (or other vehicle) parking lots and storage facilities;
viii. Retail or wholesale fueling;
ix. Pest control services;
x. Eating or drinking establishments, including food markets;
xi. Mobile carpet, drape or furniture cleaning;
xii. Cement mixing or cutting;
xiii. Masonry;
xiv. Painting and coating;
xv. Botanical or zoological gardens and exhibits;
xvi. Landscaping;
xvii. Nurseries and greenhouses;
xviii. Golf courses, parks and other recreational areas/facilities;
xix. Cemeteries;
xx. Pool and fountain cleaning;
xxi. Marinas;
xxii. Portable sanitary services;
xxiii. Building material retailers and storage;
xxiv. Animal facilities; and
xxv. Power washing services.

(b) Industrial Sites/Sources:

i. Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the General Industrial Permit or other individual NPDES permit;
ii. Operating and closed landfills;
iii. Facilities subject to SARA Title III; and

iv. Hazardous waste treatment, disposal, storage and recovery facilities.

(c) All other commercial or industrial sites/sources tributary to a CWA Section 303(d) impaired water body segment, where the site/source generates pollutants for which the water body segment is impaired. All other commercial or industrial sites/sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).

(d) All other commercial or industrial sites/sources that the Copermittee determines may contribute a significant pollutant load to the MS4.

(2) BMP Implementation

(a) Each Copermittee shall require the use of pollution prevention methods by industrial and commercial sites/sources, where appropriate.

(b) Each Copermittee shall designate a minimum set of BMPs for all industrial and commercial sites/sources. The designated minimum BMPs shall be specific to facility types and pollutant generating activities, as appropriate.

(c) Within the first three years of implementation of the updated Jurisdictional Urban Runoff Management Program, each Copermittee shall notify the owner/operator of each inventoried industrial and commercial site/source of the BMP requirements applicable to the site/source.

(d) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order at each industrial and commercial site/source within its jurisdiction.

(e) Each Copermittee shall implement, or require implementation of, additional controls for industrial and commercial sites/sources tributary to CWA section 303(d) impaired water body segments (where a site/source generates pollutants for which the water body segment is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for industrial and commercial sites/sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order) as necessary to comply with this Order.

(3) Inspection of Industrial and Commercial Sites/Sources

(a) Each Copermittee shall conduct industrial and commercial site inspections for compliance with its ordinances, permits, and this Order. Inspections shall include but not be limited to:

i. Review of BMP implementation plans, if the site uses or is required to use such a plan;
ii. Review of facility monitoring data, if the site monitors its runoff;

iii. Check for coverage under the General Industrial Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.), if applicable;
iv. Assessment of compliance with Copermittee ordinances and permits related to urban runoff;
v. Assessment of BMP implementation, maintenance and effectiveness;
vi. Visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and
vii. Education and training on storm water pollution prevention, as conditions warrant.

(b) At a minimum, 50% of all sites (excluding mobile sources) determined to pose a high threat to water quality shall be inspected in the first year of implementation of the updated Jurisdictional Urban Runoff Management Program, regardless of whether this exceeds the number of inspections required in section D.3.b.(3)(c). This requirement shall increase to 100% of the sites in the second year, and 100% annually thereafter. In any year that the total number of required inspection per section D.3.b.(3)(c) exceeds the number of high threat to water quality sites, all high threat to water quality sites shall be inspected. In evaluating threat to water quality, each Copermittee shall address, at a minimum, the following:

i. Type of activity (SIC code);
ii. Materials used at the facility;
iii. Wastes generated;
iv. Pollutant discharge potential;
v. Non-storm water discharges;
vi. Size of facility;
vii. Proximity to receiving water bodies;
viii. Sensitivity of receiving water bodies;
ix. Whether the facility is subject to the General Industrial Permit or an individual NPDES permit;
x. Whether the facility has filed a No Exposure Certification/Notice of Non-Applicability;
xi. Facility design;
xii. Total area of the site, area of the site where industrial or commercial activities occur, and area of the site exposed to rainfall and runoff;
xiii. The facility's compliance history; and
xiv. Any other relevant factors.

(c) At a minimum, 20% of the sites inventoried as required in section D.3.b.(1) above (excluding mobile sources) shall be inspected in the first year of implementation of the updated Jurisdictional Urban Runoff Management Program. This requirement shall increase to 25% of the sites in the second year, and 25% annually thereafter.

(d) Each Copermittee may develop and implement a third party inspection program for verifying industrial and commercial site/source compliance with its ordinances, permits, and this Order. The third party inspections can satisfy up to 30% of the inspection requirements in section D.3.b(3)(c), with the Copermittee having to fulfill the remaining required inspections. To the extent that third party inspections are conducted to fulfill the requirements of

section D.3.b(3)(c), the Copermittee will be responsible for the inspection of an additional site for every three sites inspected by a third party. The additional inspections may be conducted by the Copermittee or a third party inspector. The Copermittees third party inspection program must include the following:

i. A description of facility types proposed to be inspected by third parties, including SIC codes;
ii. A third party inspector certification program;
iii. The inspection requirements described in section D.3.b.(3)(a);
iv. Inspection form templates for third party inspector use;
v. Photo documentation of potential storm water violations identified during the third party inspection;
vi. An annual Copermittee audit of random, representative sites that were inspected by a third party;
vii. An annual Copermittee audit of random, representative third party inspectors;
viii. Reporting to the Copermittee of identified significant potential violations within 24 hours of the third party inspection;
ix. Reporting to the Copermittee of all inspection findings within one week of the inspection being conducted; and
x. Copermittee follow-up and/or enforcement actions for identified potential storm water violations within 2 business days of the inspection or potential violation report receipt.

(e) Based upon site inspection findings, each Copermittee shall implement all follow-up actions and enforcement necessary to comply with this Order.

(f) To the extent that the Regional Board has conducted an inspection of an industrial site during a particular year, the requirement for the responsible Copermittee to inspect this facility during the same year will be satisfied.

(g) The Copermittees shall track the number of inspections for the inventoried industrial and commercial sites/sources throughout the reporting period to verify that the sites/sources are inspected at the minimum frequencies listed in sections D.3.b.(3)(b) and D.3.b.(3)(c).

(4) Regulation of Mobile Businesses

(a) Each Copermittee shall develop and implement a program to reduce the discharge of pollutants from mobile businesses to the MEP. Each Copermittee shall keep as part of their inventory (section D.3.b.(1) above), a listing of mobile businesses known to operate within its jurisdiction. The program shall include:

i. Development and implementation of minimum standards and BMPs to be required for each of the various types of mobile businesses.
ii. Development and implementation of an enforcement strategy which specifically addresses the unique characteristics of mobile businesses.
iii. Notification of those mobile businesses known to operate within the Copermittee's jurisdiction of the minimum standards and BMP requirements and local ordinances.

iv. Development and implementation of an outreach and education strategy.
v. Inspection of mobile businesses as needed.

(b) If they choose to, the Copermittees may cooperate in developing and implementing their programs for mobile businesses, including sharing of mobile business inventories, BMP requirements, enforcement action information, and education.

(5) Enforcement of Industrial and Commercial Sites/Sources

Each Copermittee shall enforce its storm water ordinance for all industrial and commercial sites/sources as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include appropriate sanctions to achieve compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

(6) Reporting of Industrial Non-Filers

As part of each Annual Report, each Copermittee shall report a list of industrial sites, including the name, address, and SIC code, that may require coverage under the General Industrial Permit for which a NOI has not been filed.

c. RESIDENTIAL

Each Copermittee shall implement a residential program which meets the requirements of this section, reduces residential discharges of pollutants from the MS4 to the MEP, and prevents residential discharges from the MS4 from causing or contributing to a violation of water quality standards.

(1) Threat to Water Quality Prioritization

Each Copermittee shall identify high threat to water quality residential areas and activities. At a minimum, these shall include:

(a) Automobile repair, maintenance, washing, and parking;
(b) Home and garden care activities and product use (pesticides, herbicides, and fertilizers);
(c) Disposal of trash, pet waste, green waste, and household hazardous waste (e.g., paints, cleaning products);
(d) Any other residential source that the Copermittee determines may contribute a significant pollutant load to the MS4;
(e) Any residential areas tributary to a CWA section 303(d) impaired water body, where the residence generates pollutants for which the water body is impaired; and
(f) Any residential areas within or directly adjacent to or discharging directly to a coastal lagoon or other receiving waters within an environmentally sensitive area (as defined in Attachment C of this Order).

(2) BMP Implementation

(a) Each Copermittee shall designate minimum BMPs for high threat to water quality residential areas and activities. The designated minimum BMPs for high threat to water quality municipal areas and activities shall be area or activity specific.
(b) Each Copermittee shall encourage the use of pollution prevention methods by residents, where appropriate.
(c) Each Copermittee shall facilitate the proper management and disposal of used oil, toxic materials, and other household hazardous wastes. Such facilitation shall include educational activities, public information activities, and establishment of collection sites operated by the Copermittee or a private entity. Curbside collection of household hazardous wastes is encouraged.
(d) Each Copermittee shall implement, or require implementation of, the designated minimum BMPs and any additional measures necessary to comply with this Order for high threat to water quality residential areas and activities.
(e) Each Copermittee shall implement, or require implementation of, BMPs for residential areas and activities that have not been designated a high threat to water quality, as necessary.
(f) Each Copermittee shall implement, or require implementation of, any additional controls for residential areas and activities tributary to CWA section 303(d) impaired water body segments (where a residential area or activity generates pollutants for which the water body segment is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for residential areas within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section Attachment C of this Order) as necessary to comply with this Order.

(3) Enforcement of Residential Areas and Activities

Each Copermittee shall enforce its storm water ordinance for all residential areas and activities as necessary to maintain compliance with this Order.

(4) Evaluation of Oversight of Residential Areas and Activities

The Copermittees are encouraged to individually or collectively evaluate their methods used for oversight of residential areas and activities, including assessment of inspections of residential areas and activities. The evaluation should consider various oversight and inspection approaches to identify an effective and appropriate oversight and inspection approach for residential areas and activities.

(5) Regional Residential Education Program

Each Copermittee shall collaborate with the other Copermittees to develop and implement the Regional Residential Education Program required in section F.1 of this Order.

4. Illicit Discharge Detection and Elimination Component

Each Copermittee shall implement an Illicit Discharge Detection and Elimination program which meets the requirements of this section and actively seeks and eliminates illicit discharges and connections.

a. ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall include utilization of appropriate municipal personnel to assist in identifying illicit discharges and connections during their daily activities. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with section B of this Order.

b. DEVELOP/MAINTAIN MS4 MAP

Each Copermittee shall develop and/or update its labeled map of its entire MS4 and the corresponding drainage areas within its jurisdiction. The use of a GIS is highly recommended. The accuracy of the MS4 map shall be confirmed during dry weather field screening and analytical monitoring and shall be updated at least annually.

c. DRY WEATHER FIELD SCREENING AND ANALYTICAL MONITORING

Each Copermittee shall conduct dry weather field screening and analytical monitoring of MS4 outfalls and other portions of its MS4 within its jurisdiction to detect illicit discharges and connections in accordance with Receiving Waters and Urban Runoff Monitoring and Reporting Program No. R9-2007-0001.

d. INVESTIGATION/INSPECTION AND FOLLOW-UP

(1) Each Copermittee shall investigate and inspect any portion of the MS4 that, based on visual observations, dry weather field screening and analytical monitoring results, or other appropriate information, indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water (including non-prohibited discharge(s) identified in section B of this Order). Each Copermittee shall develop/update and utilize numeric criteria action levels (or other actions level criteria where appropriate) to determine when follow-up investigations will be performed.

(2) Within two business days of receiving dry weather field screening results that exceed action levels, the Copermittees shall either conduct an investigation to identify the source of the discharge or provide the rationale for why the discharge does not pose a threat to water quality and does not need further investigation. Within two business days, where applicable, of receiving analytical laboratory results that exceed action levels, the Copermittees shall either conduct an investigation to identify the source of the discharge or provide the rationale for why the discharge does not pose a threat to water quality and does not need further investigation. Obvious illicit discharges (i.e. color, odor, or significant exceedances of action levels) shall be investigated immediately.

e. ELIMINATION OF ILLICIT DISCHARGES AND CONNECTIONS

Each Copermittee shall take immediate action to eliminate all detected illicit discharges, illicit discharge sources, and illicit connections as soon as possible after detection. Elimination measures may include an escalating series of enforcement actions for those illicit discharges that are not a serious threat to public health or the environment. Illicit discharges that pose a serious threat to the public's health or the environment must be eliminated immediately.

f. ENFORCE ORDINANCES

Each Copermittee shall implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4. Each Copermittee shall also implement and enforce its ordinance, orders, or other legal authority to eliminate detected illicit discharges and connections to it MS4.

g. PREVENT AND RESPOND TO SEWAGE SPILLS (INCLUDING FROM PRIVATE LATERALS AND FAILING SEPTIC SYSTEMS) AND OTHER SPILLS

Each Copermittee shall prevent, respond to, contain and clean up all sewage and other spills that may discharge into its MS4 from any source (including private laterals and failing septic systems). Spill response teams shall prevent entry of spills into the MS4 and contamination of surface water, ground water and soil to the maximum extent practicable. Each Copermittee shall coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies so that maximum water quality protection is available at all times.

Each Copermittee shall develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee shall prevent, respond to, contain and clean up sewage from any such notification.

h. FACILITATE PUBLIC REPORTING OF ILLICIT DISCHARGES AND CONNECTIONS - PUBLIC HOTLINE

Each Copermittee shall promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s. Each Copermittee shall facilitate public reporting through development and operation of a public hotline. Public hotlines can be Copermittee-specific or shared by Copermittees. All storm water hotlines shall be capable of receiving reports in both English and Spanish 24 hours per day / seven days per week. Copermittees shall respond to and resolve each reported incident in a timely manner. All reported incidents, and how each was resolved, shall be summarized in each Copermittee's individual JURMP Annual Report.

5. Education Component

Each Copermittee shall implement an education program using all media as appropriate to (1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment. At a minimum, the education

program shall meet the requirements of this section and address the following target communities:

- Municipal Departments and Personnel
- Construction Site Owners and Developers
- Industrial Owners and Operators
- Commercial Owners and Operators
- Residential Community, General Public, and School Children

a. GENERAL REQUIREMENTS

(1) Each Copermittee shall educate each target community on the following topics where appropriate:

Table 3. Education

Laws, Regulations, Permits, & Requirements	**Best Management Practices**
• Federal, state, and local water quality laws and regulations • Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction). • Statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities • Regional Board's General NPDES Permit for Ground Water Dewatering • Regional Board's 401 Water Quality Certification Program • Statewide General NPDES Utility Vault Permit • Requirements of local municipal permits and ordinances (e.g., storm water and grading ordinances and permits)	• Pollution prevention and safe alternatives • Good housekeeping (e.g., sweeping impervious surfaces instead of hosing) • Proper waste disposal (e.g., garbage, pet/animal waste, green waste, household hazardous materials, appliances, tires, furniture, vehicles, boat/recreational vehicle waste, catch basin/ MS4 cleanout waste) • Non-storm water disposal alternatives (e.g., all wash waters) • Methods to minimized the impact of land development and construction • Erosion prevention • Methods to reduce the impact of residential and charity car-washing • Preventive Maintenance • Equipment/vehicle maintenance and repair • Spill response, containment, and recovery • Recycling • BMP maintenance
General Urban Runoff Concepts	**Other Topics**
• Impacts of urban runoff on receiving waters • Distinction between MS4s and sanitary sewers • BMP types: facility or activity specific, LID, source control, and treatment control • Short- and long-term water quality impacts associated with urbanization (e.g., land-use decisions, development, construction) • Non-storm water discharge prohibitions • How to conduct a storm water inspections	• Public reporting mechanisms • Water quality awareness for Emergency/ First Responders • Illicit Discharge Detection and Elimination observations and follow-up during daily work activities • Potable water discharges to the MS4 • Dechlorination techniques • Hydrostatic testing • Integrated pest management • Benefits of native vegetation • Water conservation

	• Alternative materials and designs to maintain peak runoff values • Traffic reduction, alternative fuel use

(2) Copermittee educational programs shall emphasize underserved target audiences, high-risk behaviors, and "allowable" behaviors and discharges, including various ethnic and socioeconomic groups and mobile sources.

b. SPECIFIC REQUIREMENTS

(1) Municipal Departments and Personnel Education

(a) Municipal Development Planning – Each Copermittee shall implement an education program so that its planning and development review staffs (and Planning Boards and Elected Officials, if applicable) have an understanding of:

i. Federal, state, and local water quality laws and regulations applicable to Development Projects;
ii. The connection between land use decisions and short and long-term water quality impacts (i.e., impacts from land development and urbanization);
iii. How to integrate LID BMP requirements into the local regulatory program(s) and requirements; and
iv. Methods of minimizing impacts to receiving water quality resulting from development, including:
[1] Storm water management plan development and review;
[2] Methods to control downstream erosion impacts;
[3] Identification of pollutants of concern;
[4] LID BMP techniques;
[5] Source control BMPs; and
[6] Selection of the most effective treatment control BMPs for the pollutants of concern.

(b) Municipal Construction Activities – Each Copermittee shall implement an education program that includes annual training prior to the rainy season so that its construction, building, code enforcement, and grading review staffs, inspectors, and other responsible construction staff have, at a minimum, an understanding of the following topics, as appropriate for the target audience:

i. Federal, state, and local water quality laws and regulations applicable to construction and grading activities.
ii. The connection between construction activities and water quality impacts (i.e., impacts from land development and urbanization and impacts from construction material such as sediment).
iii. Proper implementation of erosion and sediment control and other BMPs to minimize the impacts to receiving water quality resulting from construction activities.
iv. The Copermittee's inspection, plan review, and enforcement policies and procedures to verify consistent application.
v. Current advancements in BMP technologies.

vi. SUSMP Requirements including treatment options, LID BMPs, source control, and applicable tracking mechanisms.

(c) Municipal Industrial/Commercial Activities - Each Copermittee shall train staff responsible for conducting storm water compliance inspections and enforcement of industrial and commercial facilities at least once a year. Training shall cover inspection and enforcement procedures, BMP implementation, and reviewing monitoring data.

(d) Municipal Other Activities – Each Copermittee shall implement an education program so that municipal personnel and contractors performing activities which generate pollutants have an understanding of the activity specific BMPs for each activity to be performed.

(2) New Development and Construction Education

As early in the planning and development process as possible and all through the permitting and construction process, each Copermittee shall implement a program to educate project applicants, developers, contractors, property owners, community planning groups, and other responsible parties. The education program shall provide an understanding of the topics listed in Sections D.5.b.(1)(a) and D.5.b.(1)(b) above, as appropriate for the audience being educated. The education program shall also educate project applicants, developers, contractors, property owners, and other responsible parties on the importance of educating all construction workers in the field about stormwater issues and BMPs though formal or informal training.

(3) Residential, General Public, and School Children Education

Each Copermittee shall collaboratively conduct or participate in development and implementation of a plan to educate residential, general public, and school children target communities. The plan shall evaluate use of mass media, mailers, door hangers, booths at public events, classroom education, field trips, hands-on experiences, or other educational methods.

6. Public Participation Component

Each Copermittee shall incorporate a mechanism for public participation in the updating, development, and implementation of the Jurisdictional Urban Runoff Management Program.

E. WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM

1. Each Copermittee shall implement all requirements of section E of this Order no later than 365 days after adoption of this Order, unless otherwise specified in this Order. Prior to 365 days after adoption of this Order, each Copermittee shall collaborate with the other Copermittees within its Watershed Management Area(s) (WMA) to at a minimum implement its Watershed URMP document, as the document was developed and amended to comply with the requirements of Order No. 2001-01.

2. Each Copermittee shall collaborate with other Copermittees within its WMA(s) as shown in Table 4 below to develop and implement an updated Watershed Urban Runoff

Management Program for each watershed. Each updated Watershed Urban Runoff Management Program shall meet the requirements of section E of this Order, reduce the discharge of pollutants from the MS4 to the MEP, and prevent urban runoff discharges from the MS4 from causing or contributing to a violation of water quality standards. At a minimum, each Watershed Urban Runoff Management Program shall include the elements described below:

a. Lead Watershed Permittee Identification

Watershed Copermittees shall identify the Lead Watershed Permittee for their WMA. In the event that a Lead Watershed Permittee is not selected and identified by the Watershed Copermittees, by default the Copermittee identified in Table 4 as the Lead Watershed Permittee for that WMA shall be responsible for implementing the requirements of the Lead Watershed Permittee in that WMA. The Lead Watershed Copermittees shall serve as liaisons between the Copermittees and Regional Board, where appropriate.

b. Watershed Map

Watershed Copermittees shall develop and periodically update a map of the WMA to facilitate planning, assessment, and collaborative decision-making. As determined appropriate, the map shall include features such as receiving waters (including the Pacific Ocean); Clean Water Act section 303(d) impaired receiving waters; land uses, MS4s; major highways; jurisdictional boundaries; and inventoried commercial, industrial, and municipal sites.

c. Watershed Water Quality Assessment

Watershed Copermittees shall annually assess the water quality of receiving waters in their WMA. This assessment shall use applicable water quality data, reports, and analysis generated in accordance with the requirements of the Receiving Waters Monitoring and Reporting Program, as well as applicable information available from other public and private organizations.

The assessment and analysis shall annually identify the WMA's water quality problems that are partially or fully attributable to MS4 discharges. Identified water quality problems shall include CWA section 303(d) listings, persistent violations of water quality standards, toxicity, impacts to beneficial uses, and other pertinent conditions. From the list of water quality problems, the high priority water quality problems of the WMA shall be identified, which shall include those water quality problems which most significantly exceed or impact water quality standards (water quality objectives and beneficial uses).

The assessment shall include annual identification of the likely sources of the WMA's high priority water quality problems.

d. Watershed-based Land Use Planning

The Watershed Copermittees shall develop, implement, and modify, as necessary, a program for encouraging collaborative, watershed-based, land use planning in their jurisdictional planning departments.

e. Watershed Strategy

Watershed Copermittees shall develop and implement a collective watershed strategy to abate the sources and reduce the discharge of pollutants causing the high priority water quality problems of the WMA. The strategy shall guide Watershed Copermittee selection and implementation of Watershed Activities, so that the Watershed Activities selected and implemented are appropriate for each Watershed Copermittee's contribution to the WMA's high priority water quality problems.

f. Watershed Activities

(1) The Watershed Copermittees shall identify and implement Watershed Activities that address the high priority water quality problems in the WMA. Watershed Activities shall include both Watershed Water Quality Activities and Watershed Education Activities. These activities may be implemented individually or collectively, and may be implemented at the regional, watershed, or jurisdictional level.

(a) Watershed Water Quality Activities are activities other than education that address the high priority water quality problems in the WMA. A Watershed Water Quality Activity implemented on a jurisdictional basis must be organized and implemented to target a watershed's high priority water quality problems or must exceed the baseline jurisdictional requirements of section D of this Order.
(b) Watershed Education Activities are outreach and training activities that address high priority water quality problems in the WMA.

(2) A Watershed Activities List shall be submitted with each updated WURMP and updated annually thereafter. The Watershed Activities List shall include both Watershed Water Quality Activities and Watershed Education Activities, along with a description of how each activity was selected, and how all of the activities on the list will collectively abate sources and reduce pollutant discharges causing the identified high priority water quality problems in the WMA.

(3) Each activity on the Watershed Activities List shall include the following information:

(a) A description of the activity;
(b) A time schedule for implementation of the activity, including key milestones;
(c) An identification of the specific responsibilities of Watershed Copermittees in completing the activity;
(d) A description of how the activity will address the identified high priority water quality problem(s) of the watershed;
(e) A description of how the activity is consistent with the collective watershed strategy;
(f) A description of the expected benefits of implementing the activity; and
(g) A description of how implementation effectiveness will be measured.

(4) Each Watershed Copermittee shall implement identified Watershed Activities pursuant to established schedules. For each Permit year, no less than two Watershed Water Quality Activities and two Watershed Education Activities shall be in an active implementation phase. A Watershed Water Quality Activity

is in an active implementation phase when significant pollutant load reductions, source abatement, or other quantifiable benefits to discharge or receiving water quality can reasonably be established in relation to the watershed's high priority water quality problem(s). Watershed Water Quality Activities that are capital projects are in active implementation for the first year of implementation only. A Watershed Education Activity is in an active implementation phase when changes in attitudes, knowledge, awareness, or behavior can reasonably be established in target audiences.

g. Copermittee Collaboration

Watershed Copermittees shall collaborate to develop and implement the Watershed Urban Runoff Management Programs. Watershed Copermittee collaboration shall include frequent regularly scheduled meetings.

h. Public Participation

Watershed Copermittees shall implement a watershed-specific public participation mechanism within each watershed. The mechanism shall encourage participation from other organizations within the watershed (such as the Department of Defense, Caltrans, lagoon foundations, etc.)

i. WURMP Review and Updates

Each WURMP shall be reviewed annually to identify needed modifications and improvements. Pursuant to the requirements of Section I.2.b of this Order the Watershed Copermittees shall develop and implement a plan and schedule to address the identified modifications and improvements. All updates to the WURMP shall be documented in the Watershed Urban Runoff Management Program Annual Reports. Individual Watershed Copermittees shall also review and modify their jurisdictional activities and JURMPs as necessary so that they are consistent with the requirements of the WURMP.

Table 4. Watershed Management Areas and Watershed Copermittees

RESPONSIBLE WATERSHED COPERMITTEE(S)	WATERSHED MANAGEMENT AREA	HYDROLOGIC UNIT OR AREA	MAJOR RECEIVING WATER BODIES
1. County of San Diego	Santa Margarita River	Santa Margarita HU (902.00)	Santa Margarita River and Estuary, Pacific Ocean
2. City of Oceanside 3. City of Vista 4. County of San Diego	San Luis Rey River	San Luis Rey HU (903.00)	San Luis Rey River and Estuary, Pacific Ocean
1. City of Carlsbad **2. City of Encinitas** 3. City of Escondido 4. City of Oceanside 5. City of San Marcos 6. City of Solana Beach 7. City of Vista 8. County of San Diego	Carlsbad	Carlsbad HU (904.00)	Batiquitos Lagoon San Elijo Lagoon Agua Hedionda Lagoon Buena Vista Lagoon and Tributary Streams Pacific Ocean
1. City of Del Mar 2. **City of Escondido** 3. City of Poway 4. City of San Diego 5. City of Solana Beach 6. County of San Diego	San Dieguito River	San Dieguito HU (905.00)	San Dieguito River and Estuary Pacific Ocean

RESPONSIBLE WATERSHED COPERMITTEE(S)	WATERSHED MANAGEMENT AREA	HYDROLOGIC UNIT OR AREA	MAJOR RECEIVING WATER BODIES
1. City of Del Mar **2. City of Poway** 3. City of San Diego 4. County of San Diego	Peñasquitos	Miramar Reservoir HA (906.10) Poway HA (906.20)	Los Peñasquitos Creek Los Peñasquitos Lagoon Pacific Ocean
1. City of San Diego	Mission Bay	Scripps HA (906.30) Miramar HA(906.40) Tecolote HA (906.50)	Mission Bay Pacific Ocean
1. City of El Cajon 2. City of La Mesa 3. City of San Diego 4. City of Santee 5. County of San Diego	San Diego River	San Diego HU (907.00)	San Diego River Pacific Ocean
1. City of Chula Vista 2. City of Coronado 3. City of Imperial Beach 4. City of La Mesa 5. City of Lemon Grove 6. City of National City 7. City of San Diego 8. County of San Diego **9. San Diego Unified Port District** 10. San Diego County Regional Airport Authority	San Diego Bay	Pueblo San Diego HU (908.00) Sweetwater HU (909.00) Otay HU (910.00)	San Diego Bay Sweetwater River Otay River Pacific Ocean
1. City of Imperial Beach 2. City of San Diego **3. County of San Diego**	Tijuana River	Tijuana (911.00)	Tijuana River and Estuary Pacific Ocean

- The Lead Watershed Permittee for each watershed is highlighted

F. REGIONAL URBAN RUNOFF MANAGEMENT PROGRAM

The Copermittees shall implement all requirements of section F of this Order no later than 365 days after adoption of this Order, unless otherwise specified in this Order.

Each Copermittee shall collaborate with the other Copermittees to develop, implement, and update as necessary a Regional Urban Runoff Management Program. The Regional Urban Runoff Management Program shall meet the requirements of section F of this Order, reduce the discharge of pollutants from the MS4 to the MEP, and prevent urban runoff discharges from the MS4 from causing or contributing to a violation of water quality standards. The Regional Urban Runoff Management Program shall, at a minimum:

1. Develop and implement a Regional Residential Education Program. The program shall include:
   a. Pollutant specific education which focuses educational efforts on bacteria, nutrients, sediment, pesticides, and trash. If a different pollutant is determined to be more critical for the education program, the pollutant can be substituted for one of these pollutants.
   b. Education efforts focused on the specific residential sources of the pollutants listed in section F.1.a.
2. Develop the standardized fiscal analysis method required in section G of this Order.
3. Facilitate the assessment of the effectiveness of jurisdictional, watershed, and regional programs.

As options, the Regional Urban Runoff Management Program may:

1. Develop and implement urban runoff management activities on a regional level, as determined to be necessary by the Copermittees.

2. Develop and implement a strategy to integrate management, implementation, and reporting of jurisdictional, watershed, and regional activities, as determined to be necessary by the Copermittees. Any such integration shall assure compliance with the jurisdictional requirements of section D and the watershed requirements of section E.
3. Facilitate TMDL management and implementation, as determined to be necessary by the Copermittees.
4. Facilitate development of strategies for implementation of activities on a watershed level, as determined to be necessary by the Copermittees.

G. FISCAL ANALYSIS

1. Each Copermittee shall secure the resources necessary to meet all requirements of this Order.

2. As part of the Regional Urban Runoff Management Program, the Copermittees shall collectively develop a standardized method and format for annually conducting and reporting fiscal analyses of their urban runoff management programs in their entirety (including jurisdictional, watershed, and regional activities). This standardized method shall:

   a. Identify the various categories of expenditures attributable to the urban runoff management programs, including a description of the specific items to be accounted for in each category of expenditures.
   b. Identify expenditures that contribute to multiple programs or were in existence prior to implementation of the urban runoff management program.
   c. Identify a metric or metrics to be used to report program component and total program expenditures.

3. Each Copermittee shall conduct an annual fiscal analysis. Starting January 31, 2010, the annual fiscal analysis shall be conducted consistent with the standardized fiscal analysis method included in the January 31, 2009 Regional Urban Runoff Management Program Annual Report. The annual fiscal analysis shall be conducted and reported on as part of each Copermittee's Jurisdictional Urban Runoff Management Program Annual Reports. For convenience, the fiscal analysis included in the Jurisdictional Urban Runoff Management Program Annual Reports shall address the Copermittee's urban runoff management programs in their entirety, including jurisdictional, watershed, and regional activities. The fiscal analysis shall provide the Copermittee's urban runoff management program budget for the current reporting period. The fiscal analysis shall include a description of the source(s) of the funds that are proposed to be used to meet the necessary expenditures, including legal restrictions on the use of such funds.

H. TOTAL MAXIMUM DAILY LOADS

1. Chollas Creek Diazinon TMDL Water Quality Based Effluent Limits (WQBELs)

   a. The Copermittees in the Chollas Creek watershed shall implement BMPs capable of achieving the interim and final diazinon Waste Load Allocation (WLA) concentration in the storm water discharge in Chollas Creek listed in Table 5.

Table 5. Chollas Creek Diazinon Schedule

Calendar Year	Year	Waste Load Allocation	Interim TMDL Numeric Target	% Reduction
2004	1	0.460 µg/L	0.5 µg/L	0
2005	2	0.460 µg/L	0.5 µg/L	0
2006	3	0.460 µg/L	0.5 µg/L	0
2007	4	0.414 µg/L	0.45 µg/L	10
2008	5	0.322 µg/L	0.35 µg/L	20
2009	6	0.184 µg/L	0.20 µg/L	30
2010	7	0.045 µg/L	0.05 µg/L	30

b. The Copermittees in the Chollas Creek watershed shall not cause or contribute to the violation of the Interim TMDL Numeric Targets in Chollas Creek as listed in Table 5. If the Interim TMDL Numeric Target is violated in Chollas Creek in more than one sample in any three consecutive years, the Copermittees shall submit a report that either 1) documents compliance with the WLA through additional sampling of the urban runoff discharge or 2) demonstrates, using modeling or other technical or scientific basis, the effectiveness of additional BMPs that will be implemented to achieve the WLA. The report may be incorporated into the Watershed Urban Runoff Management Program Annual Report unless the Regional Board directs an earlier submittal. The report shall include an implementation schedule.

c. The Copermittees in the Chollas Creek watershed shall implement the Diazinon Toxicity Control Plan and Diazinon Public Outreach/Education Program as described in the report titled, "Technical Report for Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County, August 14, 2002," including subsequent modifications, in order to achieve the WLA listed in Table 5.

2. Shelter Island Yacht Basin WQBELs

a. The Copermittees in the Shelter Island Yacht Basin watershed shall implement BMPs to maintain a total annual copper discharge load of less than or equal to 30 kg copper / year.

b. The Copermittees in the Shelter Island Yacht Basin watershed shall implement, at a minimum, the BMPs included in the Copermittees' Jurisdictional Urban Runoff Management Plan, including subsequent modifications, which address the discharge of copper to achieve the annual copper load in Section H.2.a above.

I. PROGRAM EFFECTIVENESS ASSESSMENT

1. Jurisdictional

a. As part of its Jurisdictional Urban Runoff Management Program, each Copermittee shall annually assess the effectiveness of its Jurisdictional Urban Runoff Management Program implementation. At a minimum, the annual effectiveness assessment shall:

(1) Specifically assess the effectiveness of each of the following:

(a) Each significant jurisdictional activity/BMP or type of jurisdictional activity/BMP implemented;
(b) Implementation of each major component of the Jurisdictional Urban Runoff Management Program (Development Planning, Construction, Municipal, Industrial/Commercial, Residential, Illicit Discharge Detection and Elimination, and Education); and
(c) Implementation of the Jurisdictional Urban Runoff Management Program as a whole.

(2) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in section I.1.a.(1) above.

(3) Utilize outcome levels 1-6[9] to assess the effectiveness of each of the items listed in section I.1.a.(1) above, where applicable and feasible.

(4) Utilize monitoring data and analysis from the Receiving Waters Monitoring Program to assess the effectiveness each of the items listed in section I.1.a.(1) above, where applicable and feasible.

(5) Utilize Implementation Assessment, Water Quality Assessment, and Integrated Assessment, where applicable and feasible.[10]

b. Based on the results of the effectiveness assessment, each Copermittee shall annually review its jurisdictional activities or BMPs to identify modifications and improvements needed to maximize Jurisdictional Urban Runoff Management Program effectiveness, as necessary to achieve compliance with section A of this Order. The Copermittees shall develop and implement a plan and schedule to address the identified modifications and improvements. Jurisdictional activities/BMPs that are ineffective or less effective than other comparable jurisdictional activities/BMPs shall be replaced or improved upon by implementation of more effective jurisdictional activities/BMPs. Where monitoring data exhibits persistent water quality problems that are caused or contributed to by MS4 discharges, jurisdictional activities or BMPs applicable to the water quality problems shall be modified and improved to correct the water quality problems.

c. As part of its Jurisdictional Urban Runoff Management Program Annual Reports, each Copermittee shall report on its Jurisdictional Urban Runoff Management Program effectiveness assessment as implemented under each of the requirements of sections I.1.a and I.1.b above.

2. Watershed

a. As part of its Watershed Urban Runoff Management Program, each watershed group of Copermittees (as identified in Table 4) shall annually assess the effectiveness of its Watershed Urban Runoff Management Program implementation. At a minimum, the annual effectiveness assessment shall:

(1) Specifically assess the effectiveness of each of the following:

[9] Effectiveness assessment outcome levels are defined in Attachment C of this Order.
[10] Implementation Assessment, Water Quality Assessment, and Integrated Assessment are defined in Attachment C of this Order.

(a) Each Watershed Water Quality Activity implemented;
(b) Each Watershed Education Activity implemented; and
(c) Implementation of the Watershed Urban Runoff Management Program as a whole.

(2) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in section I.2.a.(1) above.

(3) Utilize outcome levels 1-6 to assess the effectiveness of each of the items listed in sections I.2.a.(1)(a) and I.2.a.(1)(b) above, where applicable and feasible.

(4) Utilize outcome levels 1-4 to assess the effectiveness of implementation of the Watershed Urban Runoff Management Program as a whole, where applicable and feasible.

(5) Utilize outcome levels 5 and 6 to qualitatively assess the effectiveness of implementation of the Watershed Urban Runoff Management Program as a whole, focusing on the high priority water quality problem(s) of the watershed. These assessments shall attempt to exhibit the impact of Watershed Urban Runoff Management Program implementation on the high priority water quality problem(s) within the watershed.

(6) Utilize monitoring data and analysis from the Receiving Waters Monitoring Program to assess the effectiveness each of the items listed in section I.2.a.(1) above, where applicable and feasible.

(7) Utilize Implementation Assessment, Water Quality Assessment, and Integrated Assessment, where applicable and feasible.

b. Based on the results of the effectiveness assessment, the watershed Copermittees shall annually review their Watershed Water Quality Activities, Watershed Education Activities, and other aspects of the Watershed Urban Runoff Management Program to identify modifications and improvements needed to maximize Watershed Urban Runoff Management Program effectiveness, as necessary to achieve compliance with section A of this Order. The Copermittees shall develop and implement a plan and schedule to address the identified modifications and improvements. Watershed Water Quality Activities/Watershed Education Activities that are ineffective or less effective than other comparable Watershed Water Quality Activities/Watershed Education Activities shall be replaced or improved upon by implementation of more effective Watershed Water Quality Activities/Watershed Education Activities. Where monitoring data exhibits persistent water quality problems that are caused or contributed to by MS4 discharges, Watershed Water Quality Activities and Watershed Education Activities applicable to the water quality problems shall be modified and improved to correct the water quality problems.

c. As part of its Watershed Urban Runoff Management Program Annual Reports, each watershed group of Copermittees (as identified in Table 4) shall report on its Watershed Urban Runoff Management Program effectiveness assessment as implemented under each of the requirements of section I.2.a and I.2.b above.

3. Regional

a. As part of the Regional Urban Runoff Management Program, the Copermittees shall annually assess the effectiveness of Regional Urban Runoff Management Program implementation. At a minimum, the annual effectiveness assessment shall:

(1) Specifically assess the effectiveness of each of the following:

(a) Each regional activity/BMP or type of regional activity/BMP implemented, including regional residential education activities; and
(b) The Regional Urban Runoff Management Program as a whole.

(2) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in section I.3.a.(1) above.

(3) Utilize outcome levels 1-6 to assess the effectiveness of each of the items listed in sections I.3.a.(1) above, where applicable and feasible.

(4) Utilize monitoring data and analysis from the Receiving Waters Monitoring Program to assess the effectiveness each of the items listed in section I.3.a.(1) above, where applicable and feasible.

(5) Utilize Implementation Assessment, Water Quality Assessment, and Integrated Assessment, where applicable and feasible.

(6) Include evaluation of whether the Copermittees' jurisdictional, watershed, and regional effectiveness assessments are meeting the following objectives:

(a) Assessment of watershed health and identification of water quality issues and concerns.
(b) Evaluation of the degree to which existing source management priorities are properly targeted to, and effective in addressing, water quality issues and concerns.
(c) Evaluation of the need to address additional pollutant sources not already included in Copermittee programs.
(d) Assessment of progress in implementing Copermittee programs and activities.
(e) Assessment of the effectiveness of Copermittee activities in addressing priority constituents and sources.
(f) Assessment of changes in discharge and receiving water quality.
(g) Assessment of the relationship of program implementation to changes in pollutant loading, discharge quality, and receiving water quality.
(h) Identification of changes necessary to improve Copermittee programs, activities, and effectiveness assessment methods and strategies.

b. Based on the results of the effectiveness assessment, the Copermittees shall annually review their regional activities and other aspects of the Regional Urban Runoff Management Program to identify modifications and improvements needed maximize Regional Urban Runoff Management Program effectiveness, as necessary to achieve compliance with section A of this Order. The Copermittees shall develop and implement a plan and schedule to address the identified modifications and improvements. Regional activities that are ineffective or less effective than other

comparable regional activities shall be replaced or improved upon by implementation of more effective regional activities. Where monitoring data exhibits persistent water quality problems that are caused or contributed to by MS4 discharges, regional activities applicable to the water quality problems shall be modified and improved to correct the water quality problems.

c. Based on the results of the Copermittees' evaluation of their effectiveness assessments, the Copermittees shall modify their effectiveness assessment methods to improve their ability to accurately assess the effectiveness of their urban runoff management programs.

d. As part of its Regional Urban Runoff Management Program Annual Reports, the Copermittees shall report on its Regional Urban Runoff Management Program effectiveness assessment as implemented under each of the requirements of sections I.3.a, I.3.b, and I.3.c above.

4. TMDL BMP Implementation Plan

a. For each TMDL in a watershed, the Copermittees subject to the TMDL within the watershed shall annually assess the effectiveness of its TMDL BMP Implementation Plan or equivalent plan.[11] At a minimum, the annual effectiveness assessment shall:

(1) Specifically assess the effectiveness of each of the following:

(a) Each activity/BMP or type of activity/BMP implemented; and
(b) Implementation of the TMDL BMP Implementation Plan or equivalent plan as a whole.

(2) Identify and utilize measurable targeted outcomes, assessment measures, and assessment methods for each of the items listed in sections I.4.a.(1) above.

(3) Utilize outcome levels 1-6 to assess the effectiveness of each of the items listed in section I.4.a.(1)(a) above, where applicable and feasible.

(4) Utilize outcome levels 1-4 to assess the effectiveness of implementation of the TMDL BMP Implementation Plan or equivalent plan as a whole, where applicable and feasible.

(5) Utilize outcome levels 5 and 6 to qualitatively assess the effectiveness of the TMDL BMP Implementation Plan or equivalent plan as a whole. These assessments shall attempt to exhibit the effects of the TMDL BMP Implementation Plan or equivalent plan on the impairment that is targeted.

b. Based on the results of the effectiveness assessment, the Copermittees subject to the TMDL shall modify their BMPs and other aspects of the TMDL BMP Implementation Plan or equivalent plan in order to maximize TMDL BMP Implementation Plan or equivalent plan effectiveness. BMPs that are ineffective or less effective than other comparable BMPs shall be replaced or improved upon by implementation of more effective BMPs. Where monitoring data exhibits persistent

[11] This requirement applies to those TMDLs where a TMDL BMP Implementation Plan or equivalent plan has been developed and submitted to the Regional Board.

water quality problems that are caused or contributed to by MS4 discharges, BMPs applicable to the water quality problems shall be modified and improved to correct the water quality problems.

c. As part of its Watershed Urban Runoff Management Program Annual Reports, each group of Copermittees subject to a TMDL shall report on any TMDL BMP Implementation Plan or equivalent plan effectiveness assessments as implemented under each of the requirements of sections I.4.a and I.4.b above.

5. Long-term Effectiveness Assessment

a. Each Copermittee shall collaborate with the other Copermittees to develop a Long-term Effectiveness Assessment (LTEA), which shall build on the results of the Copermittees' August 2005 Baseline LTEA. The LTEA shall be submitted by the Principal Permittee to the Regional Board no later than 210 days in advance of the expiration of this Order.

b. The LTEA shall be designed to address each of the objectives listed in section I.3.a.(6) of this Order, and to serve as a basis for the Copermittees' Report of Waste Discharge for the next permit cycle.

c. The LTEA shall address outcome levels 1-6, and shall specifically include an evaluation of program implementation to changes in water quality (outcome levels 5 and 6).

d. The LTEA shall assess the effectiveness of the Receiving Waters Monitoring Program in meeting its objectives and its ability to answer the five core management questions. This shall include assessment of the frequency of monitoring conducted through the use of power analysis and other pertinent statistical methods. The power analysis shall identify the frequency and intensity of sampling needed to identify a 10% reduction in the concentration of constituents causing the high priority water quality problems within each watershed over the next permit term with 80% confidence.

e. The LTEA shall address the jurisdictional, watershed, and regional programs, with an emphasis on watershed assessment.

J. REPORTING

1. Urban Runoff Management Plans

a. JURISDICTIONAL URBAN RUNOFF MANAGEMENT PLANS

(1) Copermittees - The written account of the overall program to be conducted by each Copermittee to meet the jurisdictional requirements of section D of this Order is referred to as the Jurisdictional Urban Runoff Management Plan (JURMP). Each Copermittee shall revise and update its JURMP so that it describes all activities the Copermittee will undertake to implement the requirements of each component of Jurisdictional Urban Runoff Management Program section D of this Order. Each Copermittee shall submit its updated and revised JURMP to the Principal Permittee by the date specified by the Principal

Permittee.

(2) Principal Permittee –The Principal Permittee shall be responsible for collecting and assembling the individual JURMPs which cover the activities conducted by each individual Copermittee. The Principal Permittee shall submit the JURMPs to the Regional Board 365 days after adoption of this Order.

(3) At a minimum, each Copermittee's JURMP shall be updated and revised to contain the following information:

(a) Non-Storm Water Discharges
   i. Identification of non-storm water discharge categories identified as a source of pollutants to waters of the U.S.
   ii. A description of whether non-storm water discharge categories identified under section (a)i above will be prohibited or required to implement appropriate control measures to reduce the discharge of pollutants to the MEP.
   iii. Identification of any control measures to be required and implemented for non-storm water discharge categories identified under section (a)i above.
   iv. A description of a program to reduce pollutants from non-emergency fire fighting flows identified by the Copermittee to be significant sources of pollutants.

(b) Administrative and Legal Procedures
   i. Certified statement by the chief legal counsel that the Copermittee has adequate legal authority to implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and this Order.
   ii. Identification of all departments within the jurisdiction that conduct urban runoff related activities, and their roles and responsibilities under the Order. Include an up-to-date organizational chart specifying these departments and key personnel.
   iii. Updated urban runoff related ordinances, with explanations of how they are enforceable.
   iv. Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances and therefore with the conditions of the Order.
   v. Description of how urban runoff related ordinances are implemented and appealed.
   vi. Description of whether the municipality can issue administrative orders and injunctions or if it must go through the court system for enforcement actions.

(c) Development Planning
   i. A description of the water quality and watershed protection principles that have been or will be included in the Copermittee's General Plan, and a time schedule for when modifications are planned, if applicable.
   ii. A description of the Copermittee's current environmental review process and how it addresses impacts to water quality and appropriate mitigation measures. If the Copermittee plans to modify the process during the permit term, a time schedule for modifications shall be included.

iii. A description of the development project approval process and requirements.
iv. An updated SUSMP document that meets the applicable requirements specified in sections D.1.d and D.1.g(6), including a description of LID BMP requirements to be used prior to the Model SUSMP update. The updated SUSMP may be submitted under separate cover as an attachment to the JURMP.
v. A description of the database to be used to track and inventory approved treatment control BMPs and treatment control BMP maintenance.
vi. A completed watershed-based inventory of approved treatment control BMPs.
vii. A description of the program to be implemented to verify approved treatment control BMPs are operating effectively and have been adequately maintained, including information on treatment control BMP inventory, prioritization, inspection, and annual verification.
viii. A description of inspections that will be conducted to verify BMPs have been constructed according to requirements.
ix. A description of collaboration efforts to be conducted to develop the HMP.
x. A description of enforcement mechanisms and how they will be used.

(d) Construction
i. Updated grading and other applicable ordinances.
ii. A description of the construction and grading approval processes.
iii. Updated construction and grading project requirements.
iv. A completed watershed-based inventory of all construction sites.
v. A description of steps that will be taken to maintain and update monthly a watershed-based inventory of all construction sites.
vi. A list and description of the minimum BMPs that will be implemented, or required to be implemented, including pollution prevention.
vii. A description of the maximum disturbed area allowed for grading before either temporary or permanent erosion controls are implemented.
viii. A description of construction site conditions where advanced treatment will be required.
ix. A description of the steps that will be taken to require and verify the implementation of the designated BMPs at all construction sites.
x. A description of planned inspection frequencies.
xi. A description of inspection procedures.
xii. A description of steps that will be taken to track construction site inspections to verify that all construction sites are inspected at the minimum frequencies required.
xiii. A description of available enforcement mechanisms, under what conditions each will be used, and how they will escalate.
xiv. A description of notification procedures for non-compliant sites.

(e) Municipal
i. A completed inventory of all municipal facilities and activities.
ii. A description of which BMPs will be implemented, or required to be implemented, for municipal facilities and activities, including pollution prevention.
iii. A description of which BMPs will be implemented, or required to be implemented, for special events.

iv. A description of steps that will be taken to require and verify the implementation of designated BMPs at municipal facilities and activities.
v. A description of MS4 and MS4 facility inspection and maintenance activities and schedules.
vi. A description of the management strategy and BMPs to be implemented for pesticides, herbicides, and fertilizer use.
vii. A description of street and parking facility sweeping activities and schedules.
viii. A description of controls and measures to be implemented to prevent and eliminate infiltration of seepage from sanitary sewers to MS4s.
ix. A description of inspection frequencies and procedures.
x. A description of enforcement mechanisms and how they will be used.

(f) Industrial and Commercial
i. A completed and prioritized inventory of all industrial and commercial sites/sources that could contribute a significant pollutant load to the MS4.
ii. A list of minimum BMPs that will be implemented, or required to be implemented, for each facility type or pollutant-generating activity, including pollution prevention.
iii. A description of the steps that will be taken to require and verify the implementation of designated BMPs, including notification efforts.
iv. Identification of high priority sites/sources and sites/sources to be inspected during the first year of implementation.
v. A description of the steps taken to identify sites/sources to be inspected during the first year of implementation, including rationale for their selection.
vi. A description of steps that will be taken to identify sites/sources to be inspected in subsequent years.
vii. A description of inspection procedures.
viii. A description of any third party inspection program to be implemented.
ix. A description of the program to be implemented to regulate mobile businesses, including notification of BMP requirements and local ordinances.
x. A description of enforcement mechanisms and how they will be used.
xi. A description of steps that will be taken to identify non-filers and notify the Regional Board of non-filers.

(g) Residential
i. A list of residential areas and activities that have been identified as high priority.
ii. A list of minimum BMPs that will be implemented, or required to be implemented, for high priority residential activities.
iii. A description of which pollution prevention methods will be encouraged for implementation, and the steps that will be taken to encourage implementation.
iv. A description of the steps that will be taken to require and verify the implementation of prescribed BMPs for high priority residential activities.
v. A description of efforts to facilitate proper disposal of used oil and other toxic materials.

vi. A description of efforts to evaluate methods used for oversight of residential areas and activities.
vii. A description of enforcement mechanisms and how they will be used.

(h) Illicit Discharge Detection and Elimination
i. A description of the program to actively seek and eliminate illicit discharges and illicit connections.
ii. An updated MS4 map, including locations of the MS4, dry weather field screening and analytical monitoring sites, and watersheds.
iii. A description of dry weather field screening and analytical monitoring to be conducted (including procedures) which addresses all requirements included in sections B.1-4 of Receiving Waters Monitoring and Reporting Program No. R9-2006-0011.
iv. A description of investigation and inspection procedures to follow up on dry weather monitoring results or other information which indicate potential for illicit discharges and illicit connections.
v. A description of procedures to eliminate detected illicit discharges and illicit connections.
vi. A description of enforcement mechanisms and how they will be used.
vii. A description of the mechanism to receive notification of spills.
viii. A description of measures to prevent, respond to, contain, and clean up all sewage and other spills.
ix. A description of efforts to facilitate public reporting of illicit discharges and connections, including a public hotline.

(i) Education
i. A description of the content, form, and frequency of education efforts for each target community.
ii. A description of steps to be taken to educate underserved target audiences, high-risk behaviors, and "allowable" behaviors and discharges, including various ethnic and socioeconomic groups and mobile sources.
iii. A description of the content, form, and frequency of education efforts targeting municipal staff working on development planning, construction, municipal, industrial/commercial, and other aspects of the Jurisdictional Urban Runoff Management Program.
iv. A description of the content, form, and frequency of education efforts targeting new development and construction target communities.
v. A description of the content, form, and frequency of jurisdictional education efforts for the residential, general public, and school children target communities.

(j) Public Participation
i. A description of the steps that will be taken to include public participation in the development and implementation of each Copermittee's Jurisdictional Urban Runoff Management Program.

(k) Fiscal Analysis
i. A description of the fiscal analysis to be conducted annually, as required by section G of this Order.

(l) Program Effectiveness Assessment

i. A description of steps that will be taken to annually conduct program effectiveness assessments in compliance with section I.1 of the Order.

ii. Identify measurable targeted outcomes, assessment measures, and assessment methods to be used to assess the effectiveness of: (1) Each significant jurisdictional activity or BMP to be implemented; (2) Implementation of each major component of the Jurisdictional Urban Runoff Management Program; and (3) Implementation of the Jurisdictional Urban Runoff Management Program as a whole.

iii. Identify which of the outcome levels 1-6 will be utilized to assess the effectiveness of each of the items listed in sections J.1.a.(3)(l)ii(1-3). Where an outcome level is determined to not be applicable or feasible for an item listed in sections J.1.a.(3)(l)ii(1-3), the Copermittee shall provide a discussion exhibiting inapplicability or infeasibility.

iv. A description of the steps that will be taken to utilize monitoring data to assess the effectiveness of each of the items listed in sections J.1.a.(3)(l)ii(1-3).

v. A description of the steps that will be taken to improve the Copermittee's ability to assess program effectiveness using measurable targeted outcomes, assessment measures, assessment methods, and outcome levels 1-6. Include a time schedule for when improvement will occur.

vi. A description of the steps that will be taken to identify aspects of the Copermittee's Jurisdictional Urban Runoff Management Program that will be changed, based on the results of the effectiveness assessment.

(m) JURMP Modification

i. Identification of the location in the JURMP of any changes made to the JURMP in order to meet the requirements of Order No. R9-2007-0001.

b. WATERSHED URBAN RUNOFF MANAGEMENT PLANS

(1) Copermittees - The written account of the program conducted by each watershed group of Copermittees is referred to as the Watershed Urban Runoff Management Plan (WURMP). The Copermittees within each watershed shall be responsible for updating and revising each WURMP, as specified in Table 4 above. Each WURMP shall be updated and revised to describe all activities the watershed Copermittees will undertake to implement the Watershed Urban Runoff Management Program requirements of section E of this Order.

(2) Lead Watershed Permittee - Each Lead Watershed Permittee shall be responsible for producing its respective WURMP, as well as for coordination and meetings amongst all member watershed Copermittees. Each Lead Watershed Permittee is further responsible for the submittal of the WURMP to the Principal Permittee by the date specified by the Principal Permittee.

(3) Principal Permittee – The Principal Permittee shall assemble and submit the WURMPs to the Regional Board 365 days after adoption of this Order.

(4) Each WURMP shall include:

(a) Identification of the Lead Watershed Permittee for the watershed.
(b) An updated watershed map.

(c) Identification and description of all applicable water quality data, reports, analyses, and other information to be used to assess receiving water quality.
(d) Assessment and analysis of the watershed's water quality data, reports, analyses, and other information, including identification and prioritization of the watershed's water quality problems. Water quality problems and high priority water quality problems shall be identified.
(e) Identification of the likely sources, pollutant discharges, and/or other factors causing the high priority water quality problems within the watershed.
(f) A description of the program to be implemented to encourage collaborative, watershed-based, land-use planning.
(g) A description of the strategy to be used to guide Copermittee implementation of Watershed Water Quality Activities and Watershed Education Activities, including criteria for evaluating and identifying effective activities.
(h) A list of potential Watershed Water Quality Activities, including a description of each activity and its location(s).
(i) Identification and description of the Watershed Water Quality Activities to be implemented by each Copermittee for the first year of implementation, including justification for why the activities were chosen and a description of how the activities are expected to reduce discharged pollutant loads, abate pollutant sources, or result in other quantifiable benefits to discharge or receiving water quality, in relation to the watershed's high priority water quality problem(s). Plans for activity implementation beyond the first year of implementation should also be provided.
(j) A list of potential Watershed Education Activities.
(k) Identification and description of the Watershed Education Activities to be implemented by each Copermittee for the first year of implementation, including justification for why the activities were chosen and a description of how the activities are expected to directly target the sources and discharges of pollutants causing the watershed's high priority water quality problems. Plans for activity implementation beyond the first year of implementation should also be provided.
(l) A description of the public participation mechanisms to be used and the parties anticipated to be involved.
(m) A description of Copermittee collaboration to occur, including a schedule for WURMP meetings.
(n) A description of any TMDL BMP Implementation Plan or equivalent plan to be implemented under section H of this Order.[12]
(o) A detailed description of the effectiveness assessment to be conducted for the WURMP, including a description how each of the requirements in section I.2 of this Order will be met.

c. REGIONAL URBAN RUNOFF MANAGEMENT PLAN

(1) Copermittees - The written account of the regional program to be conducted is referred to as the Regional Urban Runoff Management Plan (RURMP). Each Copermittee shall collaborate with the other Copermittees to develop the RURMP. The RURMP shall describe all activities the Copermittees will undertake to implement the requirements of each component of Regional Urban

[12] For TMDLs not yet approved by the Office of Administrative Law at the time of adoption of this Order, TMDL BMP Implementation Plans shall be submitted separately 365 days following approval of the TMDL.

Runoff Management Program section F of this Order. At a minimum, the RURMP shall contain the following information:

(a) A common activities section that describes the urban runoff management activities to be implemented on a regional level. For regional activities which are to be implemented in compliance with any jurisdictional requirements of section D or watershed requirements of section E, it shall be described how the regional activities achieve compliance with the subject jurisdictional and/or watershed requirements.
(b) A description of steps that will be taken to facilitate assessment of the effectiveness of jurisdictional, watershed, and regional programs.
(c) A description of the regional residential education program to be implemented.
(d) A description of the strategy for development of the standardized fiscal analysis method required by section G of this Order.
(e) A detailed description of the effectiveness assessment to be conducted for the Regional Urban Runoff Management Program, including a description how each of the requirements in section I.3 of this Order will be met.

(2) The Principal Permittee shall be responsible for creating and submitting the RURMP. The Principal Permittee shall submit the RURMP to the Regional Board 365 days after adoption of this Order.

2. Other Required Reports and Plans

a. HYDROMODIFICATION MANAGEMENT PLAN

(1) Copermittees - Each Copermittee shall collaborate with the other Copermittees to develop the HMP. The HMP shall be submitted for approval by the Regional Board.

(2) Principal Permittee - The Principal Permittee shall be responsible for producing and submitting each document according to the schedule below.

(a) Within 180 days of adoption of the Order: Submit a detailed workplan and schedule for completion of the literature review, development of a protocol to identify an appropriate channel standard and limiting range of flow rates, development of guidance materials, and other required information;
(b) Within 18 months of adoption of the Order: Submit progress report on completion of requirements of the HMP;
(c) Within 2 years of adoption of the Order: Submit a draft HMP, including the analysis that identifies the appropriate limiting range of flow rates;
(d) Within 180 days of receiving comments from the Regional Board: Submit the HMP for Regional Board approval.

b. SUSMP UPDATES

Each Copermittee shall collaborate with the other Copermittees to update the Model SUSMP. The Principal Permittee shall be responsible for producing and submitting the updated Model SUSMP in accordance with the requirements of section D.1.d.(8)(b). Each Copermittee shall submit its updated local SUSMP, consistent

with the updated Model SUSMP, in accordance with the requirements of section D.1.d.(8)(c).

c. LONG-TERM EFFECTIVENESS ASSESSMENT

In accordance with section I.5 of this Order, the Principal Permittee shall submit the LTEA to the Regional Board no later than 210 days in advance of the expiration of this Order.

d. REPORT OF WASTE DISCHARGE

The Principal Permittee shall submit to the Regional Board, no later than 210 days in advance of the expiration date of this Order, a Report of Waste Discharge (ROWD) as an application for issuance of new waste discharge requirements. At a minimum, the ROWD shall include the following: (1) Proposed changes to the Copermittees' urban runoff management programs; (2) Proposed changes to monitoring programs; (3) Justification for proposed changes; (4) Name and mailing addresses of the Copermittees; (5) Names and titles of primary contacts of the Copermittees; and (6) Any other information necessary for the reissuance of this Order.

3. Annual Reports

a. JURISDICTIONAL URBAN RUNOFF MANAGEMENT PROGRAM ANNUAL REPORTS

Each Jurisdictional Urban Runoff Management Program Annual Report shall contain a comprehensive description of all activities conducted by the Copermittee to meet all requirements of section D. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted September 30, 2008 shall cover the reporting period July 1, 2007 to June 30, 2008.

(1) Copermittees – Each Copermittee shall generate individual Jurisdictional Urban Runoff Management Program Annual Reports which cover implementation of its jurisdictional activities during the past annual reporting period. Each Copermittee shall submit to the Principal Permittee its individual Jurisdictional Urban Runoff Management Program Annual Report by the date specified by the Principal Permittee. Each individual Jurisdictional Urban Runoff Management Program Annual Report shall be a comprehensive description of all activities conducted by the Copermittees to meet all requirements of each component of section D of this Order.

(2) Principal Permittee – The Principal Permittee shall submit Unified Jurisdictional Urban Runoff Management Program Annual Reports to the Regional Board by September 30 of each year, beginning on September 30, 2008. The Unified Jurisdictional Urban Runoff Management Program Annual Report shall contain the twenty-one individual Jurisdictional Urban Runoff Management Program Annual Reports.

The Principal Permittee shall also be responsible for collecting and assembling each Copermittees' individual Jurisdictional Urban Runoff Management Program Annual Report.

(3) At a minimum, each Jurisdictional Urban Runoff Management Program Annual Report shall contain the following information:

(a) Development Planning

i. A description of any amendments to the General Plan, the environmental review process, development project approval processes, or development project requirements.
ii. Confirmation that all development projects were required to undergo the Copermittee's urban runoff approval process and meet the applicable project requirements, including a description of how this information was tracked.
iii. A listing of the development projects to which SUSMP requirements were applied.
iv. Confirmation that all applicable SUSMP BMP requirements were applied to all priority development projects, including a description of how this information was tracked.
v. At least one example of a priority development project that was conditioned to meet SUSMP requirements and a description of the required BMPs.
vi. A listing of the priority development projects which were allowed to implement treatment control BMPs with low removal efficiency rankings, including the feasibility analyses which were conducted to exhibit that more effective BMPs were infeasible.
vii. An updated treatment control BMP inventory.
viii. The number of treatment control BMPs inspected, including a summary of inspection results and findings.
ix. A description of the annual verification of operation and maintenance of treatment control BMPs, including a summary of verification results and findings.
x. Confirmation that BMP verification was conducted for all priority development projects prior to occupancy, including a description of how this information was tracked.
xi. A listing of any projects which received a SUSMP waiver.
xii. A description of implementation of any SUSMP waiver mitigation program.
xiii. A description of Hydromodification Management Plan (HMP) development collaboration and participation.
xiv. A listing of development projects required to meet HMP requirements, including a description of hydrologic control measures implemented.
xv. A listing of priority development projects not required to meet HMP requirements, including a description of why the projects were found to be exempt from the requirements.
xvi. A listing of development projects disturbing 50 acres or more, including information on whether Interim Hydromodification Criteria were met by each of the projects, together with a description of hydrologic control measures implemented for each applicable project.
xvii. The number of violations and enforcement actions (including types) taken for development projects, including information on any necessary follow-up actions taken. The discussion should exhibit that compliance has been achieved, or describe actions that are being taken to achieve compliance.

xviii. A description of notable activities conducted to manage urban runoff from development projects.

(b) Construction

i. Confirmation that all construction sites were required to undergo the Copermittee's construction urban runoff approval process and meet the applicable construction requirements, including a description of how this information was tracked.
ii. Confirmation that a regularly updated construction site inventory was maintained, including a description of how the inventory was managed.
iii. A description of modifications made to the construction and grading ordinances and approval processes.
iv. Confirmation that the designated BMPs were implemented, or required to be implemented, for all construction sites.
v. Confirmation that a maximum disturbed area for grading was applied to all applicable construction sites.
vi. A listing of all construction sites with conditions requiring advanced treatment, together with confirmation that advanced treatment was required at such construction sites.
vii. For each construction site within each priority category (high, medium, and low), identification of the period of time (weeks) the site was active within the rainy season, the number of inspections conducted during the rainy season, and the number of inspections conducted during the dry season, and the total number of inspections conducted for all sites.
viii. A description of the general results of the inspections.
ix. Confirmation that the inspections conducted addressed all the required inspection steps to determine full compliance.
x. The number of violations and enforcement actions (including types) taken for construction sites, including information on any necessary follow-up actions taken. The discussion should exhibit that compliance has been achieved, or describe actions that are being taken to achieve compliance.
xi. A description of notable activities conducted to manage urban runoff from construction sites.

(c) Municipal

i. Any updates to the municipal inventory and prioritization.
ii. Confirmation that the designated BMPs were implemented, or required to be implemented, for municipal areas and activities, as well as special events.
iii. A description of inspections and maintenance conducted for municipal treatment controls.
iv. Identification of the total number of catch basins and inlets, the number of catch basins and inlets inspected, the number of catch basins and inlets found with accumulated waste exceeding cleaning criteria, and the number of catch basins and inlets cleaned.
v. Identification of the total distance (miles) of the MS4, the distance of the MS4 inspected, the distance of the MS4 found with accumulated waste exceeding cleaning criteria, and the distance of the MS4 cleaned.
vi. Identification of the total distance (miles) of open channels, the distance of open channels inspected, the distance of open channels found with anthropogenic litter, and the distance of open channels cleaned.

vii. Amount of waste and litter (tons) removed from catch basins, inlets, the MS4, and open channels, by category.
viii. Identification of any MS4 facility found to require inspection less than annually following two years of inspection, including justification for the finding.
ix. Confirmation that the designated BMPs for pesticides, herbicides, and fertilizers were implemented, or required to be implemented, for municipal areas and activities.
x. Identification of the total distance of curb-miles of improved roads, streets, and highways identified as consistently generating the highest volumes of trash and/or debris, as well as the frequency of sweeping conducted for such roads, streets, and highways.
xi. Identification of the total distance of curb-miles of improved roads, streets, and highways identified as consistently generating moderate volumes of trash and/or debris, as well as the frequency of sweeping conducted for such roads, streets, and highways.
xii. Identification of the total distance of curb-miles of improved roads, streets, and highways identified as consistently generating low volumes of trash and/or debris, as well as the frequency of sweeping conducted for such roads, streets, and highways.
xiii. Identification of the total distance of curb-miles swept.
xiv. Identification of the number of municipal parking lots, the number of municipal parking lots swept, and the frequency of sweeping.
xv. Amount of material (tons) collected from street and parking lot sweeping.
xvi. A description of efforts implemented to prevent and eliminate infiltration from the sanitary sewer to the MS4
xvii. Identification of the number of sites requiring inspections, the number of sites inspected, and the frequency of the inspections.
xviii. A description of the general results of the inspections.
xix. Confirmation that the inspections conducted addressed all the required inspection steps to determine full compliance.
xx. The number of violations and enforcement actions (including types) taken for municipal areas and activities, including information on any necessary follow-up actions taken. The discussion should exhibit that compliance has been achieved, or describe actions that are being taken to achieve compliance.
xxi. A description of notable activities conducted to manage urban runoff from municipal areas and activities.

(d) Industrial and Commercial
i. Any updates to the industrial and commercial inventory.
ii. Confirmation that the designated BMPs were implemented, or required to be implemented, for industrial and commercial sites/sources.
iii. A description of efforts taken to notify owners/operators of industrial and commercial sites/sources of BMP requirements, including mobile businesses.
iv. Identification of the total number of industrial and commercial sites/sources inventoried and the total number inspected.
v. Justification and rationale for why the industrial and commercial sites/sources inspected were chosen for inspection.

vi. Confirmation that all inspections conducted addressed all the required inspection steps to determine full compliance.
vii. Identification of the number of third party inspections conducted.
viii. Identification of efforts conducted to verify third party inspection effectiveness.
ix. A description of efforts implemented to address mobile businesses.
x. The number of violations and enforcement actions (including types) taken for industrial and commercial sites/sources, including information on any necessary follow-up actions taken. The discussion should exhibit that compliance has been achieved, or describe actions that are being taken to achieve compliance.
xi. A description of steps taken to identify non-filers and a list of non-filers (under the General Industrial Permit) identified by the Copermittees.
xii. A description of notable activities conducted to manage urban runoff from industrial and commercial sites/sources.

(e) Residential
i. Identification of the high threat to water quality residential areas and activities that were focused on.
ii. Confirmation that the designated BMPs were implemented, or required to be implemented, for residential areas and activities.
iii. A description of efforts implemented to facilitate proper management and disposal of used oil and other household hazardous materials.
iv. Types and amounts of household hazardous wastes collected, if applicable.
v. A description of any evaluation of methods used for oversight of residential areas and activities, as well as any findings of the evaluation.
vi. The number of violations and enforcement actions (including types) taken for residential areas and activities, including information on any necessary follow-up actions taken. The discussion should exhibit that compliance has been achieved, or describe actions that are being taken to achieve compliance.
vii. A description of collaboration efforts taken to develop and implement the Regional Residential Education Program.
viii. A description of notable activities conducted to manage urban runoff from residential areas and activities.

(f) Illicit Discharge Detection and Elimination
i. Correction of any inaccuracies in either the MS4 map or the Dry Weather Field Screening and Analytical Stations Map.
ii. Reporting of all dry weather field screening and analytical monitoring results. The data should be presented in tabular and graphical form. The reporting shall include station locations, all dry weather field screening and analytical monitoring results, identification of sites where results exceeded action levels, follow-up and elimination activities for potential illicit discharges and connections, the rationale for why follow-up investigations were not conducted at sites where action levels were exceeded, any Copermittee or consultant program recommendations/changes resulting from the monitoring, and documentation that these recommendations/changes have been implemented. Dry weather field screening and analytical monitoring reporting shall comply with all monitoring and standard reporting

requirements in Attachment B of Order No. R9-2007-0001 and Receiving Waters Monitoring and Reporting Program No. R9-2007-0001.

iii. Any dry weather field screening and analytical monitoring consultant reports generated, to be provided as an attachment to the annual report.
iv. A brief description of any other investigations and follow-up activities for illicit discharges and connections.
v. The number and brief description of illicit discharges and connections identified.
vi. The number of illicit discharges and connections eliminated.
vii. Identification and description of all spills to the MS4 and response to the spills.
viii. A description of activities implemented to prevent sewage and other spills from entering the MS4.
ix. A description of the mechanism whereby notification of sewage spills from private laterals and septic systems is received.
x. Number of times the hotline was called, as compared to previous reporting periods, and a summary of the calls.
xi. A description of efforts to publicize and facilitate public reporting of illicit discharges.
xii. The number of violations and enforcement actions (including types) taken for illicit discharges and connections, including information on any necessary follow-up actions taken. The discussion should exhibit that compliance has been achieved, or describe actions that are being taken to achieve compliance.
xiii. A description of notable activities conducted to manage illicit discharges and connections.

(g) Education
i. A description of education efforts conducted for each target community.
ii. A description of how education efforts targeted underserved target audiences, high-risk behaviors, and "allowable" behaviors and discharges.
iii. A description of education efforts conducted for municipal departments and personnel.
iv. A description of education efforts conducted for the new development and construction communities.
v. A description of jurisdictional education efforts conducted for residents, the general public, and school children.

(h) Public Participation
i. A description of public participation efforts conducted.

(i) Program Effectiveness Assessment
i. An assessment of the effectiveness of the Jurisdictional Urban Runoff Management Program which meets all requirements of section I.1 of this Order.

(j) Fiscal Analysis
i. A fiscal analysis of the Copermittee's urban runoff management programs which meets all requirements of section G of this Order.

(k) Special Investigations
i. A description of any special investigations conducted.

(l) Non-Emergency Fire Fighting
i. A description of any efforts conducted to reduce pollutant discharges from non-emergency fire fighting flows.

(m) JURMP Revisions
i. A description of any proposed revisions to the JURMP.

b. WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM ANNUAL REPORTS

(1) Lead Watershed Permittee - Each Lead Watershed Permittee shall generate watershed specific Watershed Urban Runoff Management Program Annual Reports for their respective watershed(s), as they are outlined in Table 4 of Order No. R9-2007-0001. Copermittees within each watershed shall collaborate with the Lead Watershed Permittee to generate the Watershed Urban Runoff Management Program Annual Reports.

(2) Each Watershed Urban Runoff Management Program Annual Report shall be a comprehensive documentation of all activities conducted by the watershed Copermittees during the previous annual reporting period to meet all requirements of section E of Order No. R9-2007-0001. Each Watershed Urban Runoff Management Program Annual Report shall also serve as an update to the WURMP.[13] Each Watershed Urban Runoff Management Program Annual Report shall, at a minimum, contain the following for its reporting period:

(a) A comprehensive description of all activities conducted by the watershed Copermittees to meet all requirements of section E of Order No. R9-2007-0001.

(b) Any updates to the watershed map.

(c) An updated assessment and analysis of the watershed's current and past applicable water quality data, reports, analyses, and other information, including identification of the watershed's water quality problems and high priority water quality problem(s) during the reporting period. The annual report shall clearly state if the watershed's high priority water quality problem(s) changed from the previous reporting period, and provide justification for the change(s).

(d) Identification of the likely sources, pollutant discharges, and/or other factors causing the high priority water quality problems within the watershed. The annual report shall clearly describe any changes to the identified sources, pollutant discharges, and/or other factors that have occurred since the previous reporting period, and provide justification for the changes.

[13] The first annual report to be submitted is not anticipated to be an update to the WURMP, since it will cover the reporting period which begins immediately after WURMP submittal.

(e) An updated list of potential Watershed Water Quality Activities. The annual report shall clearly describe any changes to the list of Watershed Water Quality Activities that have occurred since the previous reporting period, and provide justification for the changes.

(f) Identification and description of the Watershed Water Quality Activities implemented by each Copermittee during the reporting period, including information on the activities' location(s), as well as information exhibiting that the activities in active implementation phase reduced discharged pollutant loads, abated pollutant sources, or resulted in other quantifiable benefits to discharge or receiving water quality, in relation to the watershed's high priority water quality problem(s). The annual report shall clearly describe any changes to Watershed Water Quality Activities implementation that have occurred since the previous reporting period, and provide justification for the changes.

(g) An updated list of potential Watershed Education Activities. The annual report shall clearly describe any changes to the list of Watershed Education Activities that have occurred since the previous reporting period, and provide justification for the changes.

(h) Identification and description of the Watershed Education Activities implemented by each Copermittee for the reporting period, including information exhibiting that the activities directly targeted the sources and discharges of pollutants causing the watershed's high priority water quality problems, and that activities in active implementation phase changed target audience attitudes, knowledge, awareness, or behavior. The annual report shall clearly describe any changes to Watershed Education Activities implementation that have occurred since the previous reporting period, and provide justification for the changes.

(i) A description of the public participation mechanisms used during the reporting period and the parties that were involved.

(j) A description of Copermittee collaboration efforts.

(k) A description of efforts implemented to encourage collaborative, watershed-based, land-use planning.

(l) A description of all TMDL activities implemented (including BMP Implementation Plan or equivalent plan activities) for each approved TMDL in the watershed. The description shall include:

i. Any additional source identification information;
ii. The number, type, location, and other relevant information about BMP implementation, including any expanded or better tailored BMPs necessary to meet the WLAs;
iii. Updates in the BMP implementation prioritization and schedule;
iv. An assessment of the effectiveness of the BMP Implementation Plan, which meets the requirements of section I.4 Order No. R9-2007-0001; and

v. A discussion of the progress to date in meeting the TMDL Numeric Targets and WLAs, which incorporates the results of the effectiveness assessment, compliance monitoring, and an evaluation of additional efforts needed to date.

(m) An assessment of the effectiveness of the WURMP, which meets the requirements of section I.2 of Order No. R9-2007-0001. The effectiveness assessment shall attempt to qualitatively or quantitatively exhibit the impact that implementation of the Watershed Water Quality Activities and the Watershed Education Activities had on the high priority water quality problem(s) within the watershed. This information shall document changes in pollutant load discharges, urban runoff and discharge quality, and receiving water quality, where applicable and feasible.

(3) Principal Permittee – The Unified Watershed Urban Runoff Management Program Annual Report shall contain the nine separate Watershed Urban Runoff Management Program Annual Reports. Each Lead Watershed Copermittee shall submit to the Principal Permittee a Watershed Urban Runoff Management Program Annual Report by the date specified by the Principal Permittee. The Principal Permittee shall assemble and submit the Unified Watershed Urban Runoff Management Program Annual Report to the Regional Board by January 31, 2009 and every January 31 thereafter. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted January 31, 2009 shall cover the reporting period July 1, 2007 to June 30, 2008.

c. REGIONAL URBAN RUNOFF MANAGEMENT PROGRAM ANNUAL REPORTS

The Principal Permittee shall generate the Regional Urban Runoff Management Program Annual Reports. All Copermittees shall collaborate with the Principal Permittee to generate the Regional Urban Runoff Management Program Annual Reports. Each Regional Urban Runoff Management Program Annual Report shall be a comprehensive documentation of all regional activities conducted by the Copermittees during the previous annual reporting period to meet all requirements of section F of Order No. R9-2007-0001.

The Principal Permittee shall submit the Regional Urban Runoff Management Program Annual Report to the Regional Board by January 31, 2009 and every January 31 thereafter. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted January 31, 2009 shall cover the reporting period July 1, 2007 to June 30, 2008.

Each Regional Urban Runoff Management Program Annual Report shall, at a minimum, contain the following:

(1) A common activities section that describes the urban runoff management activities or BMPs implemented on a regional level, including information on how the activities complied with jurisdictional or watershed requirements, if applicable.
(2) A description of steps taken to facilitate assessment of the effectiveness of jurisdictional, watershed, and regional programs.

(3) A description of the regional residential education activities implemented as part of the regional residential education program.
(4) A description of steps taken to develop and implement the standardized fiscal analysis method.
(5) An assessment of the effectiveness of the Regional Urban Runoff Management Program which meets the requirements of section I.3 of Order No. R9-2007-0001.

4. **Interim Reporting Requirements -** For the July 2006–June 2007 reporting period, Jurisdictional URMP and Watershed URMP Annual Reports shall be submitted on January 31, 2008. Each Jurisdictional URMP and Watershed URMP Annual Report submitted for this reporting period shall at a minimum be comprehensive descriptions of all activities conducted to fully implement the Copermittees' Jurisdictional URMP and Watershed URMP documents, as those documents were developed to comply with the requirements of Order No. 2001-01. The Principal Permittee shall be responsible for submitting these documents in a unified manner, consistent with the unified reporting requirements of Order No. 2001-01.

5. **Annual Report Integration**

a. The Copermittees are encouraged to submit, for Regional Board review and approval, an annual reporting format which integrates the information submitted in the JURMP, WURMP, and RURMP Annual Reports and Monitoring Reports. This document shall be called the "Integrated Annual Report Format." The Integrated Annual Report Format should:

(1) Exhibit compliance with all requirements of JURMP, WURMP, and RURMP sections D, E, and F of Order No. R9-2007-0001.
(2) Report all information required in section J.3 of Order No. R9-2007-0001.
(3) Report all information required in the Monitoring and Reporting program.
(4) Provide consistent and comparable reporting of jurisdictional and watershed information by all Copermittees and watershed groups.
(5) Specifically identify all types of information that will be reported (e.g., amount of debris collected during street sweeping), including reporting criteria for each type of information (e.g., reported in tons).
(6) Describe quality assurance/quality control methods to be used to assess accuracy of jurisdictional and watershed information conveyed.
(7) Describe each Copermittee's reporting responsibilities under the format.
(8) Improve the Copermittees' ability to assess JURMP and WURMP effectiveness in terms of water quality.
(9) Include a separate section for reporting on each Copermittee's activities.
(10) Include a separate section for reporting on each watershed's activities.

b. Upon approval of the Integrated Annual Report Format by the Regional Board, an Integrated Annual Report shall be submitted annually, which may substitute for the JURMP Annual Reports, WURMP Annual Reports, RURMP Annual Report, and/or Monitoring Reports, as approved by the Regional Board. The Principal Permittee shall be responsible for the generation and submittal of the Integrated Annual Reports. Each Copermittee shall be responsible for the information in the Integrated Annual Report pertaining to its jurisdictional, watershed, regional, and monitoring responsibilities. The Integrated Annual Report shall be submitted the first January 31 following approval of the reporting format by the Regional Board, and every January

31 thereafter. The reporting period for Integrated Annual Reports shall be the previous fiscal year. For example, a report submitted January 31, 2010 shall cover the reporting period July 1, 2008 to June 30, 2009.

c. The format and information provided in Integrated Annual Reports shall match and be consistent with the format and information described in the Integrated Annual Report Format.

6. Universal Reporting Requirements

All submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit a signed certified statement covering its responsibilities for each applicable submittal. The Principal Permittee shall submit a signed certified statement covering its responsibilities for each applicable submittal and the sections of the submittals for which it is responsible.

K. MODIFICATION OF PROGRAMS

Modifications of Jurisdictional Urban Runoff Management Programs, Watershed Urban Runoff Management Programs, and/or the Regional Urban Runoff Management Program may be initiated by the Executive Officer or by the Copermittees. Requests by Copermittees shall be made to the Executive Officer, and shall be submitted during the annual review process. Requests for modifications should be incorporated, as appropriate, into the Annual Reports or other deliverables required or allowed under this Order.

1. Minor Modifications – Minor modifications to Jurisdictional Urban Runoff Management Programs, Watershed Urban Runoff Management Programs, and/or the Regional Urban Runoff Management Program may be accepted by the Executive Officer where the Executive Officer finds the proposed modification complies with all discharge prohibitions, receiving water limitations, and other requirements of this Order.

2. Modifications Requiring an Amendment to this Order – Proposed modifications that are not minor shall require amendment of this Order in accordance with this Order's rules, policies, and procedures.

L. ALL COPERMITTEE COLLABORATION

1. Each Copermittee collaborate with all other Copermittees regulated under this Order to address common issues, promote consistency among Jurisdictional Urban Runoff Management Programs and Watershed Urban Runoff Management Programs, and to plan and coordinate activities required under this Order.

   a. Management Structure - All Copermittees shall jointly execute and submit to the Regional Board no later than 180 days after adoption of this Order, a Memorandum of Understanding, Joint Powers Authority, or other instrument of formal agreement which at a minimum:

      (1) Identifies and defines the responsibilities of the Principal Permittee and Lead Watershed Permittees;
      (2) Identifies Copermittees and defines their individual and joint responsibilities, including watershed responsibilities;

(3) Establishes a management structure to promote consistency and develop and implement regional activities;
(4) Establishes standards for conducting meetings, decision-making, and cost-sharing;
(5) Provides guidelines for committee and workgroup structure and responsibilities;
(6) Lays out a process for addressing Copermittee non-compliance with the formal agreement; and
(7) Includes any and all other collaborative arrangements for compliance with this Order.

M. PRINCIPAL PERMITTEE RESPONSIBILITIES

Within 180 days of adoption of this Order, the Copermittees shall designate the Principal Permittee and notify the Regional Board of the name of the Principal Permittee. The Principal Permittee shall, at a minimum:

1. Serve as liaison between the Copermittees and the Regional Board on general permit issues, and when necessary and appropriate, represent the Copermittees before the Regional Board.

2. Coordinate permit activities among the Copermittees and facilitate collaboration on the development and implementation of programs required under this Order.

3. Integrate individual Copermittee documents and reports into single unified documents and reports for submittal to the Regional Board as required under this Order.

4. Produce and submit documents and reports as required by section J of this Order and Receiving Waters and Urban Runoff Monitoring and Reporting Program No. R9-2007-0001.

5. Submit to the Regional Board, within 180 days of adoption of this Order, a formal agreement between the Copermittees which provides a management structure for meeting the requirements of this Order (as described in section L).

6. Coordinate joint development by all of the Copermittees of standardized format(s) for all documents and reports required under this Order (e.g., JURMPs, WURMPs, annual reports, monitoring reports, etc.). The standardized reporting format(s) shall be used by all Copermittees. The Principal Permittee shall submit the standardized format(s) to the Regional Board for review no later than 180 days after adoption of this Order.

N. RECEIVING WATERS MONITORING AND REPORTING PROGRAM

Pursuant to CWC section 13267, the Copermittees shall comply with all the requirements contained in Receiving Waters and Urban Runoff Monitoring and Reporting Program No. R9-2007-0001.

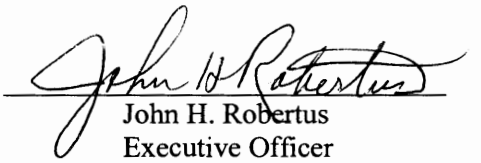
O. STANDARD PROVISIONS, REPORTING REQUIREMENTS, AND NOTIFICATIONS

1. Each Copermittee shall comply with Standard Provisions, Reporting Requirements, and Notifications contained in Attachment B of this Order. This includes 24 hour/5day reporting requirements for any instance of non-compliance with this Order as described

in section 5.e of Attachment B.

2. All plans, reports and subsequent amendments submitted in compliance with this Order shall be implemented immediately (or as otherwise specified). All submittals by Copermittees must be adequate to implement the requirements of this Order.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on January 24, 2007.



John H. Robertus
Executive Officer

ATTACHMENT A

BASIN PLAN PROHIBITIONS

California Water Code Section 13243 provides that a Regional Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste, or certain types of waste is not permitted. The following discharge prohibitions are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the San Diego Region.

1. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code Section 13050, is prohibited.

2. The discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water Code Section 13264 is prohibited.

3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by a NPDES permit or a dredged or fill material permit (subject to the exemption described in California Water Code Section 13376) is prohibited.

4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this Regional Board issues a NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Department of Health Services and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.

5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the Regional Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the Regional Board.

7. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the Regional Board.

8. Any discharge to a storm water conveyance system that is not composed entirely of "storm water" is prohibited unless authorized by the Regional Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from

fire fighting activities. [§122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

9. The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

10. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in California Water Code Section 13264, is prohibited.

11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state is prohibited.

12. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.

13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the Regional Board.

14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the state or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

15. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.

16. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.

17. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at mean lower low water (MLLW) is prohibited.

18. The discharge of treated sewage from vessels, which do not have a properly functioning US Coast Guard certified Type I or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at mean lower low water (MLLW) is prohibited.

ATTACHMENT B

STANDARD PROVISIONS, REPORTING REQUIREMENTS, AND NOTIFICATIONS

1. STANDARD PROVISIONS – PERMIT COMPLIANCE [40 CFR 122.41]

(a) *Duty to comply* [40 CFR 122.41(a)].

(1) The Copermittee must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (CWC) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application.

(2) The Copermittee shall comply with effluent standards or prohibitions established under section 307(a) of the CWA toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if the Order has not yet been modified to incorporate the requirement.

(b) *Need to halt or reduce activity not a defense* [40 CFR 122.41(c)]. It shall not be a defense for the Copermittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.

(c) *Duty to mitigate* [40 CFR 122.41(d)]. The Copermittee shall take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment.

(d) *Proper operation and maintenance* [40 CFR 122.41(e)]. The Copermittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Copermittee to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Copermittee only when necessary to achieve compliance with the conditions of this Order.

(e) *Property rights* [40 CFR 122.41(g)].

(1) This Order does not convey any property rights of any sort or any exclusive privilege.
(2) The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations.

(f) *Inspection and entry* [40 CFR 122.41(i)]. The Copermittee shall allow the Regional Water Quality Control Board, San Diego Region (Regional Board), State Water Resources Control Board (SWRCB), United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon presentation of credentials and other documents as may be required by law, to:

(1) Enter upon the Copermittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
(2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
(3) Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
(4) Sample or monitor, at reasonable times, for the purpose of assuring Order compliance or as otherwise authorized by the CWA or the CWC, any substances or parameters at any location.

(g) *Bypass* [40 CFR 122.41(m)]

(1) Definitions:

i) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.
ii) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

(2) Bypass not exceeding limitations - The Copermittee may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance (g)(3), (g)(4) and (g)(5) below.

(3) Prohibition of Bypass - Bypass is prohibited, and the Regional Board may take enforcement action against a Copermittee for bypass, unless:

i) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;
ii) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
iii) The Copermittee submitted notice as required under Standard Provisions – Permit Compliance (g)(3) above.

(4) Notice

i) Anticipated bypass. If the Copermittee knows in advance of the need for a bypass, it shall submit a notice, if possible at least ten days before the date of the bypass.
ii) Unanticipated bypass. The Copermittee shall submit notice of an unanticipated bypass as required in Standard Provisions 5(e) below (24-hour notice).

(h) *Upset* [40 CFR 122.41(n)] Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the Copermittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

(1) Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance (h)(2) below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

(2) Conditions necessary for a demonstration of upset. A Copermittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

i) An upset occurred and that the Copermittee can identify the cause(s) of the upset;
ii) The permitted facility was at the time being properly operated;
iii) The Copermittee submitted notice of the upset as required in Standard Provisions – Permit Compliance (5)(e)(ii)(B) below (24-hour notice); and
iv) The Copermittee complied with any remedial measures required under Standard Provisions – Permit Compliance 1(c) above.

(3) Burden of Proof. In any enforcement proceeding, the Copermittee seeking to establish the occurrence of an upset has the burden of proof.

2. STANDARD PROVISIONS – PERMIT ACTION

(a) *General* [40 CFR 122.41(f)] This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Copermittee for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition.

(b) *Duty to reapply* [40 CFR 122.41(b)]. If the Copermittee wishes to continue an activity regulated by this Order after the expiration date of this Order, the Copermittee must apply for and obtain new permit.

(c) *Transfers*. This Order is not transferable to any person except after notice to the Regional Board. The Regional Board may require modification or revocation and reissuance of the Order to change the name of the Copermittee and incorporate such other requirements as may be necessary under the CWA and the CWC.

3. STANDARD PROVISIONS – MONITORING

(a) Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. [40 CFR Section 122.41 (j) (1)]

(b) Monitoring results must be conducted according to test procedures under 40 CFR Part 136, or in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise

specified in 40 CFR Part 503 unless other test procedures have been specified in this Order [40 CFR Section 122.41(j)(4)][40 CFR Section 122.44(i)(1)(iv)].

4. STANDARD PROVISIONS – RECORDS

(a) Except for records of monitoring information required by this Order related to the Copermittee's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), the Copermittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application, This period may be extended by request of the Regional Water Board Executive Officer at any rime [40 CFR Section 122.41(j)(2)].

(b) *Records of monitoring information* [40 CFR 122.41(j) (3)] shall include:

(1) The date, exact place, and time of sampling or measurements;
(2) The individual(s) who performed the sampling or measurements;
(3) The date(s) analyses were performed;
(4) The individual(s) who performed the analyses;
(5) The analytical techniques or methods used; and
(6) The results of such analyses.

(c) *Claims of confidentiality* [40 CFR Section 122.7(b)] of the following information will be denied:

(1) The name and address of any permit applicant or Copermittee; and
(2) Permit applications and attachments, permits and effluent data.

5. STANDARD PROVISIONS – REPORTING

(a) *Duty to provide information* [40 CFR 122.41(h)]. The Copermittee shall furnish to the Regional Board, SWRCB, or USEPA within a reasonable time, any information which the Regional Board, SWRCB, or USPEA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Copermittee shall also furnish to the Regional Board, SWRCB, or USEPA, copies of records required to be kept by this Order.

(b) *Signatory and Certification Requirements* [40 CFR 122.41(k)]

(1) All applications, reports, or information submitted to the Regional Board, SWRCB, or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting 5(b)ii), 5(b)iii), 5(b)iv), and 5(b) (see 40 CFR 122.22)

(2) *Applications* [40 CFR 122.22(a)(3)] All permit applications shall be signed by either a principal executive officer or ranking elected official.

(3) *Reports* [40 CFR 122.22(b)]. All reports required by this Order, and other information requested by the Regional Board, SWRCB, or USEPA shall be signed by a person described in Standard Provisions – Reporting 5(b)(2) above, or by a duly authorized

representative of that person. A person is a duly authorized representative only if:

i) The authorization is made in writing by a person described in Standard Provisions-Reporting 5(b)(2) above;

ii) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and,

iii) The written authorization is submitted to the Regional Water Board and State Water Board.

(4) *Changes to authorization* [40 CFR Section 122.22(c)] If an authorization under Standard Provisions – Reporting 5(b)(3)of this reporting requirement is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting 5(b)(3) above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications to be signed by an authorized representative.

(5) *Certification* [40 CFR Section 122.22(d)] Any person signing a document under Standard Provisions – Reporting 5(b)(2), or 5(b)(3) above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

(c) *Monitoring reports*. [40 CFR 122.41(l)(4)]

(1) Monitoring results shall be reported at the intervals specified in the Receiving Waters and Urban Runoff Monitoring and Reporting Program No. R9-2007-0001.

(2) Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Board or SWRCB for reporting results of mentoring of sludge use or disposal practices.

(3) If the Copermittee monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Board.

(4) Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order.

(d) *Compliance schedules*. [40 CFR Section 122.41(l)(5)] Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order shall be submitted no later than 14 days following each schedule date.

(e) *Twenty-four hour reporting* [40 CFR Section 122.41(l)(6)]

(1) The Copermittee shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Copermittee becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Copermittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

(2) The following shall be included as information, which must be reported within 24 hours under this paragraph:

i) Any unanticipated bypass that exceeds any effluent limitation in the Order (See 40 CFR 122.41(g)).
ii) Any upset which exceeds any effluent limitation in this Order.

(3) The Regional Board may waive the above-required written report under this provision on a case-by-case basis if the oral report has been received within 24 hours.

(f) *Planned changes*. [40 CFR Section 122.41(l)(1)] The Copermittee shall give notice to the Regional Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when:

(1) The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b); or

(2) The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants, which are not subject to effluent limitations in this Order.

(3) The alteration or addition results in a significant change in the Copermittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing Order, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

(g) *Anticipated noncompliance*. [40 CFR Section 122.41(l)(7)] The Copermittee shall give advance notice to the Regional Board or SWRCB of any planned changes in the permitted facility or activity, which may result in noncompliance with Order requirements.

(h) *Other noncompliance* [40 CFR Section 122.41(l) 7)] The Copermittee shall report all instances of noncompliance not reported under Standard Provisions 5(c), 5(d), and 5(e) above, at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting 5(e) above.

(i) *Other information* [40 CFR Section 122.41(l)(8)] When the Copermittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Board, SWRCB, or USEPA, the Copermittee shall promptly submit such facts or information.

6. STANDARD PROVISIONS – ENFORCEMENT

(a) The Regional Board is authorized to enforce the terms of this permit under several provisions of the CWC, including, but not limited to, Sections 13385, 13386, and 13387.

7. ADDITIONAL STANDARD PROVISIONS

(a) *Municipal separate storm sewer systems* [40 CFR 122.42(c)]. The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer that has been designated by the Director under 40 CFR 122.26(a)(1)(v) must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include:

(1) The status of implementing the components of the storm water management program that are established as permit conditions;

(2) Proposed changes to the storm water management programs that are established as permit conditions. Such proposed changes shall be consistent with 40 CFR 122.26(d)(2)(iii); and

(3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under 40 CFR 122.26(d)(2)(iv) and 40 CFR 122.26(d)(2)(v);

(4) A summary of data, including monitoring data, that is accumulated throughout the reporting year;

(5) Annual expenditures and budget for year following each annual report;

(6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; and

(7) Identification of water quality improvements or degradation.

(b) *Storm water discharges* [40 CFR 122.42(d)]. The initial permits for discharges composed entirely of storm water issued pursuant to 40 CFR 122.26(e)(7) shall require compliance with the conditions of the permit as expeditiously as practicable, but in no event later than three years after the date of issuance of the permit.

(c) *Other Effluent Limitations and Standards* [40 CFR 122.44(b)(1)]. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the CWA for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the Regional Board may institute

proceedings under these regulations to modify or revoke and reissue the Order to conform to the toxic effluent standard or prohibition.

(d) *Discharge is a privilege* [CWC section 13263(g)]. No discharge of waste into the waters of the State, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the State are privileges, not rights.

(e) *Review and revision of Order* [CWC section 13263(e)]. Upon application by any affected person, or on its own motion, the Regional Board may review and revise this permit.

(f) *Termination or modification of Order* [CWC section13381]. This permit may be terminated or modified for causes, including, but not limited to, all of the following:

(1) Violation of any condition contained in this Order;
(2) Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts.
(3) A change in any condition that requires either a temporary or permanent reduction or elimination of the permitted discharge.

(g) *Transfers*. When this Order is transferred to a new owner or operator, such requirements as may be necessary under the CWC may be incorporated into this Order.

(h) *Conditions not stayed*. The filing of a request by the Copermittee for modification, revocation and reissuance, or termination of this Order, or a notification of planned change in or anticipated noncompliance with this Order does not stay any condition of this Order.

(i) *Availability*. A copy of this Order shall be kept at a readily accessible location and shall be available to on-site personnel at all times.

(j) *Duty to minimize or correct adverse impacts*. The Copermittees shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncompliance.

(k) *Interim Effluent Limitations.* The Copermittee shall comply with any interim effluent limitations as established by addendum, enforcement action, or revised waste discharge requirements which have been, or may be, adopted by this Regional Board.

(l) *Responsibilities, liabilities, legal action, penalties* [CWC sections 13385 and 13387]. The Porter-Cologne Water Quality Control Act provides for civil and criminal penalties comparable to, and in some cases greater than, those provided for under the CWA.

Nothing in this Order shall be construed to protect the Copermittee from its liabilities under federal, state, or local laws.

Except as provided for in 40CFR 122.41(m) and (n), nothing in this Order shall be construed to relieve the Copermittee from civil or criminal penalties for noncompliance.

Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties to which the Copermittee is or may be subject to under Section 311 of the CWA.

Nothing in this Order shall be construed to preclude institution of any legal action or relieve the Copermittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation under authoring preserved by Section 510 of the CWA.

(m) *Noncompliance*. Any noncompliance with this Order constitutes violation of the CWC and is grounds for denial of an application for modification of the Order (also see 40 CFR 122.41(a).

(n) *Director*. For purposes of this Order, the term "Director" used in parts of 40 CFR incorporated into this Order by reference and/or applicable to this Order shall have the same meaning as the term "Regional Board" used elsewhere in this Order, except that in 40 CFR 122.41(h) and (I), "Director" shall mean "Regional Board, SWRCB, and USEPA."

(o) The Regional Board has, in prior years, issued a limited number of individual NPDES permits for non-storm water discharges to MS4s. The Regional Board or SWRCB may in the future, upon prior notice to the Copermittee(s), issue an NPDES permit for any non-storm water discharge (or class of non-storm water discharges) to a MS4. Copermittees may prohibit any non-storm water discharge (or class of non-storm water discharges) to a MS4 that is authorized under such separate NPDES permits.

(p) *Effective date*. This Order shall become effective on the date of its adoption provided the USEPA has no objection. If the USEPA objects to its issuance, this Order shall not become effective until such objection is withdrawn. This Order supersedes Order No. 2001-01 upon the effective date of this Order.

(q) *Expiration*. This Order expires five years after adoption.

(r) *Continuation of expired order* [23 CCR 2235.4]. After this Order expires, the terms and conditions of this Order are automatically continued pending issuance of a new permit if all requirements of the federal NPDES regulations on the continuation of expired permits (40 CFR 122.6) are complied with.

(s) *Applications*. Any application submitted by a Copermittee for reissuance or modification of this Order shall satisfy all applicable requirements specified in federal regulations as well as any additional requirements for submittal of a Report of Waste Discharge specified in the CWC and the California Code of Regulations.

(t) *Confidentiality*. Except as provided for in 40 CFR 122.7, no information or documents submitted in accordance with or in application for this Order will be considered confidential, and all such information and documents shall be available for review by the public at the Regional Board office.

(u) *Severability*. The provisions of this Order are severable, and if any provision of this Order, or the application of any provisions of this Order to any circumstance, is held invalid, the application of such provision to other circumstances and the remainder of this Order shall not be affected thereby.

(v) *Report submittal*. The Copermittee shall submit reports and provide notifications as required by this Order to the following:

SOUTHERN WATERSHED PROTECTION UNIT
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
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EUGENE BROMLEY
US ENVIRONMENTAL PROTECTION AGENCY
REGION IX
PERMITS ISSUANCE SECTION (W-5-1)
75 HAWTHORNE STREET
SAN FRANCISCO CA 94105

Unless otherwise directed, the Copermittee shall submit one hard copy for the official record and one electronic copy of each report required under this Order to the Regional Board and one electronic copy to the EPA.

ATTACHMENT C

DEFINITIONS

Advanced Treatment- Using mechanical or chemical means to flocculate and remove suspended sediment from runoff from construction sites prior to discharge.

Anthropogenic Litter – Trash generated from human activities, not including sediment.

Basin Plan – Water Quality Control Plan, San Diego Basin, Region 9, and amendments, developed by the Regional Board.

Beneficial Uses - The uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote tangible and intangible economic, social, and environmental goals. "Beneficial Uses" of the waters of the State that may be protected include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law. [California Water Code Section 13050(f)].

Best Management Practices (BMPs) - Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biological integrity) of a water body.

Biocriteria - Under the CWA, numerical values or narrative expressions that define a desired biological condition for a water body that are legally enforceable. The USEPA defines biocriteria as: "numerical values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use…(that)…describe the characteristics of water body segments least impaired by human activities."

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. Environmental Management 5:55-68 as: "A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region." Also referred to as ecosystem health.

Clean Water Act Section 402(p) [33 USC 1342(p)] - The federal statute requiring municipal and industrial dischargers to obtain NPDES permits for their discharges of storm water.

Clean Water Act Section 303(d) Water Body - An impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Construction Site – Any project, including projects requiring coverage under the General Construction Permit, that involves soil disturbing activities including, but not limited to, clearing, grading, disturbances to ground such as stockpiling, and excavation.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is "an impairment of the quality of waters of the State by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. 'Contamination' includes any equivalent effect resulting from the disposal of waste whether or not waters of the State are affected."

Critical Channel Flow (Qc) – The channel flow that produces the critical shear stress that initiates bed movement or that erodes the toe of channel banks. When measuring Qc, it should be based on the weakest boundary material – either bed or bank.

CWA – Federal Clean Water Act

CWC – California Water Code

Development Projects - New development or redevelopment with land disturbing activities; structural development, including construction or installation of a building or structure, the creation of impervious surfaces, public agency projects, and land subdivision.

Dry Season – May 1 through September 30 of each year.

Effectiveness Assessment Outcome Level 1 - Compliance with Activity-based Permit Requirements – Level 1 outcomes are those directly related to the implementation of specific activities prescribed by this Order or established pursuant to it.

Effectiveness Assessment Outcome Level 2 - Changes in Attitudes, Knowledge, and Awareness – Level 2 outcomes are measured as increases in knowledge and awareness among target audiences such as residents, businesses, and municipal employees.

Effectiveness Assessment Outcome Level 3 - Behavioral Change and BMP Implementation – Level 3 outcomes measure the effectiveness of activities in affecting behavioral change and BMP implementation.

Effectiveness Assessment Outcome Level 4 - Load Reductions – Level 4 outcomes measure load reductions which quantify changes in the amounts of pollutants associated with specific sources before and after a BMP or other control measure is employed.

Effectiveness Assessment Outcome Level 5 - Changes in Urban Runoff and Discharge Quality – Level 5 outcomes are measured as changes in one or more specific constituents or stressors in discharges into or from MS4s.

Effectiveness Assessment Outcome Level 6 - Changes in Receiving Water Quality – Level 6 outcomes measure changes to receiving water quality resulting from discharges into and from MS4s, and may be expressed through a variety of means such as compliance with water quality objectives or other regulatory benchmarks, protection of biological integrity, or beneficial use attainment.

Effluent Limitations – Any restriction imposed on quantities, discharge rates, and concentrations of pollutants, which are discharged from point sources into waters of the State. The limitations are designed to ensure that the discharge does not cause water quality objectives to be exceeded in the receiving water and does not adversely affect beneficial uses. Effluent limits are typically numeric (e.g., 10 mg/l), but can also be narrative (e.g., no toxics in toxic amounts).

Erosion – When land is diminished or worn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Environmentally Sensitive Areas (ESAs) - Areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); water bodies designated with the RARE beneficial use by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); areas designated as preserves or their equivalent under the Multi Species Conservation Program within the Cities and County of San Diego; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees.

Feasibility Analysis – Detailed description of the selection process for the treatment control BMPs for a Priority Development Project, including justification of why one BMP is selected over another. For a Priority Development Project where a treatment control BMP with a low removal efficiency ranking (as identified by the Model SUSMP) is proposed, the analysis shall include a detailed and adequate justification exhibiting the reasons implementation of a treatment control BMP with a higher removal efficiency is infeasible for the Priority Development Project or portion of the Priority Development Project.

Flow Duration – The long-term period of time that flows occur above a threshold that causes significant sediment transport and may cause excessive erosion damage to creeks and streams (not a single storm event duration). The simplest way to visualize this is to consider a histogram of pre- and post-project flows using long-term records of hourly data. To maintain pre-project flow duration means that the total number of hours (counts) within each range of flows in a flow-duration histogram cannot increase between the pre- and post-project condition. Flow duration within the range of geomorphologically significant flows is important for managing erosion.

GIS – Geographic Information System

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Hazardous Material – Any substance that poses a threat to human health or the environment due to its toxicity, corrosiveness, ignitability, explosive nature or chemical reactivity. These also include materials named by the USEPA in 40 CFR 116 to be reported if a designated quantity of the material is spilled into the waters of the U.S. or emitted into the environment.

Hazardous Waste - Hazardous waste is defined as "any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code" [CCR Title 22, Division 4.5, Chapter 11, Article 1].

Household Hazardous Waste – Paints, cleaning products, and other wastes generated during home improvement or maintenance activities.

Hydromodification – The change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, interflow and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport. In addition, alteration of stream and river channels, installation of dams and water impoundments, and excessive streambank and shoreline erosion are also considered hydromodification, due to their disruption of natural watershed hydrologic processes.

Illicit Connection – Any connection to the MS4 that conveys an illicit discharge.

Illicit Discharge - Any discharge to the MS4 that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities [40 CFR 122.26(b)(2)].

Implementation Assessment – Assessment conducted to determine the effectiveness of Copermittee programs and activities in achieving measurable targeted outcomes, and in determining whether priority sources of water quality problems are being effectively addressed.

Inactive Slopes – Slopes on which no grading or other soil disturbing activities are conducted for 10 or more days.

Integrated Assessment – Assessment to be conducted to evaluate whether program implementation is properly targeted to and resulting in the protection and improvement of water quality.

Jurisdictional Urban Runoff Management Plan (JURMP) – A written description of the specific jurisdictional urban runoff management measures and programs that each Copermittee will implement to comply with this Order and ensure that pollutant discharges in urban runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

Low Impact Development (LID) – A storm water management and land development strategy that emphasizes conservation and the use of on-site natural features integrated with engineered, small-scale hydrologic controls to more closely reflect pre-development hydrologic functions.

Maximum Extent Practicable (MEP) – The technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that operators of MS4s must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of source control and treatment control BMPs. MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their urban runoff management programs. Their total collective and individual activities conducted pursuant to the urban runoff management programs becomes their

proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for MS4 maintenance). In the absence of a proposal acceptable to the Regional Board, the Regional Board defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

> "*To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:*
>
> *a. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
> *b. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
> *c. Public Acceptance: Does the BMP have public support?*
> *d. Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
> *e. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?*
>
> *The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."*

Municipal Separate Storm Sewer System (MS4) – A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to

waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.

National Pollutant Discharge Elimination System (NPDES) - The national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.

NOI – Notice of Intent

Non-Storm Water - All discharges to and from a MS4 that do not originate from precipitation events (i.e., all discharges from a MS4 other than storm water). Non-storm water includes illicit discharges, non-prohibited discharges, and NPDES permitted discharges.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act a nuisance is "anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes."

Order – Order No. R9-2007-0001 (NPDES No. CAS0108758)

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant - Any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution - As defined in the Porter-Cologne Water Quality Control Act: "the alteration of the quality of the waters of the State by waste, to a degree that unreasonably affects the either of the following: 1) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses." Pollution may include contamination.

Pollutants of Concern – Pollutants for which water bodies are listed as impaired under CWA section 303(d), pollutants associated with the land use type of a development, and/or pollutants commonly associated with urban runoff. Pollutants commonly associated with urban runoff include total suspended solids; sediment; pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc, and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers); oxygen-demanding substances (decaying vegetation, animal waste, and anthropogenic litter).

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control BMPs, treatment control BMPs, or disposal.

Post-Construction BMPs - A subset of BMPs including structural and non-structural controls which detain, retain, filter, or educate to prevent the release of pollutants to surface waters during the final functional life of developments.

Pre-Project or Pre-Development Runoff Conditions (Discharge Rates, Durations, Etc.) – Runoff conditions that exist onsite immediately before the planned development activities occur. This definition is not intended to be interpreted as that period before any human-induces land activities occurred. This definition pertains to redevelopment as well as initial development.

Principal Permittee – County of San Diego

Priority Development Projects - New development and redevelopment project categories listed in Section D.1.d(2) of Order No. R9-2007-0001.

Receiving Waters – Waters of the U.S.

Receiving Water Limitations (RWLs) - Waste discharge requirements issued by the Regional Board typically include both: (1) "Effluent Limitations" (or "Discharge Limitations") that specify the technology-based or water-quality-based effluent limitations; and (2) "Receiving Water Limitations" that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the "Receiving Water Limitations" provision is the provision used to implement the requirement of CWA section 301(b)(1)(C) that NPDES permits must include any more stringent limitations necessary to meet water quality standards.

Redevelopment - The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; resurfacing and reconfiguring surface parking lots and existing roadways; new sidewalk construction, pedestrian ramps, or bikelane on existing roads; and routine replacement of damaged pavement, such as pothole repair.

Regional Urban Runoff Management Plan (RURMP) – A written description of the specific regional urban runoff management measures and programs that the Copermittees will collectively implement to comply with this Order and ensure that pollutant discharges in urban runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Shared Treatment Control BMP - BMPs used by multiple developments to infiltrate, filter, or treat the required volume or flow prior to discharge to a receiving water. This could include, for example, a treatment BMP at the end of an enclosed storm drain that collects runoff from several commercial developments.

Source Control BMP – Land use or site planning practices, or structural or nonstructural measures that aim to prevent urban runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between pollutants and urban runoff.

Storm Water – Per 40 CFR 122.26(b)(13), means storm water runoff, snowmelt runoff and surface runoff and drainage.

Standard Urban Storm Water Mitigation Plan (SUSMP) – A plan developed to mitigate the impacts of urban runoff from Priority Development Projects.

Third Party Inspectors - Industrial and commercial facility inspectors who are not contracted or employed by a regulatory agency or group of regulatory agencies, such as the Regional Board or Copermittees. The third party inspector is not a regular facility employee self-inspecting their own facility. The third party inspector could be a contractor or consultant employed by a facility or group of businesses to conduct inspections.

Total Maximum Daily Load (TMDL) - The maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under CWA section 303(d), TMDLs must be developed for all water bodies that do not meet water quality standards after application of technology-based controls.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part…"All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life….The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge".

Treatment Control BMP – Any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

Urban Runoff - All flows in a storm water conveyance system and consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water illicit discharges (dry weather flows).

Waste - As defined in CWC Section 13050(d), "waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system that applies to solid and semi-solid waste, which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, non-hazardous solid waste, and inert waste.

Water Quality Assessment – Assessment conducted to evaluate the condition of non-storm water and storm water discharges, and the water bodies which receive these discharges.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans.

Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne's definition of pollution. A condition of pollution exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the CWA.)

Water Quality Standards - The beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of water and the water quality objectives necessary to protect those uses.

Waters of the State - Any water, surface or underground, including saline waters within the boundaries of the State [CWC section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is considered to be a Waters of the State regardless of circumstances or condition. Under this definition, a MS4 is always considered to be a Waters of the State.

Waters of the United States - As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: "(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition: (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition; (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other

than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

Watershed Urban Runoff Management Plan (WURMP) – A written description of the specific watershed urban runoff management measures and programs that each watershed group of Copermittees will implement to comply with this Order and ensure that pollutant discharges in urban runoff are reduced to the MEP and do not cause or contribute to a violation of water quality standards.

WDRs – Waste Discharge Requirements

Wet Season – October 1 through April 30 of each year.

ATTACHMENT D

SCHEDULED SUBMITTALS SUMMARY

Submittal	Permit Section	Completion Date	Frequency
Submit identification of discharges not to be prohibited and BMPs required for treatment of discharges not prohibited	B.2	365 days after adoption of the Order	One Time
Submit Certified Statement of Adequate Legal Authority	C.2	365 days after adoption of the Order	One Time
Long-Term Effectiveness Assessment	I.5 and J.2.b	210 days prior to Order expiration	One Time
Submit to Principal Permittee(s) individual JURMPs	J.1.a.(1)	Prior to 365 days after adoption of the Order (Principal Permittee specifies date of submittal)	One Time
Principal Permittee submits JURMPs to Regional Board	J.1.a.(2)	365 days after adoption of the Order	One Time
Lead Watershed Permittees submit WURMPs to Principal Permittee	J..1.b.(2)	Prior to 365 days after adoption of the Order (Principal Permittee specifies date of submittal)	One Time
Principal Permittee submits WURMPs to Regional Board	J.1.b.(3)	365 days after adoption of the Order	One Time
Principal Permittee submits RURMP to Regional Board	J.1.c.(2)	365 days after adoption of the Order	One Time
Principal Permittee submits Hydromodification Management Plan workplan	J.2.a.(2)(a)	180 days after adoption of the Order	One Time
Principal Permittee submits Hydromodification Management Plan progress report	J.2.a.(2)(b)	18 months after adoption of the Order	One Time
Principal Permittee submits draft Hydromodification Management Plan	J.2.a.(2)(c)	2 years after adoption of the Order	One Time
Principal Permittee submits final Hydromodification Management Plan	J.2.a.(2)(d)	180 days after receiving comments from Regional Board	One Time
Principal Permittee submits Model SUSMP update	J.2.b	18 months after adoption of the Order	One Time
Copermittees submit local SUSMP updates	J.2.b	365 days after acceptance of updated Model SUSMP	One Time
Principal Permittee submits Report of Waste Discharge and Long-Term Effectiveness Assessment	J.2.c-d	210 days prior to Order expiration	One Time
Principal Permittee submits Notification of Principal Permittee	M	180 days after adoption of the Order	One Time
Principal Permittee submits formal agreement between Copermittees which provides management structure for meeting Order requirements	M.5	180 days after adoption of Order	One Time
Submit to Principal Permittee individual Jurisdictional Urban Runoff Management Program Annual Reports	J.3.a.(1)	Prior to September 30, 2008, and annually thereafter (Principal Permittee specifies date of submittal)	Annually
Principal Permittee submits unified Jurisdictional Urban Runoff Management Program Annual Report to Regional Board	J.3.a.(2)	September 30, 2008, and annually thereafter	Annually
Lead Watershed Permittees submit to Principal Permittee Watershed Urban Runoff Management Program Annual Reports	J.3.b.(3)	Prior to January 31, 2009 and annually thereafter (Principal Permittee specifies date of submittal)	Annually
Principal Permittee submits unified Watershed Urban Runoff Management Program Annual Report to Regional Board	J.3.b.(3)	January 31, 2009 and annually thereafter	Annually
Principal Permittee submits Regional Urban Runoff	J.3.c	January 31, 2009 and	Annually

Submittal	Permit Section	Completion Date	Frequency
Management Program Annual Report to Regional Board		annually thereafter	
Principal Permittee submits description of Receiving Waters Monitoring Program	Monitoring and Reporting Program, III.A.1	September 1, 2007 and annually thereafter	Annually
Principal Permittee submits description of various monitoring program components	Monitoring and Reporting Program, III.A.3	July 1, 2007 and July 1, 2008	Twice
Principal Permittee submits Receiving Waters Monitoring Program Annual Report	Monitoring and Reporting Program, III.A.2	January 31, 2009 and annually thereafter	Annually
Principal Permittee submits interim Receiving Waters Monitoring Program Annual Report	Monitoring and Reporting Program, III.B	January 31, 2007 and January 31, 2008	Twice
Principal Permittee submits unified interim Jurisdictional URMP and Watershed URMP Annual Reports	J.4	January 31, 2007 and January 31, 2008	Twice
Principal Permittee(s) shall submit standardized formats for all reports required under this Order	M.6	180 days after adoption of Order	One Time

RECEIVING WATERS AND URBAN RUNOFF MONITORING AND REPORTING PROGRAM NO. R9-2007-0001

I. PURPOSE

A. This Receiving Waters and Urban Runoff Monitoring and Reporting Program is intended to meet the following goals:

1. Assess compliance with Order No. R9-2007-0001;
2. Measure and improve the effectiveness of the Copermittees' urban runoff management programs;
3. Assess the chemical, physical, and biological impacts to receiving waters resulting from urban runoff discharges;
4. Characterize urban runoff discharges;
5. Identify sources of specific pollutants;
6. Prioritize drainage and sub-drainage areas that need management actions;
7. Detect and eliminate illicit discharges and illicit connections to the MS4; and
8. Assess the overall health of receiving waters.

B. In addition, this Receiving Waters and Urban Runoff Monitoring and Reporting Program is designed to answer the following core management questions:

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative urban runoff contribution to the receiving water problem(s)?
4. What are the sources of urban runoff that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

II. MONITORING PROGRAM

A. Receiving Waters Monitoring Program

Each Copermittee shall collaborate with the other Copermittees to develop, conduct, and report on a year round watershed based Receiving Waters Monitoring Program. The monitoring program design, implementation, analysis, assessment, and reporting shall be conducted on a watershed basis for each of the hydrologic units. The monitoring program shall be designed to meet the goals and answer the questions listed in section I above. The monitoring program shall include the following components:

1. MASS LOADING STATION (MLS) MONITORING

a. The following existing mass loading stations shall continue to be monitored: Santa Margarita River,[1] San Luis Rey River, Agua Hedionda Creek, Escondido Creek, San Dieguito River, Penasquitos, Tecolote Creek, San Diego River,

[1] For the Santa Margarita River mass loading station, if Camp Pendleton will not conduct the required monitoring or prevents access for the Copermittees to conduct the required monitoring, the mass loading station location shall be moved to where the County of San Diego has land-use jurisdiction.

Chollas Creek, Sweetwater River, and Tijuana River. The mass loading stations shall be monitored at the frequency identified in Table 1.

Table 1. Monitoring Rotation and Number of Stations in Watersheds

Watershed Management Area	Watershed	Permit Year 1 2007-2008				Permit Year 2 2008-2009				Permit Year 3 2009-2010				Permit Year 4 2010-2011				Permit Year 5 2011-2012			
		MLS	TWAS	ABLM	BA	MLS	TWAS	ABLM	BA	MLS	TWAS	ABLM	BA	MLS	TWAS	ABLM	BA	MLS	TWAS	ABLM	BA
Santa Margarita	Santa Margarita River	1		Implement refined program based on assessment	4	1	Bight '08					Implement refined program based on assessment		1		Implement refined program based on assessment	4			Implement refined program based on assessment	
San Luis Rey	San Luis Rey River	1	2		3	1								1	2		3				
Carlsbad	Buena Vista Creek		1		1										1		1				
	Agua Hedionda Creek	1	1		2	1								1	1		2				
	Escondido Creek	1	1		2	1								1	1		2				
San Dieguito	San Dieguito River	1	2		3	1								1	2		3				
Penasquitos	Penasquitos	1	2		3	1								1	2		3				
Mission Bay	Rose Creek										1		1						1		1
	Tecolote Creek					1				1	1		2					1	1		2
San Diego River	San Diego River					1				1	3		4					1	3		4
San Diego Bay	Chollas Creek	1			1	1				1			1	1			1	1			1
	Sweetwater River					1				1	1		2					1	1		2
	Otay River										1		1						1		1
Tijuana	Tijuana River					1				1	2		3					1	1		2

b. Each mass loading station to be monitored in a given year shall be monitored twice during wet weather events and twice during dry weather flow events. The exception is the 2008-2009 monitoring year, which shall include monitoring of all mass loading stations for one wet weather flow event only if the Copermittees participate in Bight '08.

c. Each mass loading station shall be monitored for the first wet weather event of the season which meets the USEPA's criteria as described in 40 CFR 122.21(g)(7). Monitoring of the second wet weather event shall be conducted after February 1. Dry weather mass loading monitoring events shall be sampled in September or October prior to the start of the wet weather season and in May or June after the end of the wet weather season. If flows are not evident in September or October, then sampling shall be conducted during non-rain events in the wet weather season.

d. Mass loading sampling and analysis protocols shall be consistent with 40 CFR 122.21(g)(7)(ii) and with the USEPA Storm Water Sampling Guidance Document (EPA 833-B-92-001). If practicable, the protocols for mass loading sampling and analysis should be SWAMP comparable. If the mass loading sampling and analysis are determined to be impracticable with the SWAMP standards, the Copermittees should provide explanation and discussion to this effect in the Receiving Waters and Urban Runoff Monitoring Annual Report. Wet weather samples shall be flow-weighted composites, collected for the duration of the entire runoff event, where practical. Where such monitoring is not practical, such as for large watersheds with significant groundwater recharge flows, composites shall be collected at a minimum during the first 3 hours of flow. Dry weather event samples shall be flow-weighted composites, collected for a time duration adequate to be representative of changes in pollutant concentrations and runoff flows which may occur over a typical 24 hour period. A minimum of 3 sample aliquots, separated by a minimum of 15 minutes, shall be taken for each hour of monitoring, unless the Regional Board Executive Officer approves an alternate protocol. Automatic samplers shall be used to collect samples from mass loading stations. Grab samples shall be taken for temperature, pH, specific conductance, biochemical oxygen demand, oil and grease, total coliform, fecal coliform, and enterococcus.

e. Copermittees shall measure or estimate flow rates and volumes for each mass loading station sampling event in order to determine mass loadings of pollutants. Data from nearby USGS gauging stations may be utilized, or flow rates may be estimated in accordance with the USEPA Storm Water Sampling Guidance Document (EPA-833-B-92-001), Section 3.2.1.

f. In the event that the required number of events are not sampled during one monitoring year at any given station, the Copermittees shall submit, with the subsequent Receiving Waters Monitoring Annual Report, a written explanation for a lack of sampling data, including streamflow data from the nearest USGS gauging station.

g. The following constituents shall be analyzed for each monitoring event at each station:

Table 2. Analytical Testing for Mass Loading and Temporary Watershed Assessment Stations

Conventionals, Nutrients, Hydrocarbons	**Pesticides**	**Metals (Total and Dissolved)**	**Bacteriological**
Total Dissolved Solids	Diazinon	Antimony	Total Coliform
Total Suspended Solids	Chlorpyrifos	Arsenic	Fecal Coliform
Turbidity	Malathion	Cadmium	Enterococcus
Total Hardness		Chromium	
pH		Copper	
Specific Conductance		Lead	
Temperature		Nickel	
Dissolved Phosphorus		Selenium	
Nitrite		Zinc	
Nitrate			
Total Kjeldahl Nitrogen			
Ammonia			
Biological Oxygen Demand, 5-day			
Chemical Oxygen Demand			
Total Organic Carbon			
Dissolved Organic Carbon			
Methylene Blue Active Substances			
Oil and Grease			

h. In addition to the constituents listed in Table 2 above, monitoring stations in the Chollas Creek watershed shall also analyze samples for polychlorinated biphenyls (PCBs), Chlordane, and polycyclic aromatic hydrocarbons (PAHs) for each monitoring event.

i. The following toxicity testing shall be conducted for each monitoring event at each station as follows:
   (1) 7-day chronic test with the cladoceran *Ceriodaphnia dubia* (USEPA protocol EPA-821-R-02-013).
   (2) Chronic test with the freshwater algae *Selenastrum capricornutum* (USEPA protocol EPA-821-R-02-013).
   (3) Acute survival test with amphipod *Hyalella azteca* (USEPA protocol EPA-821-R-02-012).

j. The presence of acute toxicity shall be determined in accordance with USEPA protocol (EPA-821-R-02-012). The presence of chronic toxicity shall be determined in accordance with USEPA protocol (EPA-821-R-02-013).

k. The Copermittees shall collaborate to develop and implement a program to assess the presence of trash (anthropogenic litter) in receiving waters. The program shall collect and evaluate trash data in conjunction with collection and evaluation of analytical data. This monitoring program shall be implemented within each watershed and shall begin no later than the 2007-2008 monitoring year.

2. TEMPORARY WATERSHED ASSESSMENT STATION (TWAS) MONITORING

a. The minimum number of temporary watershed assessment stations to be monitored in a given monitoring year is identified in Table 1. The number of stations located within each watershed may change from the number identified in Table 1, provided the total number of stations monitored in a given year is not reduced below the minimum number of stations identified in Table 1. The

temporary watershed assessment stations shall be monitored and located according to a systematic plan which:

(1) Ensures that the Copermittees' Receiving Waters Monitoring Program most effectively answers questions 1-5 of section I.B above.
(2) Provides statistically useful information.
(3) Identifies the extent and magnitude of receiving water problems within each watershed.
(4) Provides spatial coverage of each watershed.
(5) Monitors previously un-assessed sub-watershed areas.
(6) Focuses on specific areas of concern and high priority areas.
(7) Provides adequate information to assess the effectiveness of implemented programs and control measures in reducing discharged pollutant loads and improving urban runoff and receiving water quality.

b. For each temporary watershed assessment station identified to be monitored in a given year, the station shall be monitored twice during wet weather events and twice during dry weather flow events.

c. Temporary watershed assessment stations shall be monitored in the same manner as the mass loading stations in accordance with the monitoring protocols and requirements outlined in sections II.A.1.c-k above.

3. BIOASSESSMENT (BA) MONITORING

a. The minimum number of bioassessment stations to be monitored in each watershed in a given monitoring year is identified in Table 1. Bioassessment stations shall include an adequate number of reference stations, with locations of reference stations identified according to protocols outlined in "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams," by Ode, et al. 2005.[2]

b. Bioassessment stations shall be collocated with both mass loading stations and temporary watershed assessment stations where feasible.

c. Bioassessment stations to be monitored in a given monitoring year shall be monitored in May or June (to represent the influence of wet weather on the communities) and September or October (to represent the influence of dry weather flows on the communities). The timing of monitoring of bioassessment stations shall coincide with dry weather monitoring of mass loading and temporary watershed assessment stations.

d. Monitoring of bioassessment stations shall utilize the targeted riffle composite approach, as specified in the Surface Water Ambient Monitoring Program (SWAMP) Quality Assurance Management Plan (QAMP), as amended.

[2] Ode, et al. 2005. "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams." Environmental Management. Vol. 35, No. 1, pp. 1-13.

e. Monitoring of bioassessment stations shall incorporate assessment of periphyton in addition to macroinvertebrates, using the USEPA's 1999 Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers.[3]

f. Bioassessment analysis procedures shall include calculation of the Index of Biotic Integrity (IBI) for benthic macroinvertebrates for all bioassessment stations, as outlined in "A Quantitative Tool for Assessing the Integrity of Southern Coastal California Streams," by Ode, et al. 2005.

g. A professional environmental laboratory shall perform all sampling, laboratory, quality assurance, and analytical procedures.

4. FOLLOW-UP ANALYSIS AND ACTIONS

When results from the chemistry, toxicity, and bioassessment monitoring described above indicate urban runoff-induced degradation at a mass loading or temporary watershed assessment station, Copermittees within the watershed shall evaluate the extent and causes of urban runoff pollution in receiving waters and prioritize and implement management actions to eliminate or reduce sources. Toxicity Identification Evaluations (TIEs) shall be conducted to determine the cause of toxicity as outlined in Table 3 below. Other follow-up activities which shall be conducted by the Copermittees are also identified in Table 3. Once the cause of toxicity has been identified by a TIE, the Copermittees shall perform source identification projects as needed and implement the measures necessary to reduce the pollutant discharges and abate the sources causing the toxicity.

Table 3. Triad Approach to Determining Follow-Up Actions

	Chemistry[4]	**Toxicity[5]**	**Bioassessment[6]**	**Action**
1.	Persistent exceedance of water quality objectives (high frequency constituent of concern identified)	Evidence of persistent toxicity	Indications of alteration	Conduct TIE to identify contaminants of concern, based on TIE metric. Address upstream sources as a high priority.
2.	No persistent exceedances of water quality objectives	No evidence of persistent toxicity	No indications of alteration	No action necessary.

[3] USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA-841-B-99-002.

[4] Persistent exceedance shall mean exceedances of established water quality objectives, benchmarks, or action levels by a pollutant known to cause toxicity for two wet weather and/or two dry weather samples in a given year.

[5] Toxicity shall mean when the Lowest Observed Effect Concentration (LOEC) (for chronic toxicity tests) or median lethal concentration (LC_{50}) (for acute toxicity tests) for any given species is less than or equal to 100% of the test sample and observed effects are significantly different from the control. Evidence of persistent toxicity shall mean toxicity to a specific test organism in more than 50% of the samples taken for a given location during a given monitoring year. When a monitoring event has the potential to indicate evidence of persistent toxicity (e.g. the third event of four monitoring events), sufficient samples shall be collected in order to conduct any TIEs that may be required. When a sample collected in order to conduct a TIE does not result in mortality or exhibit a toxic effect in at least 50% of the applicable test organisms in the 100% storm water sample, the TIE may be conducted with a sample collected during the next monitoring event.

[6] Indications of alteration shall mean an IBI score of Poor or Very Poor.

	Chemistry[4]	Toxicity[5]	Bioassessment[6]	Action
3.	Persistent exceedance of water quality objectives (high frequency constituent of concern identified)	No evidence of persistent toxicity	No indications of alteration	Address upstream sources as a low priority.
4.	No persistent exceedances of water quality objectives	Evidence of persistent toxicity	No indications of alteration	Conduct TIE to identify contaminants of concern, based on TIE metric. Address upstream sources as medium priority.
5.	No persistent exceedances of water quality objectives	No evidence of persistent toxicity	Indications of alteration	No action necessary to address toxic chemicals. Address potential role of urban runoff in causing physical habitat disturbance.
6.	Persistent exceedance of water quality objective (high frequency constituent of concern identified)	Evidence of persistent toxicity	No indications of alteration	If chemical and toxicity tests indicate persistent degradation, conduct TIE to identify contaminants of concern, based on TIE metric and address upstream source as a medium priority.
7.	No persistent exceedances of water quality objectives	Evidence of persistent toxicity	Indications of alteration	Conduct TIE to identify contaminants of concern, based on TIE metric. Address upstream sources as a high priority. Address potential role of urban runoff causing physical habitat disturbance.
8.	Persistent exceedance of water quality objectives objective (high frequency constituent of concern identified)	No evidence of persistent toxicity	Indications of alteration	Address upstream source as a high priority.

5. AMBIENT BAY AND LAGOON MONITORING (ABLM)

   a. Ambient Bay and Lagoon Monitoring shall be conducted according to the schedule identified in Table 1.

   b. If results of the Ambient Bay and Lagoon Monitoring assessment indicate a general relationship and/or linkage between conditions in bays/lagoons/estuaries with conditions at mass loading stations, then monitoring shall be conducted at the following locations: Santa Margarita River Estuary, Oceanside Harbor, San Luis Rey Estuary, Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Penasquitos Lagoon, Mission Bay, Sweetwater River Estuary, and Tijuana River Estuary. This monitoring shall be designed to most effectively answer each of questions 1-5 of section I.B above as they pertain to bays/lagoons/estuaries.

c. If results of the Ambient Bay and Lagoon Monitoring assessment do not indicate a relationship and/or linkage between conditions in bays/lagoons/estuaries with conditions at mass loading stations, then monitoring shall be conducted for special investigations of the bays/lagoons/estuaries. These special investigations shall be designed to most effectively answer each of questions 1-5 of section I.B above as they pertain to bays/lagoons/estuaries, with an emphasis on answering question 4.

d. Ambient Bay and Lagoon Monitoring shall utilize the triad approach, analyzing chemistry, toxicity, and benthic infauna data.

e. Ambient Bay and Lagoon Monitoring shall include a water column monitoring component as necessary to supply information needed for the development, implementation, and assessment of Total Maximum Daily Loads (TMDLs).

6. COASTAL STORM DRAIN MONITORING

The Copermittees shall collaborate to develop and implement a coastal storm drain monitoring program. The monitoring program shall include:

a. Identification of coastal storm drains which discharge to coastal waters.

b. Monthly sampling of all flowing coastal storm drains identified in section II.A.6.a for total coliform, fecal coliform, and enterococcus.[7] Where flowing coastal storm drains are discharging to coastal waters, paired samples from the storm drain discharge and coastal water (25 yards down current of the discharge) shall be collected. If flowing coastal storm drains are not discharging to coastal waters, only the storm drain discharge needs to be sampled.

(1) Frequency of sampling of coastal storm drains may be reduced to every other month if the paired coastal storm drain data:

(a) Exhibits three consecutive storm drain samples with all bacterial indicators below the Copermittees' sampling frequency reduction criteria, as the sampling frequency reduction criteria was developed under Order No. 2001-01.
(b) Exhibits that the three consecutive samples discussed in (a) above are paired with receiving water samples that do not exceed Assembly Bill (AB) 411 or Basin Plan standards.
(c) Exhibits that less than 20% of the storm drain samples were above any of the sampling frequency reduction criteria during the previous year.

(2) The Copermittees shall notify the Regional Board of any coastal storm drains eligible for sampling frequency reduction prior to October 1 of each year. Sampling frequency reduction shall not occur prior to Regional Board

[7] Coastal storm drains where sampler safety, habitat impacts from sampling, or inaccessibility are issues need not be sampled. Such coastal storm drains shall be added to the Copermittee's dry weather field screening and analytical monitoring program where feasible.

notification.

(3) Re-sampling shall be implemented within one business day of receipt of analytical results for coastal storm drains where:

(a) Both storm drain and receiving water samples exceed AB 411 or Basin Plan standards for any bacterial indicator.
(b) The storm drain sample exceeds 95th percentile observations of the previous year's data for any bacterial indicator.

(4) If re-sampling conducted under section (3) above exhibits continued exceedances of a AB 411 or Basin Plan standards in either the storm drain or receiving water, investigations of sources of bacterial contamination shall commence within one business day of receipt of analytical results.

(5) Investigations of sources of bacterial contamination shall occur immediately if evidence of abnormally high flows, sewage releases, restaurant discharges, and/or similar evidence is observed during sampling.

(6) Exceedances of public health standards for bacterial indicators shall be reported to the County Department of Environmental Health as soon as possible.

7. PYRETHROIDS MONITORING

The Copermittees shall collaborate to develop and implement a monitoring program to measure and assess the presence of pyrethroids in receiving waters. This monitoring program shall be implemented within each watershed and shall begin no later than the 2007-2008 monitoring year.

B. Urban Runoff Monitoring

Each Copermittee shall collaborate with the other Copermittees to develop, conduct, and report on a year round watershed based Urban Runoff Monitoring Program. The monitoring program design, implementation, analysis, assessment, and reporting shall be conducted on a watershed basis for each of the hydrologic units. The monitoring program shall be designed to meet the goals and answer the questions listed in section I above. The monitoring program shall include the following components

1. MS4 OUTFALL MONITORING

The Copermittees shall collaborate to develop and implement a monitoring program to characterize pollutant discharges from MS4 outfalls in each watershed during wet and dry weather. The program shall include rationale and criteria for selection of outfalls to be monitored. The program shall at a minimum include collection of samples for those pollutants causing or contributing to violations of water quality standards within the watershed. This monitoring program shall be implemented within each watershed and shall begin within the 2007-2008 monitoring year.

2. SOURCE IDENTIFICATION MONITORING

The Copermittees shall collaborate to develop and implement a monitoring program to identify sources of discharges of pollutants causing the priority water quality problems within each watershed. The monitoring program shall include focused monitoring which moves upstream into each watershed as necessary to identify sources. The monitoring program shall use source inventories and "Threat to Water Quality" analysis to guide monitoring efforts. This monitoring program shall be implemented within each watershed and shall begin no later than the 2008-2009 monitoring year.

3. DRY WEATHER FIELD SCREENING AND ANALYTICAL MONITORING

As part of its Jurisdictional Urban Runoff Management Program, each Copermittee shall update as necessary its dry weather field screening and analytical monitoring program to meet or exceed the requirements of this section. Dry weather analytical and field screening monitoring consists of (1) field observations; (2) field screening monitoring; and (3) analytical monitoring at selected stations. The Dry Weather Field Screening and Analytical Monitoring program is not required to be SWAMP comparable. Each Copermittee's program shall be designed to detect and eliminate illicit connections and illegal discharges to the MS4 using frequent, geographically widespread dry weather discharge monitoring and follow-up investigations. Each Copermittee shall conduct the following dry weather field screening and analytical monitoring tasks:

a. Select Dry Weather Field Screening and Analytical Monitoring Stations

Based upon a review of its past Dry Weather Monitoring Program, each Copermittee shall select dry weather field screening and analytical monitoring stations within its jurisdiction. No more than 500 dry weather field screening and analytical monitoring stations (excluding alternate stations) need to be selected by any individual Copermittee for any given year. Stations shall be selected according to one of the following methods:

(1) Stations shall be either major outfalls or other outfall points (or any other point of access such as manholes) randomly located throughout the MS4 by placing a grid over a drainage system map and identifying those cells of the grid which contain a segment of the MS4 or major outfall. This random selection has to use the following guidelines and criteria:

(a) A grid system consisting of perpendicular north-south and east-west lines spaced ¼ mile apart shall be overlayed on a map of the MS4, creating a series of cells;
(b) All cells that contain a segment of the MS4 shall be identified and one dry weather analytical monitoring station shall be selected in each cell.
(c) Each Copermittee shall determine alternate stations to be sampled in place of selected stations that do not have flow.

(2) Stations may be selected non-randomly provided adequate coverage of the entire MS4 system is ensured and that the selection of stations meets,

exceeds, or provides equivalent coverage to the requirements given above. The dry weather analytical and field screening monitoring stations shall be established using the following guidelines and criteria:

(a) Stations should be located downstream of any sources of suspected illegal or illicit activity;
(b) Stations shall be located to the degree practicable at the farthest manhole or other accessible location downstream in the system within each cell;
(c) Hydrological conditions, total drainage area of the site, traffic density, age of the structures or buildings in the area, history of the area, and land use types shall be considered in locating stations;
(d) Each Copermittee shall determine alternate stations to be sampled in place of selected stations that do not have flow.

b. Complete MS4 Map

Each Copermittee shall clearly identify each dry weather field screening and analytical monitoring station on its MS4 Map as either a separate GIS layer or a map overlay hereafter referred to as a Dry Weather Field Screening and Analytical Stations Map. Each Copermittee shall confirm that each drainage area within its jurisdiction contains at least one station.

c. Develop Dry Weather Field Screening and Analytical Monitoring Procedures

Each Copermittee shall develop and/or update written procedures for dry weather field screening and analytical monitoring (for analytical monitoring only, these procedures must be consistent with 40 CFR part 136), including field observations, monitoring, and analyses to be conducted. At a minimum, the procedures must meet the following guidelines and criteria:

(1) Determining Sampling Frequency: Dry weather field screening and analytical monitoring shall be conducted at each identified station at least once between May 1st and September 30th of each year or as often as the Copermittee determines is necessary to comply with the requirements of section D.4 of Order No. R9-2007-0001.

(2) If flow or ponded runoff is observed at a dry weather field screening or analytical monitoring station and there has been at least seventy-two (72) hours of dry weather, make observations and collect at least one (1) grab sample. Record general information such as time since last rain, quantity of last rain, site descriptions (i.e., conveyance type, dominant watershed land uses), flow estimation (i.e., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (i.e., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).

(3) At a minimum, collect samples for analytical laboratory analysis of the following constituents for at least twenty five percent (25%) of the dry weather monitoring stations where water is present:

(a) Total Hardness
(b) Oil and Grease
(c) Diazinon and Chlorpyrifos
(d) Cadmium (Dissolved)
(e) Lead (Dissolved)
(f) Zinc (Dissolved)
(g) Copper (Dissolved)
(h) Enterococcus bacteria[8]
(i) Total Coliform bacteria[8]
(j) Fecal Coliform bacteria[8]

(4) At a minimum, conduct field screening analysis of the following constituents at all dry weather monitoring stations where water is present:

(a) Specific conductance (calculate estimated Total Dissolved Solids).
(b) Turbidity
(c) pH
(d) Reactive Phosphorous
(e) Nitrate Nitrogen
(f) Ammonia Nitrogen
(g) Surfactants (MBAS)

(5) If the station is dry (no flowing or ponded runoff), make and record all applicable observations and select another station from the list of alternate stations for monitoring.

(6) Develop and/or update criteria for dry weather field screening and analytical monitoring results whereby exceedance of the criteria will require follow-up investigations to be conducted to identify and eliminate the source causing the exceedance of the criteria.

(7) Assess the presence of trash in receiving waters and urban runoff at each dry weather field screening or analytical monitoring station. Assessments of trash shall provide information on the spatial extent and amount of trash present, as well as the nature of the types of trash present.

(8) Dry weather field screening and analytical monitoring stations identified to exceed dry weather monitoring criteria for any constituents shall continue to be screened in subsequent years.

(9) Develop and/or update procedures for source identification follow up investigations in the event of exceedance of dry weather field screening and analytical monitoring result criteria. These procedures shall be consistent with procedures required in section D.4.d of Order No. R9-2007-0001.

(10) Develop and/or update procedures to eliminate detected illicit discharges and connections. These procedures shall be consistent with each Copermittees

[8] Colilert and Enterolert may be used as alternative methods with Fecal Coliform determined by calculations.

Illicit Discharge and Elimination component of its Jurisdictional Urban Runoff Management Plan as discussed in section D.4 of Order No. R9-2007-0001.

d. Conduct Dry Weather Field Screening and Analytical Monitoring

The Copermittees shall commence implementation of dry weather field screening and analytical monitoring under the requirements of this Order by May 1, 2008. Each Copermittee shall conduct dry weather analytical and field screening monitoring in accordance with its storm water conveyance system map and dry weather analytical and field screening monitoring procedures as described in section II.B.3 above. If monitoring indicates an illicit connection or illegal discharge, conduct the follow-up investigation and elimination activities as described in submitted dry weather field screening and analytical monitoring procedures and sections D.4.d and D.4.e of Order No. R9-2007-0001. Until the dry weather field screening and analytical monitoring program is implemented under the requirements of this Order, each Copermittee shall continue to implement dry weather field screening and analytical monitoring as it was most recently implemented pursuant to Order No. 2001-01.

C. Regional Monitoring Program

1. The Copermittees shall participate and coordinate with federal, state, and local agencies and other dischargers in development and implementation of a regional watershed monitoring program as directed by the Executive Officer.

2. Bight '08

a. During the 2008-2009 monitoring year (Permit Year 2), the Copermittees may participate in the Bight '08 study. The Copermittees shall ensure that such participation results in collection and analysis of data useful in addressing the goals and management questions of the Receiving Waters Monitoring Program. Any participation shall include the contribution of all funds not otherwise spent on full implementation of mass loading station, temporary watershed assessment station, ambient bay and lagoon, and bioassessment monitoring. All other monitoring shall continue during the 2008-2009 monitoring year (Permit Year 2) as required.

b. If the Copermittees do not participate in Bight '08, mass loading station, temporary watershed assessment station, ambient bay an lagoon, and bioassessment monitoring shall be conducted as follows:

(1) Permit Year 3 (2009-2010) monitoring shall be conducted in Permit Year 2 (2008-2009) (see Table 1).
(2) Permit Year 4 (2010-2011) monitoring shall be conducted in Permit Year 3 (2009-2010) (see Table 1).
(3) Permit Year 5 (2011-2012) monitoring shall be conducted in Permit Year 4 (2010-2011).

(4) Permit Year 1 (2007-2008) monitoring shall be conducted in Permit Year 5 (2011-2012).

c. If the Copermittees partially participate in Bight '08, monitoring shall be conducted as described in section II.C.2.b above, with the exception of any monitoring offset by the contribution of funds to Bight '08.

D. Special Studies

1. TMDL MONITORING

   a. All monitoring shall be conducted as required in Investigation Order No. R9-2004-0277 for Chollas Creek.

2. REGIONAL HARBOR MONITORING

   a. The Copermittees which discharge to harbors shall participate in the development and implementation of the Regional Harbor Monitoring Program.

3. The Copermittees shall conduct special studies, including any monitoring required for TMDL development and implementation, as directed by the Executive Officer.

E. Monitoring Provisions

All monitoring activities shall meet the following requirements:

1. Where procedures are not otherwise specified in this Receiving Waters Monitoring and Reporting Program (e.g., Dry Weather Field Screening and Analytical Monitoring), sampling, analysis and quality assurance/quality control must be conducted in accordance with the Quality Assurance Management Plan (QAMP) for the State of California's Surface Water Ambient Monitoring Program (SWAMP), adopted by the State Water Resources Control Board (SWRCB).

2. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity [40 CFR 122.41(j)(1)].

3. The Copermittees shall retain records of all monitoring information, including all calibration and maintenance of monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the Report of Waste Discharge and application for this Order, for a period of at least five (5) years from the date of the sample, measurement, report, or application. This period may be extended by request of the Regional Board or USEPA at any time and shall be extended during the course of any unresolved litigation regarding this discharge. [40 CFR 122.41(j)(2), CWC section 13383(a)]

4. Records of monitoring information shall include [40 CFR 122.41(j)(3)]:

   a. The date, exact place, and time of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;

d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

5. All sampling, sample preservation, and analyses must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in this Receiving Waters Monitoring and Reporting Program or approved by the Executive Officer [40 CFR 122.41(j)(4)].

6. The CWA provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both. [40 CFR 122.41(j)(5)]

7. Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified in this Receiving Waters Monitoring and Reporting Program. [40 CFR 122.41(l)(4)(iii)]

8. All chemical, bacteriological, and toxicity analyses shall be conducted at a laboratory certified for such analyses by the California Department of Health Services or a laboratory approved by the Executive Officer.

9. For priority toxic pollutants that are identified in the California Toxics Rule (CTR) (65 Fed. Reg. 31682), the Copermittees shall instruct its laboratories to establish calibration standards that are equivalent to or lower than the Minimum Levels (MLs) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP). If a Copermittee can demonstrate that a particular ML is not attainable, in accordance with procedures set forth in 40 CFR 136, the lowest quantifiable concentration of the lowest calibration standard analyzed by a specific analytical procedure (assuming that all the method specified sample weights, volumes, and processing steps have been followed) may be used instead of the ML listed in Appendix 4 of the SIP. The Copermittee must submit documentation from the laboratory to the Regional Board for approval prior to raising the ML for any priority toxic pollutant.

10. The Regional Board Executive Officer or the Regional Board may make revisions to this Receiving Waters and Urban Runoff Monitoring and Reporting Program at any time during the term of Order No. R9-2007-0001, and may include a reduction or increase in the number of parameters to be monitored, locations monitored, the frequency of monitoring, or the number and size of samples collected.

11. The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six

months per violation, or by both. [40 CFR 122.41(k)(2)]

12. Monitoring shall be conducted according the USEPA test procedures approved under 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis of Pollutants under the Clean Water Act" as amended, unless other test procedures have been specified in this Receiving Waters and Urban Runoff Monitoring and Reporting Program, in Order No. R9-2007-0001, or by the Executive Officer.

13. If the discharger monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, unless otherwise specified in the Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the reports requested by the Regional Board. [40 CFR 122.41(l)(4)(ii)]

III. REPORTING PROGRAM

A. Monitoring Reporting

1. The Principal Permittee shall submit a description of the Receiving Waters and Urban Runoff Monitoring Program to be implemented for every monitoring year. The submittals shall begin on September 1, 2007, and continue every year thereafter. The submittals shall describe all monitoring to be conducted during the upcoming monitoring year. For example, the September 1, 2007 submittal shall describe the monitoring to be conducted from October 1, 2007 through September 30, 2008.

   If the Copermittees participate in Bight '08, their submittal for the 2008-2009 monitoring year shall describe the monitoring to be conducted for Bight '08 and exhibit how the monitoring will result in collection and analysis of data useful in addressing the goals and management questions of the Receiving Waters and Urban Runoff Monitoring Program.

2. The Principal Permittee shall submit the Receiving Waters and Urban Runoff Monitoring Annual Report to the Regional Board on January 31 of each year, beginning on January 31, 2009. Receiving Waters and Urban Runoff Monitoring Annual Reports shall meet the following requirements:

   a. Annual monitoring reports shall include the data/results, methods of evaluating the data, graphical summaries of the data, and an explanation/discussion of the data for each monitoring program component.

   b. Annual monitoring reports shall include a watershed-based analysis of the findings of each monitoring program component. Each watershed-based analysis shall include:

      (1) Identification and prioritization of water quality problems within each watershed.
      (2) Identification and description of the nature and magnitude of potential sources of the water quality problems within each watershed.
      (3) Exhibition of pollutant load and concentration increases or decreases at each mass loading and temporary watershed assessment station.

(4) Evaluation of pollutant loads and concentrations at mass loading and temporary watershed assessment stations with respect to land use, population, sources, and other characteristics of watersheds using tools such as multiple linear regression, factor analysis, and cluster analysis.
(5) Identification of links between source activities/conditions and observed receiving water impacts.
(6) Identification of recommended future monitoring to identify and address sources of water quality problems.
(7) Results and discussion of any TIE conducted, together with actions that will be implemented to reduce the discharge of pollutants and abate the sources causing the toxicity.

c. Annual monitoring reports shall include a detailed description of all monitoring conducted under Investigation Order No. R9-2004-0277 for Chollas Creek. Annual monitoring reports shall also include all information required by Investigation Order No. R9-2004-0277.

d. Annual monitoring reports shall include discussions for each watershed which answer each of the management questions listed in section I.B of this Receiving Waters Monitoring and Reporting Program.

e. Annual monitoring reports shall identify how each of the goals listed in section I.A of this Receiving Waters Monitoring and Reporting Program has been addressed by the Copermittees' monitoring.

f. Annual monitoring reports shall include identification and analysis of any long-term trends in storm water or receiving water quality. Trend analysis shall use nonparametric approaches, such as the Mann-Kendall test, including exogenous variables in a multiple regression model, and/or using a seasonal nonparametric trend model, where applicable.

g. Annual monitoring reports shall provide an estimation of total pollutant loads (wet weather loads plus dry weather loads) due to urban runoff for each of the watersheds specified in Table 4 of Order No. R9-2007-0001.

h. Annual monitoring reports shall for each monitoring program component listed above, include an assessment of compliance with applicable water quality standards.

i. Annual monitoring reports shall describe monitoring station locations by latitude and longitude coordinates, frequency of sampling, quality assurance/quality control procedures, and sampling and analysis protocols.

j. Annual monitoring reports shall use a standard report format and shall include the following:

(1) A stand alone comprehensive executive summary addressing all sections of the monitoring report;
(2) Comprehensive interpretations and conclusions; and

(3) Recommendations for future actions.

k. All monitoring reports submitted to the Principal Permittee or the Regional Board shall contain the certified perjury statement described in Attachment B of Order No. R9-2007-0001.

l. Annual monitoring reports shall be reviewed prior to submittal to the Regional Board by a committee (consisting of no less than three members). All review comments shall also be submitted to the Regional Board.

m. Annual monitoring reports shall be submitted in both electronic and paper formats.

3. The Principal Permittee shall submit by July 1, 2007 a detailed description of the monitoring programs to be implemented under requirements II.A.1.k, II.A.7, and II.B.3.c.(7) of Receiving Waters and Urban Runoff Monitoring and Reporting Program No. R9-2007-0001. The Principal Permittee shall submit by July 1, 2008, a detailed description of the monitoring programs to be implemented under requirement II.B.1 and II.B.2 of Receiving Waters and Urban Runoff Monitoring and Reporting Program No. R9-2007-0001. The description shall identify and provide the rationale for the constituents monitored, locations of monitoring, frequency of monitoring, and analyses to be conducted with the data generated.

4. By January 31, 2010, the City of San Diego shall submit a report which evaluates the data and assumptions used to estimate the WLA to Shelter Island Yacht Basin of 30 kg Cu/year. The report shall evaluate if any changes have occurred in the watershed which could cause or contribute to a higher copper urban runoff discharge and any actions necessary to address these changes. The report shall be an attachment to the Watershed Urban Runoff Management Program Annual Report for the San Diego Bay watershed.

5. Monitoring programs and reports shall comply with section II.E of Receiving Waters and Urban Runoff Monitoring and Reporting Program No. R9-2007-0001 and Attachment B of Order No. R9-2007-0001.

6. Following completion of an annual cycle of monitoring in October, the Copermittees shall make the monitoring data and results available to the Regional Board at the Regional Board's request.

B. Interim Reporting Requirements

For the October 2005-October 2006 and October 2006-October 2007 monitoring periods, the Principal Permittee shall submit the Receiving Waters Monitoring Annual Reports on January 31, 2007 and January 31, 2008, respectively. The Receiving Waters Monitoring Annual Report shall address the monitoring conducted to comply with the requirements of Order No. 2001-01.

FACT SHEET/TECHNICAL REPORT

FOR

ORDER NO. R9-2007-0001
NPDES NO. CAS0108758

WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF URBAN RUNOFF FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) DRAINING THE WATERSHEDS OF THE COUNTY OF SAN DIEGO, THE INCORPORATED CITIES OF SAN DIEGO COUNTY, THE SAN DIEGO UNIFIED PORT DISTRICT, AND THE SAN DIEGO COUNTY REGIONAL AIRPORT AUTHORITY

JANUARY 24, 2007

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Attachment A – Revised Tentative Order No. R9-2006-0011 dated August 30, 2006
Attachment B – Responses to Comments dated August 30, 2006
Attachment C – Revised Tentative Order No. R9-2006-0011 dated December 13, 2006
Attachment D – Responses to Comments II dated December 13, 2006

Attachment E – Revised Tentative Order No. R9-2007-0001 dated January 24, 2007
Attachment F – Responses to Comments III dated January 24, 2007

I. LIST OF ACRONYMS AND ABBREVIATIONS

ADT - Average Daily Traffic
BAT - Best Available Technology
BIA - Building Industry Association of San Diego County
BMP - Best Management Practice
Basin Plan - Water Quality Control Plan for the San Diego Basin
CASQA - California Stormwater Quality Association
CCC - California Coastal Commission
CDFG - California Department of Fish and Game
CEQA - California Environmental Quality Act
CFR - Code of Federal Regulations
Copermittees - County of San Diego, the 18 incorporated cities within the County of San Diego, the San Diego Unified Port District, and the San Diego County Regional Airport Authority
CWA - Clean Water Act
CWC - California Water Code
CZARA - Coastal Zone Act Reauthorization Amendments of 1990
ESAs - Environmentally Sensitive Areas
FR - Federal Register
GIS - Geographic Information System
IC/ID - Illicit Connections and Illicit Discharges
JURMP - Jurisdictional Urban Runoff Management Plan
LARWQCB - Los Angeles Regional Water Quality Control Board
MEP - Maximum Extent Practicable
MRP - Receiving Waters Monitoring and Reporting Program
MS4 - Municipal Separate Storm Sewer System
NOI - Notice of Intent
NPDES - National Pollutant Discharge Elimination System
NRDC - Natural Resources Defense Council
NURP - Nationwide Urban Runoff Program
Regional Board - San Diego Regional Water Quality Control Board
RGOs - Retail Gasoline Outlets
ROWD - San Diego County Copermittees' Report of Waste Discharge
RURMP - Regional Urban Runoff Management Plan
RWLs - Receiving Water Limitations
SANDAG - San Diego Association of Governments
SIC - Standard Industrial Classification Code
SUSMP - Standard Urban Storm Water Mitigation Plan
SWMP - Storm Water Management Plan
SWRCB - State Water Resources Control Board
SWPPP - Storm Water Pollution Prevention Plan
TAC - State Water Resources Control Board Urban Runoff Technical Advisory Committee
TIE - Toxicity Identification Evaluation
TMDL - Total Maximum Daily Load
USEPA - United States Environmental Protection Agency
WDRs - Waste Discharge Requirements
WLAs - Waste Load Allocation
WQC - Water Quality Criteria

WQBELs - Water Quality Based Effluent Limits
WSPA - Western States Petroleum Association
WURMP - Watershed Urban Runoff Management Plan

II. FACT SHEET FORMAT

This Fact Sheet briefly sets forth the principle facts and the significant factual, legal, methodological, and policy questions that the California Regional Water Quality Control Board, San Diego Region (Regional Board) considered in preparing Order No. R9-2007-0001. In accordance with the Code of Federal Regulations (CFR) title 40 parts 124.8 and 124.56, this Fact Sheet includes, but is not limited to, the following information:

- Contact information
- Public process and notification procedures
- Background information
- Permitting approach discussion
- Economic issues discussion
- Legal authority discussion
- Findings discussions
- Directives discussions

The main body of the Fact Sheet (sections IX and X) reflects the findings and requirements of the Order as they were originally proposed in Tentative Order No. R9-2006-0011, dated March 10, 2006. Through the subsequent public participation process, the findings and requirements of the Tentative Order evolved and were modified in response to comments received. These modifications, as well as discussions providing the rationale for the modifications, are provided in the Attachments to the Fact Sheet.

The Regional Board's files applicable to the issuance of Order No. R9-2007-0001 are incorporated into the administrative record in support of the findings and requirements of Order No. R9-2007-0001.

III. CONTACT INFORMATION

Regional Board

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Phil Hammer, Environmental Scientist C
9174 Sky Park Court, Suite 100
San Diego, CA 92123
858-627-3988
858-571-6972 (fax)
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The Order and other related documents can be downloaded from the Regional Board website at: http://www.waterboards.ca.gov/sandiego/programs/sd_stormwater.html

All documents referenced in this Fact Sheet and in Order No. R9-2007-0001 are available for public review at the Regional Board office, located at the address listed above. Public records are available for inspection during regular business hours, from 8:00 am to 5:00 pm Monday through

Friday. To schedule an appointment to inspect public records, contact Sylvia Wellnitz at 858-637-5593, or DiAnne Broussard at 858-492-1763.

Copermittees

County of San Diego Department of Public Works Jon Van Rhyn 9325 Hazard Way San Diego, CA 92123 (858) 495-5133	City of El Cajon John Phillips 200 East Main St., Floor 4 El Cajon, CA 92020 (619) 441-5580	City of Oceanside Water Utilities Department Mo Lahsaie 300 N. Coast Highway Oceanside, CA 92057 (760) 435-5803
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City of Coronado Public Services Scott Huth 101 B Avenue Coronado, CA 92118 (619) 522-7312	City of Lemon Grove Cora Long 3232 Main Street Lemon Grove, CA 91945 (619) 825-3800X3925	City Of Solana Beach Danny King 635 South Highway 101 Solana Beach, CA 92075 (858) 720-2477
City of Del Mar Rosanna Lacarra 9275 Sky Park Court, Suite 200 San Diego, CA 92123 (858) 874-1810	City of National City Din Daneshfar 1243 National City Blvd. National City, CA 91950 (619) 336-4387	City of Vista Engineering Linda Isakson 1165 East Taylor Street Vista, Ca 92084 (760) 726-1340

IV. PUBLIC PROCESS AND NOTIFICATION PROCEDURES

The Regional Board followed the schedule listed below for the preparation of Order No. R9-2007-0001:

- In July 2004, the Regional Board issued the San Diego County Municipal Storm Water Permit Reissuance Analysis Summary, which considered various permitting options such as watershed-based permits and identified the Regional Board's preferred permitting approach for this permit cycle. The Regional Board solicited and received public comments on the document.

- From October 2004 to July 2005, the Regional Board met with the County of San Diego, the 18 incorporated cities within the County of San Diego, and the San Diego Unified Port District (hereinafter Copermittees) representatives on six occasions to discuss the Copermittees' Report of Waste Discharge (ROWD) and potential changes to the permit.
- The Regional Board received the ROWD on August 25, 2005.
- On September 14, 2005, the Regional Board held a public workshop to inform Regional Board members of the principal issues facing permit re-issuance and allow interested parties to address the Regional Board on permit issues.
- On December 14, 2005, the Regional Board held a workshop on the requirements for fiscal assurances in municipal separate storm sewer system (MS4) permits in the San Diego Region.
- On March 10, 2006, the Regional Board released the Tentative Order and supporting Fact Sheet, beginning the public comment period.
- On April 26, 2006, the Regional Board held a workshop on the requirements of the Tentative Order.
- On May 24, 2006, the Regional Board held a workshop on the requirements of the Tentative Order.
- On June 21, 2006, the Regional Board held a public hearing on the requirements of the Tentative Order.
- On August 30, 2006, the Regional Board released a revised Tentative Order and supporting Fact Sheet, as well as a Responses to Comments document.
- Until October 30, 2006, the Regional Board accepted written comments on the revised Tentative Order.
- On December 4, 2006, the Regional Board released a second revised Tentative Order and supporting Fact Sheet, as well as a Responses to Comments II document (all dated December 13, 2006). Starting December 15, 2006, the Regional Board accepted comments on revisions made in the second revised Tentative Order.
- On January 15, 2007, the Regional Board released a third revised Tentative Order and supporting Fact Sheet, as well as a Responses to Comments III document (all dated January 24, 2007).
- On January 24, 2007, the Regional Board accepted oral comments on all revisions made to the Tentative Order following the June 21, 2006 public hearing.
- On January 24, 2007, the Regional Board adopted Order No. R9-2007-0001.

V. BACKGROUND

The federal Clean Water Act (CWA) was amended in 1987 to address urban runoff. One requirement of the amendment was that many municipalities throughout the United States were obligated for the first time to obtain National Pollutant Discharge Elimination System (NPDES) permits for discharges of urban runoff from their MS4s. In response to the CWA amendment (and the pending federal NPDES regulations which would implement the amendment), the Regional Board issued a municipal storm water permit, Order No. 90-42, in July 1990 to the Copermittees for their urban runoff discharges.[1]

Five years after adoption, Order No. 90-42 was due for renewal in July 1995, but was administratively extended pursuant to federal law because of limited Regional Board resources. Two formal drafts of the renewal permit were released to the public (in 1995 and 1998

[1] The San Diego County Regional Airport Authority was not added as a Copermittee until 2003, at the time when it separated from the San Diego Unified Port District.

respectively) and substantial written public comments on the drafts were considered by the Regional Board. In addition, the Regional Board convened a working group of Copermittees and stakeholders in 1997 and 1998 to advise the Regional Board on permit renewal issues. Despite the efforts by the public, the stakeholder group, and Regional Board, and in part due to the concurrent issuance and appeal of three other municipal storm water permits, Order No. 90-42 was not reissued by the Regional Board until February 21, 2001 as Order No. 2001-01.

The regulatory approach incorporated into Order No. 2001-01 was a significant departure from the regulatory approach of Order No. 90-42. Where Order No. 90-42 included broad nonspecific requirements in order to provide the Copermittees with the maximum amount of flexibility in implementing their programs, Order No. 2001-01 utilized detailed specific requirements which outlined the minimum level of implementation required for the Copermittees' programs. The shift in permitting approaches from Order No. 90-42 to Order No. 2001-01 resulted from the Regional Board's conclusion that the lack of specificity in Order No. 90-42 resulted in frequently unenforceable permit requirements, which in turn allowed some Copermittees to only make limited progress in implementing their programs.

Partially due to this shift in regulatory approaches, as well as new categories of permit requirements, the adoption process for Order No. 2001-01 generated extensive interest. Over 1,500 public comments were received on the Order, though many were duplicative. In addition, five public workshops were held covering various aspects of the Order. Following this extensive public participation process, the Regional Board adopted Order No. 2001-01 on February 21, 2001.

Subsequently, Order No. 2001-01 was administratively appealed to the State Water Resources Control Board (SWRCB) in March 2001 by the Building Industry Association of San Diego County (BIA) and the Western States Petroleum Association (WSPA). BIA utilized an across-the-board approach to its appeal, challenging a wide range of requirements included in the Order, while WSPA challenged the Order's legality in requiring treatment of runoff from retail gasoline outlets. In Order No. 2001-15, the SWRCB upheld the vast majority of the Order's requirements challenged by BIA, making insignificant alterations for clarification purposes to three of the Order's requirements. The SWRCB ruled in favor of WSPA, however, determining that the Regional Board had not adequately supported its position regarding retail gasoline outlets in the order's findings and fact sheet.

BIA continued its challenge of the Order in the Superior Court of the State of California, San Diego County in 2002. At that time, BIA was joined by several building industry and other groups, as well as the City of Santee and the City of San Marcos. The Court ruled in favor of the Regional Board on all counts, with all requirements of the Order being upheld. In particular, the Court found that the Order's requirements had not been shown to be impracticable or unreasonable, including provisions requiring compliance with receiving water quality standards. The Court also found that the Regional Board is exempt from California Environmental Quality Act (CEQA) review when adopting municipal storm water permits.

Following the Superior Court decision, BIA, several building industry and other groups, and the City of San Marcos appealed to the State of California Court of Appeal, Fourth Appellate District. Again the Order was upheld on all counts, with the court making the primary finding that the Regional Board has the authority to require compliance with state water quality standards in storm water permits. BIA's final appeal was to the State of California Supreme Court, which declined to hear the issue in March 2005.

Since adoption of Order No. 2001-01, and despite the subsequent legal actions, the Copermittees' storm water programs have expanded dramatically. Audits of the Copermittees' programs exhibit that the Copermittees' jurisdictional programs are largely in compliance with the Order. Some of the efforts currently being conducted on a regular basis by the Copermittees, which were not conducted on a widespread basis prior to adoption of Order No. 2001-01, include: construction site storm water inspections, industrial and commercial facility storm water inspections, municipal facility storm water inspections, management of storm water quality from new development, development of best management practice requirements for existing development, and assessment of storm water program effectiveness.

However, when viewed relative to the magnitude of the urban runoff problem, enormous challenges remain, particularly regarding the management of urban runoff on a watershed level. Today, urban runoff continues to be the leading cause of water quality impairment in the San Diego Region. The Copermittees' monitoring data exhibits persistent exceedances of water quality objectives in most watersheds. Many watersheds also have urban runoff conditions that are frequently toxic to aquatic life. Bioassessment data from the watersheds further reflects these conditions, finding that macroinvertebrate communities in creeks have widespread Poor to Very Poor Index of Biotic Integrity ratings. Finally, the now too familiar "health advisory or beach closure" signs, which often result from high levels of bacteria in urban runoff, exhibit the continued threat to public health by urban runoff.

VI. PERMITTING APPROACH (PROGRAM INTEGRATION, FLEXIBILITY, AND DETAIL)

The Order contains an increased emphasis on urban runoff management on a watershed basis. This shift towards increased watershed urban runoff management is consistent with earlier planning efforts conducted by the Regional Board regarding reissuance of Order No. 2001-01.[2] It is also consistent with the Copermittees' ROWD.[3] There are several reasons for this shift in emphasis. First, it has been found that the Copermittees are generally doing an effective job at implementing their jurisdictional programs, while on the other hand, it has been found that the Copermittees' watershed programs need improvement. In addition, an emphasis on watersheds is necessary to shift the focus of the Copermittees from program implementation to water quality results. After over 15 years of Copermittee program implementation, it is critical that the Copermittees link their efforts with positive impacts on water quality. Addressing urban runoff management on a watershed scale focuses on water quality results by emphasizing the receiving waters within the watershed. The conditions of the receiving waters drive management actions, which in turn focus on the water quality problems of the receiving waters in each watershed.

Focusing on watershed implementation does not mean that the Copermittees must expend funds outside of their jurisdictions, however. Rather, the Copermittees within each watershed are expected to collaborate to develop a watershed strategy to address the high priority water quality problems within each watershed. They then have the option of implementing the strategy in the manner they find to be most effective. Each Copermittee can implement the strategy individually within its jurisdiction, or the Copermittees can group together to implement the strategy throughout the watershed as a group.

While the Order includes a new emphasis on addressing urban runoff on a watershed basis, the Order includes recognition of the importance of continued program implementation on

[2] Regional Board, 2004. San Diego County Municipal Storm Water Permit Reissuance Summary. P. 7.
[3] San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-12.

jurisdictional and regional levels. The Order also acknowledges that jurisdictional, watershed, and regional efforts are not always mutually exclusive. For this reason, an attempt has been made to allow for the Copermittees' jurisdictional, watershed, and regional programs to integrate. In the Order, the watershed requirements serve as the mechanism for this program integration. Since jurisdictional and regional activities can also serve watershed purposes, such activities can be integrated into the Copermittees' watershed programs, provided the activities meet certain criteria. In this manner, the Copermittees' activities do not always need to distinguish between jurisdictional, watershed, and regional levels of implementation. Instead, they can be integrated on multiple levels.

Such opportunities for program integration inherently provide flexibility to the Copermittees in implementing their programs. Program integration can be expanded or minimized as the Copermittees see fit. For example, there is flexibility provided in determining the activities to be integrated and implemented in the watershed programs – watershed-based efforts, regional efforts, enhanced jurisdictional efforts, or a mixture of the three. Significant flexibility is also provided throughout other portions of the Order. Copermittees can choose the best management practices (BMPs) to be implemented, or required to be implemented, for development, construction, and existing development areas. Flexibility to determine which industrial or commercial sites are to be inspected is also provided to the Copermittees. Educational approaches are also to be determined by the Copermittees under the Order. Implementation of efforts on a regional basis is largely optional for the Copermittees as well. Significant leeway is also provided to the Copermittees in utilizing methods to assess the effectiveness of their various urban runoff management programs. This flexibility is further extended to the monitoring program requirements, which allow the Copermittees to develop monitoring approaches to several aspects of the monitoring program.

The challenge in drafting the Order is to provide the flexibility described above while ensuring that the Order is still enforceable. To achieve this, the Order frequently prescribes minimum measurable outcomes, while providing the Copermittees with flexibility in the approaches they use to meet those outcomes. Enforceability has been found to be a critical aspect of the Order. For example, the watershed requirements of Order No. 2001-01 were some of the most flexible requirements found in that Order. This lack of specificity in the watershed requirements resulted in disagreement about the adequacy of the Copermittees' watershed compliance efforts. On one hand, the Regional Board considered the Copermittees' watershed efforts to be inadequate because they would not result in a significant reduction in pollutant discharges. On the other hand, the Copermittees contended their watershed programs were adequate and in compliance with Order No. 2001-01, even after being notified by the Regional Board of needed improvements on multiple occasions spanning several years. This situation reflects a common outcome of flexible permit language. Such language can be unclear and unenforceable, and lead to implementation of inadequate programs.

To avoid these types of situations, a balance between flexibility and enforceability has been crafted into the Order. Minimum measurable outcomes are utilized to ensure the Order is enforceable, while the Copermittees are provided flexibility in deciding how they will implement their programs to meet the minimum measurable outcomes.

VII. ECONOMIC ISSUES

Economic discussions of urban runoff management programs tend to focus on costs incurred by municipalities in developing and implementing the programs. Understandably so, since these costs are significant. However, when considering the cost of implementing the urban runoff

programs, it is also important to consider the alternative costs incurred by not fully implementing the programs, as well as the benefits which result from program implementation.

It is very difficult to ascertain the true cost of implementation of the Copermittees' urban runoff management programs because of inconsistencies in reporting by the Copermittees. Reported costs of compliance for the same program element can vary widely from city to city, often by a very wide margin that is not easily explained.[4] Despite these problems, efforts have been made to identify urban runoff management program costs, which can be helpful in understanding the costs of program implementation.

In 1999, United States Environmental Protection Agency (USEPA) reported on multiple studies it conducted to determine the cost of urban runoff management programs. A study of Phase II municipalities determined that the annual cost of the Phase II program was expected to be $9.16 per household. USEPA also studied 35 Phase I municipalities, finding costs to be similar to those anticipated for Phase II municipalities, at $9.08 per household annually.[5] The USEPA cost estimate for Phase I municipalities is valuable because it considers municipalities (including Orange County and cities) that are implementing programs similar to those required in San Diego.

A study on program cost was also conducted by the Los Angeles Regional Water Quality Control Board (LARWQCB), where program costs reported in the municipalities' annual reports were assessed. The LARWQCB estimated that average per household cost to implement the MS4 program in Los Angeles County was $12.50. Since the Los Angeles County permit is very similar to Order No. 2001-01, this estimate is useful in assessing general program costs in San Diego County.

The SWRCB also recently commissioned a study by the California State University, Sacramento to assess costs of the Phase I MS4 program. This study is current and includes an assessment of costs incurred by the City of Encinitas in implementing their program. Annual cost per household in the study ranged from $18-46, with the City of Encinitas representing the upper end of the range.[6] The cost of the City of Encinitas' program is understandable, given the city's coastal location, reliance on tourism, and consent decree with environmental groups regarding its program. For these reasons, as well as the general recognition the City of Encinitas receives for implementing a superior program, the city's program cost can be considered as the high end of the spectrum for Copermittee urban runoff management program costs.

It is important to note that reported program costs are not all attributable to compliance with MS4 permits. Many program components, and their associated costs, existed before any MS4 permits were ever issued. For example, street sweeping and trash collection costs cannot be solely or even principally attributable to MS4 permit compliance, since these practices have long been implemented by municipalities. Therefore, true program cost resulting from MS4 permit requirements is some fraction of reported costs. The California State University, Sacramento study found that only 38% of program costs are new costs fully attributable to MS4 permits. The remainder of the program costs were either pre-existing or resulted from enhancement of pre-exiting programs.[7] The County of Orange found that even lesser amounts of program costs are solely attributable to MS4 permit compliance, reporting that the amount attributable to implement

[4] LARWQCB, 2003. Review and Analysis of Budget Data Submitted by the Permittees for Fiscal Years 2000-2003. P. 2.
[5] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791-68792.
[6] SWRCB, 2005. NPDES Stormwater Cost Survey. P. ii.
[7] Ibid. P. 58.

the Drainage Area Management Plan, which is similar to the Jurisdictional Urban Runoff Management Program in the San Diego County MS4 permit, is less than 20% of the total budget. The remaining 80% is attributable to pre-existing programs.[8]

It is also important to acknowledge that the vast majority of costs that will be incurred as a result of implementing Order No. R9-2007-0001 are not new. Urban runoff management programs have been in place in San Diego County for over 15 years. Any increase in cost to the Copermittees will be incremental in nature. Moreover, since Order No. R9-2007-0001 "fine tunes" the requirements of Order No. 2001-01, these cost increases are expected to be modest.

Urban runoff management programs cannot be considered in terms of their costs only. The programs must also be viewed in terms of their value to the public. For example, household willingness to pay for improvements in fresh water quality for fishing and boating has been estimated by USEPA to be $158-210.[9] This estimate can be considered conservative, since it does not include important considerations such as marine waters benefits, wildlife benefits, or flood control benefits. The California State University, Sacramento study corroborates USEPA's estimates, reporting annual household willingness to pay for statewide clean water to be $180.[10] When viewed in comparison to household costs of existing urban runoff management programs, these household willingness to pay estimates exhibit that per household costs incurred by Copermittees to implement their urban runoff management programs remain reasonable.

Another important way to consider urban runoff management program costs is to consider the implementation cost in terms of costs incurred by not improving the programs. Urban runoff in southern California has been found to cause illness in people bathing near storm drains.[11] A study of south Huntington Beach and north Newport Beach found that an illness rate of about 0.8% among bathers at those beaches resulted in about $3 million annually in health-related expenses.[12] Extrapolation of such numbers to the wide range of beaches of San Diego County could result in huge expenses to the public.

Urban runoff and its impact on receiving waters also places a cost on tourism. In past years, San Diego was featured in the national press for its water quality problems.[13] Such news can have a negative impact on San Diego tourism, since polluted beaches are generally not attractive to tourists. According to a 1996 San Diego Association of Governments (SANDAG) Memorandum, the California Division of Tourism has estimated that each out-of-state visitor spends $101.00 a day. The memo goes on to state that based on projections from the California Department of Boating and Waterways, nearly $1.2 billion in direct revenue and $1.2 billion in indirect revenue is pumped into the San Diego area economy each year by out-of-state visitors.[14] The experience of Huntington Beach provides an example of the potential economic impact of poor water quality. Approximately 8 miles of Huntington Beach were closed for two months in the middle of summer of 1999, impacting beach visitation and the local economy.

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[8] County of Orange, 2000. A NPDES Annual Progress Report. P. 60. More current data from the County of Orange is not used in this discussion because the County of Orange no longer reports such information.
[9] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68793.
[10] SWRCB, 2005. NPDES Stormwater Cost Survey. P. iv.
[11] Haile, R.W., et al, 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.
[12] Los Angeles Times, May 2, 2005. Here's What Ocean Germs Cost You: A UC Irvine Study Tallies the Cost of Treatment and Lost Wages for Beachgoers Who Get Sick.
[13] Regional Board, 2001. Fact Sheet/Technical Report for SDRWQCB Order No. 2001-01. P. 8.
[14] San Diego Association of Governments, 1996. Memorandum: California Department of Boating and Waterways: Unpublished Survey Information Regarding Beach Use. Written to the Shoreline Erosion Committee.

Finally, it is important to consider the benefits of urban runoff management programs in conjunction with their costs. A recent study conducted by USC/UCLA assessed the costs and benefits of implementing various approaches for achieving compliance with the MS4 permits in the Los Angeles Region. The study found that non-structural systems would cost $2.8 billion but provide $5.6 billion in benefit. If structural systems were determined to be needed, the study found that total costs would be $5.7 to $7.4 billion, while benefits could reach $18 billion.[15] Costs are anticipated to be borne over many years – probably ten years at least. As can be seen, the benefits of the programs are expected to considerably exceed their costs. Such findings are corroborated by USEPA, which found that the benefits of implementation of its Phase II storm water rule would also outweigh the costs.[16]

Additional discussion of economic issues can be found at section 3 of the Fact Sheet/Technical Report for SDRWQCB Order No. 2001-01, available at:

http://www.waterboards.ca.gov/sandiego/programs/sd_stormwater.html.

VIII. LEGAL AUTHORITY

The following statutes, regulations, and Water Quality Control Plans provide the basis for the requirements of Order No. R9-2007-0001: CWA, California Water Code (CWC), 40 CFR Parts 122, 123, 124 (National Pollutant Discharge Elimination System Permit Application Regulations for Storm Water Discharges, Final Rule), Part II of 40 CFR Parts 9, 122, 123, and 124 (National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule), Water Quality Control Plan – Ocean Waters of California (California Ocean Plan), Water Quality Control Plan for the San Diego Basin (Basin Plan), 40 CFR 131Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California; Rule (California Toxics Rule), and the California Toxics Rule Implementation Plan.

The legal authority citations below generally apply to directives in Order No. R9-2007-0001, and provide the Regional Board with ample underlying authority to require each of the directives of Order No. R9-2007-0001. Legal authority citations are also provided with each permit section discussion in section X of this Fact Sheet/Technical Report.

CWA 402(p)(3)(B)(ii) – The CWA requires in section 402(p)(3)(B)(ii) that permits for discharges from municipal storm sewers "shall include a requirement to effectively prohibit non-stormwater discharges into the storm sewers."

CWA 402(p)(3)(B)(iii) – The CWA requires in section 402(p)(3)(B)(iii) that permits for discharges from municipal storm sewers "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants."

40 CFR 122.26(d)(2)(i)(B,C,E, and F) – Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B,C,E, and F) provide that each Copermittee's permit application "shall consist of: (i) Adequate legal authority. A demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the

[15] LARWQCB, 2004. Alternative Approaches to Stormwater Control.
[16] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68791.

applicant at a minimum to: […] (B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer; (C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water; […] (E) Require compliance with condition in ordinances, permits, contracts or orders; and (F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer."

40 CFR 122.26(d)(2)(iv) – Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) provides that the Copermittee shall develop and implement a proposed management program which "shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. […] Proposed programs may impose controls on a system wide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. […] Proposed management programs shall describe priorities for implementing controls."

40 CFR 122.26(d)(2)(iv)(A - D) – Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from new development and significant redevelopment, construction, and commercial, residential, industrial, and municipal land uses or activities. Control of illicit discharges is also required.

CWC 13377 – CWC section 13377 provides that "Notwithstanding any other provision of this division, the state board or the regional boards shall, as required or authorized by the CWA, as amended, issue waste discharge requirements and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with anymore stringent effluent standards or limitation necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

Order No. R9-2007-0001 is an essential mechanism for achieving the water quality objectives that have been established for protecting the beneficial uses of the water resources in the San Diego Region portion of San Diego County. Federal NPDES regulation 40 CFR 122.44(d)(1) requires MS4 permits to include any requirements necessary to "achieve water quality standards established under CWA section 303, including State narrative criteria for water quality." The term "water quality standards" in this context refers to a water body's beneficial uses and the water quality objectives necessary to protect those beneficial uses, as established in the Basin Plan.

IX. FINDINGS DISCUSSION

The findings of the Order have been modified to reduce repetition in their discussions and address new requirements. Each finding of the Order is provided and discussed below. Additional discussion relative to the findings can be found in section X of the Fact Sheet, which provides discussions of the Order's directives.

A. Basis For The Order

Finding A.1: This Order is based on the federal CWA, the Porter-Cologne Water Quality Control Act (Division 7 of the CWC, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the SWRCB, the Basin Plan, the California Toxics Rule, and the California Toxics Rule Implementation Plan.

Discussion: In 1987, Congress established CWA Amendments to create requirements for storm water discharges under the NPDES program, which provides for permit systems to regulate the discharge of pollutants. Under the Porter-Cologne Water Quality Control Act, the SWRCB and Regional Water Quality Control Boards (Regional Boards) have primary responsibility for the coordination and control of water quality, including the authority to implement the CWA. Porter-Cologne (section 13240) directs the Regional Boards to set water quality objectives via adoption of Basin Plans that conform to all state policies for water quality control. As a means for achieving those water quality objectives, Porter-Cologne (section 13243) further authorizes the Regional Boards to establish waste discharge requirements (WDRs) to prohibit waste discharges in certain conditions or areas. Since 1990, the Regional Board has issued area-wide MS4 NPDES permits. The Order will renew Order No. 2001-01 to comply with the CWA and attain water quality objectives in the Basin Plan by limiting the contributions of pollutants conveyed by urban runoff. Further discussions of the legal authority associated with the prohibitions and directives of the Order are provided in section VIII this document.

Finding A.2: This Order renews NPDES Permit No. CAS0108758, which was first issued on July 16, 1990 (Order No. 90-42), and then renewed on February 21, 2001 (Order No. 2001-01). On August 25, 2005, in accordance with Order No. 2001-01, the County of San Diego, as the Principal Permittee, submitted a ROWD for renewal of their MS4 Permit.

Discussion: Supporting information discussing the topic of this finding can be found in section V of this document.

B. Regulated Parties

Finding No. B.1: Each of the Copermittees listed in Table 1 of the Order owns or operates a MS4, through which it discharges urban runoff into waters of the United States within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.

Discussion: Section 402 of the CWA prohibits the discharge of any pollutant to waters of the United States from a point source, unless that discharge is authorized by a NPDES permit. Though urban runoff comes from a diffuse source, it is discharged through MS4s, which are point sources under the CWA. Federal NPDES regulation 40 CFR 122.26(a) (iii) and (iv) provide that discharges from MS4s, which service medium or large populations greater than 100,000 or 250,000 respectively, shall be required to obtain a NPDES permit. Federal NPDES regulation 40 CFR 122.26(a)(v) also provides that a NPDES permit is required for "A [storm water] discharge which the Director, or in States with approved NPDES programs, either the Director or the USEPA Regional Administrator, determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States." Such sources

are then designated into the program. Please see Attachment 1 of the Fact Sheet/Technical Report for Regional Board Order No. 2001-01 for an explanation on NPDES municipal storm water permit coverage for each municipality.[17] The San Diego County Regional Airport Authority, designated a Copermittee in 2003, was previously a part of the San Diego Unified Port District and has an MS4 interrelated to other Copermittee MS4s.

Other small MS4s, such as those serving universities and military installations, also exist within the watersheds of San Diego County. While these MS4s are not subject to this Order, they are subject to the Phase II NPDES storm water regulations. Over time, these MS4s will be designated for coverage under the SWRCB's statewide general storm water permit for small MS4s.

C. Discharge Characteristics

Finding No. C.1: Urban runoff contains waste, as defined in the CWC, and pollutants that adversely affect the quality of waters of the State. The discharge of urban runoff from an MS4 is a "discharge of pollutants from a point source" into waters of the United States as defined in the CWA.

Discussion: Section 13050(d) of the CWC defines "waste" as "sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal." 40 CFR 122.2 defines "point source" as "any discernable, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff." 40 CFR 122.2 defines "discharge of a pollutant" as "Any addition of any pollutant or combination of pollutants to waters of the U.S. from any point source." Also, the justification for control of pollution into waters of the state can be found at CWC section 13260(a)(1). SWRCB Order WQ 2001-15 verifies that urban runoff contains waste.[18]

Finding C.2: The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), and trash.

Discussion: The National Urban Runoff Program (NURP) study showed that heavy metals, organics, coliform bacteria, nutrients, oxygen demanding substances (e.g., decaying vegetation), and total suspended solids are found at relatively high levels in urban runoff.[19] It also found that MS4 discharges draining residential, commercial, and light industrial areas contain significant loadings of total suspended solids and other pollutants. The Basin Plan goes on to identify urban

[17] Regional Board, 2001. Fact Sheet/Technical Report for SDRWQCB Order No. 2001-01. Attachment 1.
[18] SWRCB, 2001. Order WQ 2001-15. In the Matter of Petitions of Building Industry Association of San Diego County and Western States Petroleum Association: For Review of Waster Discharge Requirements Order No. 2001-01 for Urban Runoff from San Diego County [NPDES No. CAS0108758] Issued by the Regional Board.
[19] Ibid.

runoff pollutants to include lawn and garden chemicals, household and automotive care products dumped or drained on streets, and sediment that erodes from construction sites.[20] In addition, the SWRCB Urban Runoff Technical Advisory Committee (TAC) finds that urban runoff pollutants include sediments, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, viruses, and pesticides.[21] Runoff that flows over streets, parking lots, construction sites, and industrial, commercial, residential, and municipal areas carries these untreated pollutants through storm drain networks directly to the receiving waters of the San Diego Region.

Finding No. C.3: The discharge of pollutants and/or increased flows from MS4s may cause or threaten to cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses resulting in a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance.

Discussion: The 1992, 1994, and 1996 National Water Quality Inventory Reports to Congress prepared by USEPA showed a trend of impairment in the nation's waters from contaminated storm water and urban runoff.[22] The 1998 National Water Quality Inventory Report showed that urban runoff discharges affect 11% of rivers, 12% of lakes, and 28% of estuaries. The report states that ocean shoreline impairment due to urban runoff increased from 55% in 1996 to 63% in 1998. The report notes that urban runoff discharges are the leading source of pollution and the main factor in the degradation of surface water quality in California's coastal waters, rivers, and streams. Furthermore, the NURP study found that pollutant levels from illicit discharges were high enough to significantly degrade receiving water quality, and threaten aquatic life, wildlife, and human health.[23]

In addition, the Region's CWA section 303(d) list, which identifies water bodies with impaired beneficial uses within the region, also indicates that the impacts of urban runoff on receiving waters are significant. Many of the impaired water bodies on the 303(d) list are impaired by constituents which have been found at high levels within urban runoff by the regional storm water monitoring program.[24] Examples of constituents frequently responsible for beneficial use impairment include total and fecal coliform, heavy metals, and sediment; these constituents have been found at high levels in urban runoff both regionally and nationwide.[25,26]

Finding No. C.4: Pollutants in urban runoff can threaten human health. Human illnesses have been clearly linked to recreating near storm drains flowing to coastal waters. Also, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may be eventually consumed by humans.

Discussion: A landmark study, conducted by the Santa Monica Bay Restoration Project, found that there was an increased occurrence of illness in people that swam in proximity to a flowing

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[20] Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9. San Diego.
[21] SWRCB, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.
[22] USEPA, 2000. Quality of Our Nation's Waters: Summary of the National Water Quality Inventory 1998 Report to Congress – USEPA 841-S-00-001; Water Quality Conditions in the United States: Profile from the 1998 National Water Quality Inventory Report to Congress – USEPA 841-F-00-006.
[23] USEPA, 1993. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.
[24] County of San Diego, 2005. San Diego County Municipal Copermittees 2004-2005 Urban Runoff Monitoring.
[25] Ibid.
[26] USEPA, 1983. Results of the Nationwide Urban Runoff Program, Volume 1 – Final Report.

storm drain.[27] Furthermore, urban runoff pollutants in receiving waters can bioaccumulate in the tissues of invertebrates and fish, which may eventually be consumed by humans. Pollutants such as heavy metals and pesticides, which are commonly found in urban runoff, have been found to bioaccumulate and biomagnify in long-lived organisms at the higher trophic levels.[28] Since many aquatic species are utilized for human consumption, toxic substances accumulated in species' tissues can pose a significant threat to public health. USEPA supports this finding when it states, "As runoff flows over areas altered by development, it picks up harmful sediment and chemicals such as oil and grease, pesticides, heavy metals, and nutrients (e.g., nitrogen and phosphorus). These pollutants often become suspended in runoff and are carried to receiving waters, such and lakes, ponds, and streams. Once deposited, these pollutants can enter the food chain through small aquatic life, eventually entering the tissues of fish and humans."[29]

Finding No. C.5: Urban runoff discharges from MS4s often contain pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters.

Discussion: The Copermittees' monitoring data exhibits frequent toxic conditions in urban runoff during storm events. For example, persistent toxicity has been observed at the Chollas Creek mass loading station and the Tijuana River mass loading station. The Chollas Creek and Sweetwater River mass loading stations were also identified as potential Toxicity Identification Evaluation (TIE) candidate sites based on toxicity to *Hyalella* and *Selenastrum,* respectively.[30] Moreover, a study of urban runoff samples from Chollas Creek, revealed toxic concentrations of organophospate pesticides and metals.[31] Also, a water quality data assessment conducted in Aliso Creek in Orange County showed that storm events caused varying degrees of mortality to test organisms.[32]

Finding No. C.6: The Copermittees discharge urban runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within ten of the eleven hydrologic units (watersheds) comprising the San Diego Region. Some of the receiving water bodies have been designated as impaired by the Regional Board and the USEPA in 2002 pursuant to CWA section 303(d).

Discussion: This finding identifies the Copermittees responsible for MS4 discharges in each watershed management area. The list is identical to Order No. 2001-01, with the addition of the San Diego County Regional Airport Authority added to the San Diego Bay Watershed Management Area.

The CWA Section 303(d) List of Impaired Waters, 2002 Update has been approved by the Regional Board, SWRCB, and USEPA. This 303(d) list identifies waters that do not meet water quality standards after applying certain required technology-based effluent limits ("impaired" water bodies). As part of this listing process, states are required to prioritize waters/watersheds

[27] Haile, R.W., et al., 1996. An Epidemiological Study of Possible Adverse Health Effects of Swimming in Santa Monica Bay. Santa Monica Bay Restoration Project.
[28] Abel, P.D, 1996. Water Pollution Biology.
[29] USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. Washington D.C. EPA 833-R-00-002.
[30] Ibid., P. ES-16.
[31] Bay, Steven M., et al., 2001. Characterization of Stormwater Toxicants from an Urban Watershed to Freshwater and Marine Organisms. Southern California Coastal Water Research Project. Annual Report 1999-2000.
[32] Regional Board, 2002. Fact Sheet/Technical Report for Regional Board Order No. R9-2002-0001.

for future development of Total Maximum Daily Loads (TMDLs). The 303(d) Pollutants of Concern or Water Quality Effect in Table 2 of the Order have been summarized from the 2002 303(d) list which can be found in full on our website at:

http://www.waterboards.ca.gov/sandiego/programs/303dlist.html.

Finding No. C.7: The Copermittees' water quality monitoring data submitted to date documents persistent exceedances of Basin Plan water quality objectives for various urban runoff-related pollutants (diazinon, fecal coliform bacteria, total suspended solids, turbidity, metals, etc.) at various watershed monitoring stations. At some monitoring stations, such as Agua Hedionda, statistically significant upward trends in pollutant concentrations have been observed. Persistent toxicity has also been observed at some watershed monitoring stations. In addition, bioassessment data indicates that the majority of watersheds have Poor to Very Poor Index of Biotic Integrity ratings. In sum, the above findings indicate that urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in San Diego County.

Discussion: The Copermittees have submitted information indicating persistent wet weather constituents of concern in various waterbodies of fecal coliform, total suspended solids, turbidity, total dissolved solids, diazinon, copper, zinc, toxicity, ammonia, biochemical oxygen demand, chemical oxygen demand, phosphorus, chlorpyrifos, and malathion.[33] The Agua Hedionda mass loading station shows statistically significant trends of increasing chemical oxygen demand, total kjeldahl nitrogen, total phosphorus, total suspended solids, and turbidity.[34] Statistically significant increasing trends have also been observed in Tecolote Creek (arsenic) and Chollas Creek (nitrate and lead).[35] Persistent toxicity has been observed at the Chollas Creek mass loading station and the Tijuana River mass loading station. The Chollas Creek and Sweetwater River mass loading stations were identified as potential Toxicity Identification Evaluation (TIE) candidate sites based on toxicity to *Hyalella* and *Selenastrum,* respectively.[36] However, the toxicity was not consistent among events and relatively slight. Bioassessment data collected during the 2004-2005 year indicates that the majority of the watersheds have Poor to Very Poor Index of Biotic Integrity ratings.[37] The three sites that received Good and Very Good ratings were at reference sites in the Santa Margarita Watershed[38] and San Luis Rey Watershed.[39] In most of these watersheds, there are no other NPDES permits discharging to the creeks. The few NPDES permits in the watersheds are mainly for recycled water which only discharges occasionally during the rainy season. Because the water quality monitoring indicates exceedances of water quality standards and urban runoff is the main source of pollutants in the watersheds, it can be inferred that the urban runoff discharges are causing or contributing to water quality impairments, and are a leading cause of such impairments in San Diego County.

Finding No. C.8: When natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots, the natural absorption and

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[33] San Diego County Copermittees, 2005. Baseline Long-Term Effectiveness Assessment, San Diego Copermittees Jurisdictional Urban Runoff Management Program, Final Report. P. 2-24, Table 2-5.
[34] Ibid.
[35] Ibid.
[36] County of San Diego, 2005. San Diego County Municipal Copermittees 2004-2005 Urban Runoff Monitoring. P. ES-16.
[37] Ibid., P. ES-4 – ES-19.
[38] Ibid., P. 4-11.
[39] Ibid., P. ES-7.

infiltration abilities of the land are lost. Therefore, runoff leaving a developed urban area is significantly greater in runoff volume, velocity, peak flow rate, and duration than pre-development runoff from the same area. The increased volume, velocity, rate, and duration of runoff greatly accelerate the erosion of downstream natural channels. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. The increased runoff characteristics from new development must be controlled to protect against increased erosion of channel beds and banks, sediment pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

Finding No. C.9: Urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4. As a result, the runoff leaving the developed urban area is significantly greater in pollutant load than the pre-development runoff from the same area. These increased pollutant loads must be controlled to protect downstream receiving water quality.

Discussion (C.8 and C.9): The Natural Resources Defense Council (NRDC) 1999 Report, "Stormwater Strategies, Community Responses to Runoff Pollution" identifies two main causes of the storm water pollution problem in urban areas. Both causes are directly related to development in urban and urbanizing areas:

1. Increased volume and velocity of surface runoff. There are three types of human-made impervious covers that increase the volume and velocity of runoff: (i) rooftop, (ii) transportation imperviousness, and (iii) non-porous (impervious) surfaces. As these impervious surfaces increase, infiltration will decrease, forcing more water to run off the surface, picking up speed and pollutants.

2. The concentration of pollutants in the runoff. Certain industrial, commercial, residential and construction activities are large contributors of pollutant concentrations in urban runoff. As human population density increases, it brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc.

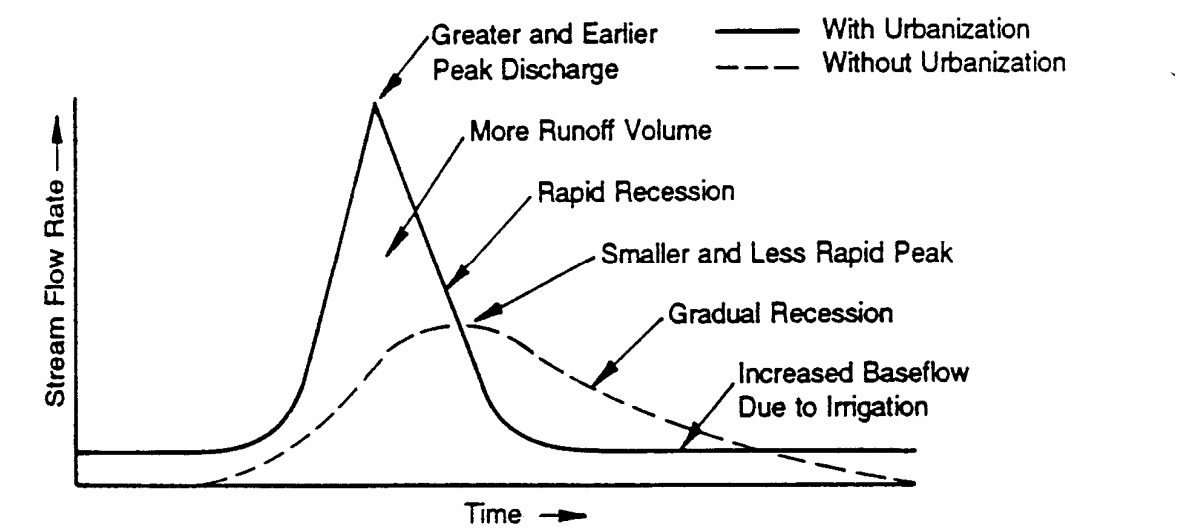
As a result of these two causes, runoff leaving developed urban areas is significantly greater in volume, velocity, and pollutant load than pre-development runoff from the same area.

Studies have shown that the level of imperviousness in an area strongly correlates with the quality of nearby receiving waters.[40] One comprehensive study, which looked at numerous areas, variables, and methods, revealed that stream degradation occurs at levels of imperviousness as low as 10 – 20%.[41] Stream degradation is a decline in the biological integrity and physical habitat conditions that are necessary to support natural biological diversity. For instance, few urban streams can support diverse benthic communities with imperviousness greater than or equal to

[40] USEPA, 1999. Part II. 40 CFR Parts 9, 122, 123, and 124. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. Federal Register.
[41] Ibid.

25%.[42] To provide some perspective, a medium density, single-family home area can be from 25% to 60% impervious (variation due to street and parking design).[43]

To demonstrate the principle of increased volume and velocity of runoff from urbanization, the following figure shows the flow rate of an urban vs. a natural stream. What the figure demonstrates is that urban stream flows have greater peaks and volumes, as well as shorter retention times than natural stream flows. The greater peak flows and volumes result in stream degradation through increased erosion of stream banks and damage to aquatic habitat. The shorter retention times result in less time for sediments and other pollutants to settle before being carried out to the ocean. This sediment, and the associated pollutants it carries, can be a significant cause of water quality degradation.



Source: Adapted from Schueler, 1997[44]

Increased volume and velocity of runoff adversely impacts receiving waters and their beneficial uses in many ways. According to the TAC report,[45] increases in population density and imperviousness result in changes to stream hydrology including:

1. Increased peak discharges compared to pre-development levels;
2. Increased volume of storm water runoff with each storm compared to pre-development levels;
3. Decreased travel time to reach receiving water; increased frequency and severity of floods;
4. Reduced stream flow during prolonged periods of dry weather due to reduced levels of infiltration;
5. Increased runoff velocity during storms due to a combination of effects of higher discharge peaks, rapid time of concentration, and smoother hydraulic surfaces from channelization; and

[42] Ibid.
[43] Schueler, T.R., 1994. The Importance of Imperviousness. Watershed Protection Techniques. As cited in 64 Fed. Reg. 68725.
[44] Schueler, T.R., 1987. Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs. Metropolitan Washington Council of Governments.
[45] SWRCB, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

6. Decreased infiltration and diminished ground water recharge.

Even though the rainfall depths in arid watersheds are lower, watershed development can greatly increase peak discharge rates during rare flood events.[46] A study conducted in arid watersheds around Riverside, CA showed that, over two decades, impervious cover increased from 9% to 22%, which resulted in an increase of more than 100% in the peak flow rate for the two-year storm event. The study also showed that the average annual storm water runoff volume had increased by 115% to 130% over the same time span.[47]

Regarding the impact of urban development on urban runoff pollutant loads, the Regional Board's Basin Plan states:

> Nonpoint source pollution is primarily the result of man's uses of land such as urbanization, roads and highways, vehicles, agriculture, construction, industry, mineral extraction, physical habitat alteration (dredging/filling), hydromodification (diversion, impoundment, channelization), silviculture (logging), and other activities which disturb land.[48] As a result, when rain falls on and drains through urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. The pollutants can be dissolved in the runoff and quickly transported by gravity flow through a vast network of concrete channels and underground pipes referred to as storm water conveyance systems. Such systems ultimately discharge the polluted runoff, without treatment, into the nation's creeks, rivers, estuaries, bays, and oceans.[49]

According to the Center for Watershed Protection, the quality of both surface and ground water in urbanizing areas of arid and semi-arid regions of the southwest is strongly shaped by urbanization. Since rain events are so rare, pollutants have more time to build up on impervious surfaces compared to humid regions. Therefore, the pollutant concentrations of storm water runoff from arid watersheds tends to be higher than that of humid watersheds.[50]

Finding No. C.10: Development and urbanization especially threaten environmentally sensitive areas (ESAs), such as water bodies designated as supporting a RARE beneficial use (supporting rare, threatened or endangered species) and CWA 303(d) impaired water bodies. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may become significant in a particular sensitive environment. Therefore, additional control to reduce pollutants from new and existing development may be necessary for areas adjacent to or discharging directly to an ESA.

Discussion: ESAs are defined in the Order as "Areas that include but are not limited to all CWA Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the Basin Plan ; water bodies designated with the RARE beneficial use by the Basin Plan; areas designated as preserves or their equivalent under the Multi Species Conservation Program within the Cities and County of San Diego; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees." Areas that

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[46] Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.
[47] Ibid.
[48] Regional Board, 1994. Water Quality Control Plan for the San Diego Basin. P. 4-66.
[49] Ibid. P. 4-69 - 4-70.
[50] Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection. P. 695-706.

meet this definition are inherently sensitive habitats containing unique, rare, threatened, or endangered species, or are not achieving their designated beneficial uses. As discussed above, urban runoff is known to contain a wide range of pollutants and have demonstrated toxicity to plants and animals. Therefore, it is necessary to apply additional controls for developments within, adjacent to, or directly discharging to ESAs. This need for additional controls is addressed within each component of the Order. USEPA supports the requirement for additional controls, stating "For construction sites that discharge to receiving waters that do not support their designated use or other waters of special concern, additional construction site controls are probably warranted and should be strongly considered."[51] Further support for requiring additional controls to reduce pollutants in discharges to ESAs can be found in *Mitigation of Storm Water Impacts From New Developments in Environmentally Sensitive Areas*, a technical report written by the LARWQCB.[52]

Finding No. C.11: Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; (3) protecting footings and foundations; and (4) ensuring that each drainage feature is adequately maintained in perpetuity.

Discussion: Infiltration is an effective means for managing urban runoff. However, measures must be taken to protect groundwater quality when infiltration of urban runoff is implemented. USEPA supports urban runoff infiltration and provides guidance for protection of groundwater: "With a reasonable degree of site-specific design considerations to compensate for soil characteristics, infiltration may be very effective in controlling both urban runoff quality and quantity problems. This strategy encourages infiltration of urban runoff to replace the natural infiltration capacity lost through urbanization and to use the natural filtering and sorption capacity of soils to remove pollutants; however, the potential for some types of urban runoff to contaminate groundwater through infiltration requires some restrictions."[53] The restrictions placed on urban runoff infiltration in this Order are based on recommendations provided by the USEPA Risk Reduction Engineering Laboratory. The SWRCB found in Order WQ 2000-11 on the appeal of the LARWQCB's Standard Urban Storm Water Mitigation Plan (SUSMP) requirements that the guidance provided in the above referenced document by the USEPA Risk Reduction Engineering Laboratory is sufficient for the protection of groundwater quality from urban runoff infiltration. To further protect groundwater quality, the Order also includes guidance from the LARWQCB,[54] the State of Washington,[55] and the State of Maryland.[56]

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[51] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. Washington D.C. EPA/833-B-92-002.
[52] LARWQCB, 2001. Mitigation of Storm Water Impacts From New Developments In Environmentally Sensitive Areas.
[53] USEPA, 1994. Potential Groundwater Contamination from Intentional and Nonintentional Stormwater Infiltration. EPA 600 SR-94 051.
[54] LARWQCB, 2000. Standard Urban Storm Water Mitigation Plan for Los Angeles County and Cities in Los Angeles County.
[55] Washington State Department of Ecology, 1999. Draft Stormwater Management in Washington State. Volume V – Runoff Treatment BMPs. Pub. No. 99-15.
[56] Maryland Department of the Environment, 1999. 2000 Maryland Stormwater Design Manual. Volume I.

D. Urban Runoff Management Programs

Finding D.1.a: This Order specifies requirements necessary for the Copermittees to reduce the discharge of pollutants in urban runoff to the maximum extent practicable (MEP). However, since MEP is a dynamic performance standard which evolves over time as urban runoff management knowledge increases, the Copermittees' urban runoff management programs must continually be assessed and modified to incorporate improved programs, control measures, best management practices, etc. Absent evidence to the contrary, this continual assessment, revision, and improvement of urban runoff management program implementation is expected to ultimately achieve compliance with water quality standards.

Discussion: Under CWA section 402(p), municipalities are required to reduce the discharge of pollutants from their MS4s to the maximum extent practicable (MEP). MEP is the critical technology-based performance standard that municipalities must attain. The MEP standard is an ever-evolving, flexible, and advancing concept, which considers technical and economic feasibility. As knowledge about controlling urban runoff continues to evolve, so does that which constitutes MEP. Reducing the discharge of storm water pollutants to the MEP requires Copermittees to assess each program component and revise activities, control measures, best management practices (BMPs), and measurable goals, as necessary to meet MEP.

To achieve the MEP standard, municipalities must employ whatever BMPs are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:

1. Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?
2. Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?
3. Public Acceptance: Does the BMP have public support?
4. Cost: Will the cost of implementing the BMP have a reasonable relationship to he pollution control benefits to be achieved?
5. Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?

If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive BMPs, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost is prohibitive, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented.[57]

[57] SWRCB, 1993. Memo Entitled Definition of Maximum Extent Practicable.

A definition of MEP is not provided in either the federal statute or in the federal regulations. The final determination regarding whether a municipality has reduced pollutants to the MEP can only be made by the Regional Board or the SWRCB, and not by the municipal discharger. While the Regional Board or the SWRCB ultimately define MEP, it is the responsibility of the Copermittees to initially propose actions that implement BMPs to reduce pollution to the MEP. In other words, the Copermittees' urban runoff management programs to be developed under the Order are the Copermittees' proposals of MEP. Their total collective and individual activities conducted pursuant to their urban runoff management programs become their proposal for MEP as it applies both to their overall effort, as well as to specific activities. The Order provides a minimum framework to guide the Copermittees in meeting the MEP standard.

It is the Regional Board's responsibility to evaluate the proposed programs and specific BMPs to determine what constitutes MEP, using the above guidance and the court's 1994 decision in NRDC v. California Department of Transportation, Federal District Court, Central District of California. The federal court stated that a Copermittee must evaluate and implement BMPs except where (1) other effective BMPs will achieve greater or substantially similar pollution control benefits; (2) the BMP is not technically feasible; or (3) the cost of BMP implementation greatly outweighs the pollution control benefits. In the absence of a proposal acceptable to the Regional Board, the Regional Board will define MEP by requiring implementation of additional measures by the Copermittees.

The Copermittees' continual evolution in meeting the MEP standard is expected to achieve compliance with water quality standards. USEPA has consistently supported this expectation. In its Interim Permitting Approach for Water Quality-Based Effluent Limitations (WQBELs) in Storm Water Permits, USEPA states "the interim permitting approach uses best management practices (BMPs) in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for attainment of water quality standards."[58] USEPA reiterated its position in 1999, when it stated regarding the Phase II municipal storm water regulations that "successive iterations of the mix of BMPs and measurable goals will be driven by the objective of assuring maintenance of water quality standards" and "EPA anticipates that a permit for a regulated small MS4 operator implementing BMPs to satisfy the six minimum control measures will be sufficiently stringent to protect water quality, including water quality standards […]."[59]

Finding D.1.b: Although the Copermittees have generally been implementing the jurisdictional urban runoff management programs required pursuant to Order No. 2001-01 since February 21, 2002, urban runoff discharges continue to cause or contribute to violations of water quality standards. This Order contains new or modified requirements that are necessary to improve Copermittees' efforts to reduce the discharge of pollutants in urban runoff to the MEP and achieve water quality standards. Some of the new or modified requirements, such as the expanded Watershed Urban Runoff Management Program section, are designed to specifically address these high priority water quality problems. Other new or modified requirements address program deficiencies that have been noted during audits, report reviews, and other Regional Board compliance assessment activities.

Discussion: The Copermittees are required to update and expand their urban runoff management programs on jurisdictional, watershed, and regional levels in order to improve their efforts to reduce the contribution of pollutants in urban runoff to the MEP and meet water quality

[58] Federal Register / Vol. 61, No. 166 / August 26, 1996 / P. 43761.
[59] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68753-68754.

standards. Changes to Order No. 2001-01's requirements have been made to help ensure these two standards are achieved by the Copermittees.

The jurisdictional requirements of the Order have been changed based on findings by the Regional Board during typical compliance assurance activities. The Regional Board performed full jurisdictional program audits of 20 of the 21 Copermittees during the Order No. 2001-01 permit term; it also performed detailed audits on 10 of the Copermittees' SUSMP programs. Where the audits found common implementation problems, requirements have been altered to better ensure compliance. In addition, the Regional Board conducted detailed reviews of every jurisdictional annual report submitted by the Copermittees, including provision of specific comments to the Copermittees where improvements were found to be needed. Again, where common reporting issues were found, the Order's requirements have been changed to rectify the issues. Other changes to jurisdictional requirements were based on Regional Board inspection findings or receipt of complaints.[60]

To better focus on attainment of water quality standards, the Order's watershed requirements have been improved. Addressing urban runoff management on a watershed scale focuses on water quality results by emphasizing the receiving waters within the watershed. The conditions of the receiving waters drive management actions, which in turn focus on the water quality problems of the receiving waters each watershed. Improvements to watershed requirements were also made to facilitate better understanding of the requirements between the Regional Board and Copermittees.

Finally, many of the required updates to the Copermittees' programs are based on recommendations found in the Copermittees' ROWD.[61]

Finding D.1.c: Updated Jurisdictional Urban Runoff Management Plans (JURMPs) and Watershed Urban Runoff Management Plans (WURMPs), and a new Regional Urban Runoff Management Plan (RURMP), which describe the Copermittees' urban runoff management programs in their entirety, are needed to guide the Copermittees' urban runoff management efforts and aid the Copermittees in tracking urban runoff management program implementation. It is practicable for the Copermittees to update the JURMPs and WURMPs, and create the RURMP, within one year, since significant efforts to develop these programs have already occurred.

Discussion: While development and submittal of urban runoff management plans are not necessary to ensure compliance of the Copermittees' urban runoff management programs with the Order, the plans do serve as useful correspondence between the Copermittees and the Regional Board. The plans help organize the Copermittees' programs and guide their implementation, while also providing the Regional Board with a means to track Copermittee implementation.

Urban runoff management plans are not necessary for ensuring compliance with the Order because the Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limits, and the narrative standard of MEP are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limits is the pertinent compliance standard to be used under the

[60] Audit reports, report reviews, and inspection reports are available for review at the Regional Board office.
[61] All significant changes made to the Order's requirements are described and explained in detail in Fact Sheet section X.

Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone.

Rather than being substantive components of the Order itself, the Copermittees' urban runoff management plans are simply descriptions of their urban runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' urban runoff management plans need not be an enforceable part of the Order.

The Copermittees' plans and programs can be updated within one year because much of their plans and programs are already in existence. In fact, many parts of their plans and programs have been in place for 15 years.[62] Moreover, the adoption of Order No. 2001-01 required a larger scale reorganization of the Copermittees' programs than Order No. R9-2007-0001, but also allowed one year for program updates. The Copermittees were able to meet the time schedule required under Order No. 2001-01.

Finding D.1.d: Pollutants can be effectively reduced in urban runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Pollution prevention is the reduction or elimination of pollutant generation at its source and is the best "first line of defense". Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control BMPs remove pollutants from urban runoff.

Discussion: The SWRCB finds in its Order WQ 98-01 that BMPs are effective in reducing pollutants in urban runoff, stating that "implementation of BMPs [is] generally the most appropriate form of effluent limitations when designed to satisfy technology requirements, including reduction of pollutants to the maximum extent practicable." A SWRCB TAC further supports this finding by recommending "that nonpoint source pollution control can be accomplished most effectively by giving priority to [BMPs] in the following order:

1. Pollution Prevention – implementation of practices that use or promote pollution free alternatives;
2. Source Control – implementation of control measures that focus on preventing or minimizing urban runoff from contacting pollution sources;
3. Treatment Control – implementation of practices that require treatment of polluted runoff either onsite or offsite."[63]

Pollution prevention, the reduction or elimination of pollutant generation at its source, is an essential aspect of BMP implementation. By limiting the generation of pollutants by urban activities, less pollutants are available to be washed from urban areas, resulting in reduced pollutant loads in storm water discharges from these areas. In addition, there is no need to control or treat pollutants that are not initially generated. Furthermore, pollution prevention BMPs are

[62] Regional Board, 2000. Comparison Between the Requirements of Tentative Order 2001-01, the Federal NPDES Storm Water Regulations, the Existing San Diego Municipal Storm Water Permit (Order 90-42), and Previous Drafts of the San Diego Municipal Storm Water Permit.

[63] SWRCB, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

generally more cost effective than removal of pollutants by treatment facilities or cleanup of contaminated media.[64]

In the Pollution Prevention Act of 1990, Congress established a national policy that emphasizes pollution prevention over control and treatment. CWC section 13263.3(a) also supports pollution prevention, stating "The Legislature finds and declares that pollution prevention should be the first step in a hierarchy for reducing pollution and managing wastes, and to achieve environmental stewardship for society. The Legislature also finds and declares that pollution prevention is necessary to support the federal goal of zero discharge of pollutants into navigable waters." Finally, the Basin Plan also supports this finding by stating "To eliminate pollutants in storm water, one can either clean it up by removing pollutants or prevent it from becoming polluted in the first place. Because of the overwhelming volume of storm water and the enormous costs associated with pollutant removal, pollution prevention is the only approach that makes sense."[65]

USEPA also supports the utilization of a combination of BMPs to address pollutants in urban runoff. For example, USEPA has found there has been success in addressing illicit discharge related problems through BMP initiatives like storm drain stenciling and recycling programs, including household hazardous waste special collection days.[66] Structural BMP performance data has also been compiled and summarized by USEPA.[67] This data indicates that structural BMPs can be effective in reducing pollutants in urban runoff discharges. The summary provides the performance ranges of various types of structural BMPs for removing suspended solids, nutrients, pathogens, and metals from storm water flows. These pollutants are in general pollutants of concern in storm water in the San Diego Region. For suspended solids, the least effective structural BMP type was found to remove 30-65% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For nutrients, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For pathogens, the least effective structural BMP type was found to remove <30% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load. For metals, the least effective structural BMP type was found to remove 15-45% of the pollutant load, while the most effective was found to remove 65-100% of the pollutant load.

Finding D.1.e: Urban runoff needs to be addressed during the three major phases of development (planning, construction, and use) in order to reduce the discharge of pollutants to the MEP and protect receiving waters. Development which is not guided by water quality planning policies and principles can unnecessarily result in increased pollutant load discharges, flow rates, and flow durations which can impact receiving water beneficial uses. Construction sites without adequate BMP implementation result in sediment runoff rates which greatly exceed natural erosion rates of undisturbed lands, causing siltation and impairment of receiving waters. Existing development generates substantial pollutant loads which are discharged in urban runoff to receiving waters.

Discussion: MS4 permits are issued to municipalities because of their land use authority. The ultimate responsibility for the pollutant discharges, increased runoff, and inevitable long-term

[64] Schueler, T.R.., 2000. Center for Watershed Protection. Assessing the Potential for Urban Watershed Restoration, Article 142.
[65] Regional Board, 1994. Water Quality Control Plan, San Diego Basin, Region 9.
[66] USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges. 64 FR 68728.
[67] USEPA, 1999. Preliminary Data Summary of Urban Storm Water Best Management Practices. EPA 821-R-99-012.

water quality degradation that results from urbanization lies with local governments. This responsibility is based on the fact that it is the local governments that have authorized the urbanization (i.e., conversion of natural pervious ground cover to impervious urban surfaces) and the land uses that generate the pollutants and runoff. Furthermore, the MS4 through which the pollutants and increased flows are conveyed, and ultimately discharged into natural receiving waters, are owned and operated by the same local governments. In summary, the Copermittees under the Order are responsible for discharges into and out of their MS4s because (1) they own and operate the MS4; and (2) they have the legal authority that authorizes the very development and land uses with generate the pollutants and increased flows in the first place.

For example, since grading cannot commence prior to the issuance of a local grading permit, the Copermittees have a built-in mechanism to ensure that all grading activities are protective of receiving water quality. The Copermittee has the authority to withhold issuance of the grading permit until the project proponent has demonstrated to the satisfaction of the Copermittee that the project will not violate their ordinances or cause the Copermittee to be in violation of its MS4 permit. Since the Copermittee will ultimately be held responsible for any discharges from the grading project by the Regional Board, the Copermittee will want to use its own permitting authority to ensure that whatever measures the Copermittee deems necessary to protect discharges into its MS4 are in fact taken by the project proponent.

The Order holds the local government accountable for this direct link between its land use decisions and water quality degradation. The Order recognizes that each of the three major stages in the urbanization process (development planning, construction, and the use or operational stage) are controlled by and must be authorized by the local government. Accordingly, this permit requires the local government to implement, or require others to implement, appropriate best management practices to reduce pollutant discharges and increased flow during each of the three stages of urbanization.

Including plans for BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce urban runoff pollutant loads to surface waters.[68] The Phase II regulations for small municipalities reflect the necessity of addressing urban runoff during the early planning phase. Due to the greater water quality concerns generally experienced by larger municipalities, Phase II requirements for small municipalities are also applicable to larger municipalities such as the Copermittees. The Phase II regulations direct municipalities to develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. The program must ensure that controls are in place that would prevent or minimize water quality impacts. This includes developing and implementing strategies which include a combination of structural and/or non-structural BMPs appropriate to the locality. The program must also ensure the adequate long-term operation and maintenance of BMPs.[69] USEPA expands on the Phase II regulations for urban development when it recommends that Copermittees:

> "Adopt a planning process that identifies the municipality's program goals (e.g., minimize water quality impacts resulting from post-construction runoff from new development and redevelopment), implementation strategies (e.g., adopt a combination of structural and/or non-structural BMPs), operation and maintenance policies and procedures, and enforcement

[68] USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.
[69] USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System-Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule. 64 FR 68845.

> procedures. In developing your program, you should consider assessing existing ordinances, policies, programs and studies that address storm water runoff quality."

Management of urban runoff during the construction phase is also essential. USEPA explains in the preamble to the Phase II regulations that storm water discharges generated during construction activities can cause an array of physical, chemical, and biological water quality impacts. Specifically, the biological, chemical and physical integrity of the waters may become severely compromised due to runoff from construction sites. Fine sediment from construction sites can adversely affect aquatic ecosystems by reducing light penetration, impeding sight-feeding, smothering benthic organisms, abrading gills and other sensitive structures, reducing habitat by clogging interstitial spaces within the streambed, and reducing intergravel dissolved oxygen by reducing the permeability of the bed material. Water quality impairment also results, in part, because a number of pollutants are preferentially absorbed onto mineral or organic particles found in fine sediment. The interconnected process of erosion (detachment of the soil particles), sediment transport, and delivery is the primary pathway for introducing key pollutants, such as nutrients, metals, and organic compounds into aquatic systems.[70]

Finally, urban runoff from existing development must be addressed. The Copermittees' monitoring data exhibits that significant water quality problems exist in receiving waters which receive urban runoff from areas with extensive existing development, such as Chollas Creek.[71] Source identification, BMP requirements, inspections, and enforcement are all important measures which can be implemented to address urban runoff from existing development. USEPA supports inspections and enforcement by municipalities when it states "Effective inspection and enforcement requires […] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms […] also must be described."[72]

Finding D.1.f: Annual reporting requirements included in this Order are necessary to meet federal requirements and to evaluate the effectiveness and compliance of the Copermittees' programs.

Discussion: The annual reporting requirements are consistent with federal NPDES regulation 40 CFR 122.41, which states:

> "The operator of a large or medium municipal separate storm sewer system of a municipal separate storm sewer system that has been designated by the Director under section 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such a system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition, Such proposed changes shall be consistent with § 122.26(d)(2)iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions,. Inspections, and

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[70] Ibid., 64 FR 68728.
[71] County of San Diego, 2005. San Diego County Municipal Copermittees 2004-2005 Urban Runoff Monitoring. Table 11-7.
[72] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

public education programs; and (7) Identification of water quality improvements or degradation."

CWC section 13267 provides that "the regional board may require that any person who has discharged […] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires."

The Regional Board must assess the reports to ensure that the Copermittees' programs are adequate to assess and address water quality. The reporting requirements can also be useful tools for the Copermittees to review, update, or revise their programs. Areas or issues which have received insufficient efforts can also be identified and improved upon.

Finding D.2.a: The SUSMP requirements contained in this Order are consistent with Order WQ-2000-11 adopted by the SWRCB on October 5, 2000. In the precedential order, the SWRCB found that the design standards, which essentially require that urban runoff generated by 85 percent of storm events from specific development categories be infiltrated or treated, reflect the MEP standard. The order also found that the SUSMP requirements are appropriately applied to the majority of the Priority Development Project categories contained in Section D.1 of this Order. The SWRCB also gave Regional Water Quality Control Boards the discretion to include additional categories and locations, such as retail gasoline outlets (RGOs), in future SUSMPs.

Discussion: The post-construction requirements and design standards contained in the SUSMP section of Order No. R9-2007-0001 constitute MEP and are consistent SWRCB guidance, court decisions, and Regional Board requirements. The SWRCB and Regional Boards have made several recent decisions in regards to inclusion of SUSMP requirements in MS4 permits. In a precedential decision, SWRCB WQ Order No. 2000-11, the SWRCB found that the SUSMP provisions constitute MEP for addressing pollutant discharges resulting from Priority Development Projects. The provisions of the SUSMP section of the Order are also consistent with those previously issued by the Regional Board for Orange County (Order No. R9-2002-0001) and San Diego County (Order No. 2001-01), as well as requirements in the Los Angeles County MS4 permit (Order No. R4-2001-182). In SWRCB Order WQ 2001-15, the SWRCB reaffirmed that SUSMP requirements constitute MEP. Moreover, the SUSMP requirements of the San Diego County MS4 permit (Order No. 2001-01) were upheld when the California State Supreme Court declined to hear the matter on appeal.

Finding D.2.b: Controlling urban runoff pollution before it enters the MS4 through the use of a combination of onsite source control BMPs augmented with treatment control BMPs is important for the following reasons: (1) Many end-of-pipe BMPs (such as diversion to the sanitary sewer) are typically ineffective during significant storm events. Whereas, onsite source control BMPs can be applied during all runoff conditions; (2) End-of-pipe BMPs are often incapable of capturing and treating the wide range of pollutants which can be generated on a sub-watershed scale; (3) End-of-pipe BMPs are more effective when used as polishing BMPs, rather than the sole BMP to be implemented; (4) End-of-pipe BMPs do not protect the quality or beneficial uses of receiving waters between the source and the BMP; and (5) Offsite end-of-pipe BMPs do not aid in the effort to educate the public regarding sources of pollution and their prevention.

Discussion: Many end-of-pipe BMPs are designed for low flow conditions because their end-of-pipe location prevents them from being designed for large storm events. This results in the end-of-pipe BMPs being overwhelmed, bypassed, or ineffective during larger storm events more frequently than onsite BMPs designed for larger storms. BMPs are also frequently most effective for a particular type of pollutant (such as sediment). Such BMPs may be appropriate for small

sites with a limited suite of pollutants generated; however, end-of-pipe BMPs must typically be able to address a wide range of pollutants generated by a sub-watershed, limiting their effectiveness. Moreover, the location of some end-of-pipe BMPs allow for untreated pollutants to be discharged to and degrade receiving waters prior to their reaching the BMPs. This fails to protect receiving waters, which is the purpose of BMP implementation. Moreover, opportunities to educate the public regarding urban runoff pollution can be lost when end-of-pipe BMPs are located away from pollutant sources and out of sight. Onsite BMPs can lead to a better understanding of urban runoff issues since they demonstrate urban runoff processes.

Finding D.2.c: Use of site design BMPs at new development projects can be an effective means for minimizing the impact of urban runoff discharges from the development projects on receiving waters. Site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of urban runoff.

Discussion: The use of site design BMPs helps reduce the amount of impervious area associated with urbanization and allows storm water to infiltrate into the soil. Natural vegetation and soil filters urban runoff and reduces the volume and pollutant loads of storm water. Studies have revealed that the level of imperviousness resulting from urbanization is strongly correlated with the water quality impairment of nearby receiving waters.[73] In many cases the impacts on receiving waters due to changes in hydrology can be more significant than those attributable to the contaminants found in storm water discharges.[74] These impacts include stream bank erosion (increased sediment load and subsequent deposition), benthic habitat degradation, and decreased diversity of macroinvertebrates.

The Order include requirements for developments to include site design BMPs that mimic or replicate the natural hydrologic cycle. Open space designs which maximize pervious surfaces and retention of "natural" drainages have been found to reduce both the costs of development and pollutant export.[75] Moreover, USEPA finds including plans for a "natural" site design and BMP implementation during the design phase of new development and redevelopment offers the most cost effective strategy to reduce pollutant loads to surface waters.[76] In a review of the Copermittees' SUSMP programs, Tetra Tech found that many SUSMP projects were not including this effective BMP in their plans.[77]

Finding D.2.d: RGOs are significant sources of pollutants in urban runoff. RGOs are points of convergence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up and consequently produce significantly higher loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and treatment control BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more, or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

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[73] USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.
[74] Ibid.
[75] Center for Watershed Protection, 2000. "The Benefits of Better Site Design in Residential Subdivisions." Watershed Protection Techniques. Vol. 3. No. 2.
[76] USEPA, 1999. 40 CFR Parts 9, 122, 123, and 124 National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule.
[77] Tetra Tech, 2005. San Diego Urban Storm Water Mitigation Plan Program Evaluation Report. Pages 4-5.

Discussion: RGOs are included in the Order as a Priority Development Project category because RGOs are points of confluence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up. RGOs consequently produce significantly greater loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a ADT of 100 or more vehicles per day. These are appropriate thresholds since vehicular development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

This finding has been added to satisfy SWRCB WQ Order No. 2000-11's requirements for including RGOs as a Priority Development Category. Order No. 2000-11 acknowledged that a threshold (size, average daily traffic, etc.) appropriate to trigger SUSMP requirements should be developed for RGOs and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.[78] Additional detail to support the inclusion of RGOs can be found in Fact Sheet Section VIII.F.

Finding D.2.f: If not properly designed or maintained, certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents). However, proper BMP design which avoids standing water can prevent the creation of vector habitat. Nuisances and public health impacts resulting from vector breeding can be prevented with close collaboration and cooperative effort between municipalities, local vector control agencies, and the State Department of Health Services during the development and implementation of urban runoff management programs.

Discussion: The implementation of certain structural BMPs or other urban runoff treatment systems can result in significant vector problems in the form of increased breeding or harborage habitat for mosquitoes, rodents or other potentially disease transmitting organisms. The implementation of BMPs that retain water may provide breeding habitat for a variety of mosquito species, some of which have the potential to transmit diseases such as Western Equine Encephalitis, St. Louis Encephalomyelitis, and malaria. Recent BMP implementation studies by Caltrans[79] in District 7 and District 11 have demonstrated mosquito breeding associated with some types of BMPs. The Caltrans BMP Retrofit Pilot study cited lack of maintenance and improper design as factors contributing to mosquito production. However, a Watershed Protection Techniques article[80] describes management techniques for selecting, designing, and maintaining structural treatment BMPs to minimize mosquito production. State and local urban runoff management programs that include structural BMPs with the potential to retain water have been implemented in Florida and the Chesapeake Bay region without resulting in significant public health threats from mosquitoes or other vectors.[81]

Finding D.3.a: In accordance with federal NPDES regulations, and to ensure the most effective oversight of industrial and construction site discharges, discharges of runoff from industrial and construction sites are subject to dual (state and local) storm water regulation. Under this dual system, the Regional Board is responsible for enforcing the General Construction Activities Storm Water Permit, SWRCB Order 97-03 DWQ, NPDES No. CAS000001 (General Construction Permit) and the General Industrial Activities Storm Water Permit, SWRCB Order

[78] SWRCB, 2000. Order WQ 2000-11.
[79] Caltrans, 2000. BMP Retrofit Pilot Studies: A Preliminary Assessment of Vector Production.
[80] Watershed Protection Techniques, 1995. Mosquitoes in Constructed Wetlands: A Management Bugaboo? 1(4):203-207.
[81] Shaver, E. and R. Baldwin , 1995. Sand Filter Design for Water Quality Treatment in Herricks, E., Ed. Stormwater Runoff and Receiving Systems: Impact, Monitoring, and Assessment, CRC Lewis Publishers, New York, NY.

99-08 DWQ, NPDES No. CAS000002 (General Industrial Permit), and each municipal Copermittee is responsible for enforcing its local permits, plans, and ordinances, which may require the implementation of additional BMPs than required under the statewide general permits.

Discussion: USEPA finds the control of pollutant discharges from industry and construction so important to receiving water quality that it has established a double system of regulation over industrial and construction sites. This double system of regulation consists of two parallel regulatory systems with the same common objective: to keep pollutants from industrial and construction sites out of the MS4. In this double system of regulation for runoff from industrial and construction sites, local governments must enforce their legal authorities (i.e., local ordinances and permits) while the Regional Board must enforce its legal authority (i.e., statewide general industrial and construction storm water permits). These two regulatory systems are designed to complement and support each other. Municipalities are not required to enforce Regional Board and SWRCB permits; however, they are required to enforce their ordinances and permits. The Federal regulations are clear that municipalities have responsibility to address runoff from industrial and construction sites which enters their MS4s.

Municipalities have this responsibility because they have the authority to issue land use and development permits. Since municipalities are the lead permitting authority for industrial land use and construction activities, they are also the lead for enforcement regarding runoff discharges from these sites. For sites where the municipality is the lead permitting authority, the Regional Board will work with the municipality and provide support where needed. The Regional Board will assist municipalities in enforcement against non-compliant sites after the municipality has exhibited a good faith effort to bring the site into compliance.

According to USEPA, the storm water regulations envision that NPDES permitting authorities and municipal operators will cooperate to develop programs to monitor and control pollutants in storm water discharges from industrial facilities.[82] USEPA discusses the "dual regulation" of construction sites in its Storm Water Phase II Compliance Assistance Guide,[83] which states "Even though all construction sites that disturb more than one acre are covered nationally by an NPDES storm water permit, the construction site runoff control minimum measure […] is needed to induce more localized site regulation and enforcement efforts, and to enable operators […] to more effectively control construction site discharges into their MS4s." While the Storm Water Phase II Compliance Assistance Guide applies to small municipalities, it is applicable to the Copermittees, because they are similar in size and have the potential to discharge similar pollutant types as Phase II municipalities.

Finding D.3.b: Identification of sources of pollutants in urban runoff (such as municipal areas and activities, industrial and commercial sites/sources, construction sites, and residential areas), development and implementation of BMPs to address those sources, and updating ordinances and approval processes are necessary for the Copermittees to ensure that discharges of pollutants into and from its MS4 are reduced to the MEP. Inspections and other compliance verification methods are needed to ensure minimum BMPs are implemented. Inspections are especially important at high risk areas for pollutant discharges.

Discussion: Source identification is necessary to characterize the nature and extent of pollutants in discharges and to develop appropriate BMPs. It is the first step in a targeted approach to urban

[82] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.
[83] USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.

runoff management. Source identification helps identify the location of potential sources of pollutants in urban runoff. Pollutants found to be present in receiving waters can then be traced to the sites which frequently generate such pollutants. In this manner an inventories of sources can help in targeting inspections, monitoring, and potential enforcement. This allows for limited inspection, monitoring, and enforcement time to be most effective. USEPA supports source identification as a concept when it recommends construction, municipal, and industrial source identification in guidance and the federal regulations.[84][85]

The development of BMPs for identified sources will help ensure that appropriate, consistent controls are implemented at all types of urban development and areas. Copermittees must reduce the discharge of pollutants in urban runoff to the maximum extent practicable. To achieve this level of pollutant reduction, BMPs must be implemented. Designation of minimum BMPs helps ensure that appropriate BMPs are implemented for various sources. These minimum BMPs also serve as guidance as to the level of water quality protection required. USEPA requires development and implementation of BMPs for construction, municipal, commercial, industrial, and residential sources at 40 CFR 122.26(d)(2)(iv)(A-D).

Updating ordinances and approval processes is necessary in order for the Copermittees to control discharges to their MS4s. USEPA supports updating ordinances and approval processes when it states "A crucial requirement of the NPDES storm water regulation is that a municipality must demonstrate that it has adequate legal authority to control the contribution of pollutants in storm water discharged to its MS4. […] In order to have an effective municipal storm water management program, a municipality must have adequate legal authority to control the contribution of pollutants to the MS4. […] 'Control,' in this context, means not only to require disclosure of information, but also to limit, discourage, or terminate a storm water discharge to the MS4."[86]

Inspections provide a necessary means for the Copermittees to evaluate compliance of pollutant sources with their municipal ordinances and minimum BMP requirements. USEPA supports inspections when it recommends inspections of construction, municipal, and industrial sources.[87] Inspection of high risk sources are especially important because of the ability of frequent inspections to help ensure compliance, thereby reducing the risk associated with such sources. USEPA suggests that inspections can improve compliance when it states "Effective inspection and enforcement requires […] penalties to deter infractions and intervention by the municipal authority to correct violations."[88]

Finding D.3.c: Historic and current development makes use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and receiving water.

Discussion: A MS4 is defined in the federal regulations as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs,

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[84] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.
[85] 40 CFR 122.26(d)(2)(ii)
[86] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.
[87] Ibid.
[88] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

gutters, ditches, man-made channels, or storm drains), owned or operated by a Copermittee, and designed or used for collecting or conveying urban runoff.[89] Natural drainage patterns and urban streams are frequently used by municipalities to collect and convey urban runoff away from development within their jurisdiction. Therefore, the Regional Board considers natural drainages that are used for conveyances of urban runoff, regardless of whether or not they've been altered by the municipality, as both part of the MS4s and as receiving waters. To clarify, an unaltered natural drainage, which receives runoff from a point source (channeled by a Copermittee to drain an area within their jurisdiction), which then conveys the runoff to an altered natural drainage or a man-made MS4, is both an MS4 and a receiving water.[90]

Finding D.3.d: As operators of the MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to waters of the U.S., the operator essentially accepts responsibility for discharges into the MS4 that it does not prohibit or control. These discharges may cause or contribute to a condition of contamination or a violation of water quality standards.

Discussion: CWA section 402(p) requires operators of MS4s to prohibit non-storm water discharges into their MS4s. This is necessary because pollutants which enter the MS4 generally are conveyed through the MS4 to be eventually discharged into receiving waters. If a municipality does not prohibit non-storm water discharges, it is providing the pathway (its MS4) which enables pollutants to reach receiving waters. Since the municipality's storm water management service can result in pollutant discharges to receiving waters, the municipality must accept responsibility for the water quality consequences resulting from this service. Furthermore, third party discharges can cause a municipality to be out of compliance with its permit. Since pollutants from third parties which enter the MS4 will eventually be discharged from the MS4 to receiving waters, the third party discharges can result in a situation of municipality non-compliance if the discharges lead to an exceedance of water quality standards. For these reasons, each Copermittee must prohibit and/or control discharges from third parties to its MS4. USEPA supports this concept when it states "the operators of regulated small MS4s cannot passively receive and discharge pollutants from third parties" and "the operator of a small MS4 that does not prohibit and/or control discharges into its system essentially accepts 'title' for those discharges. At a minimum, by providing free and open access to the MS4s that convey discharges to the waters of the United States, the municipal storm sewer system enables water quality impairment by third parties."[91]

Finding D.3.e: Waste and pollutants which are deposited and accumulate in the MS4 drainage structures will be discharged from these structures to waters of the U.S. unless they are removed or treated. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. For this reason, pollutant discharges into the MS4s must be reduced to the MEP unless treatment within the MS4 occurs.

Discussion: When rain falls and drains urban freeways, industries, construction sites, and neighborhoods it picks up a multitude of pollutants. Gravity flow transports the pollutants to the MS4. Illicit discharges and connections also contribute a significant amount of pollutants to MS4s. MS4s are commonly designed to convey their contents as quickly as possible. Due to the

[89] USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.
[90] Regional Board, 2001. Response in Opposition to Petitions for Review of California Regional Water Quality Control Board San Diego Region Order No. 2001-01 – NPDES Permit No. CAS0108758 (San Diego Municipal Storm Water Permit).
[91] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68765-68766.

resulting typically high flow rates within the concrete conveyance systems of MS4s, pollutants which enter or are deposited in the MS4 and not removed are generally flushed unimpeded through the MS4 to waters of the United States. Since treatment generally does not occur within the MS4, in such cases reduction of pollutants to the MEP must occur prior to discharges entering the MS4.

The importance of this concept is supported by the tons of wastes/pollutants that have been removed from the Copermittees' MS4s as reported in their ROWD.[92] Moreover, these pollutants will be discharged into receiving waters unless an effective MS4 and structural treatment BMP maintenance program is implemented by the Copermittees. The requirement for Copermittees to conduct a MS4 maintenance program is specifically directed in both the Phase I and Phase II storm water regulations. Regarding MS4 cleaning, USEPA states "The removal of sediment, decaying debris, and highly polluted water from catch basins has aesthetic and water quality benefits, including reducing foul odors, reducing suspended solids, and reducing the load of oxygen-demanding substances that reach receiving waters."[93] It goes on to say, "Catch basin cleaning is an efficient and cost-effective method for preventing the transport of sediment and pollutants to receiving water bodies." USEPA also finds that "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices. […] The proposed program should provide for maintenance logs and identify specific maintenance activities for each class of control, such as removing sediment from retention ponds every five years, cleaning catch basins annually, and removing litter from channels twice a year."[94]

Finding D.3.f: Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every urban runoff management program and is specifically required in the federal storm water regulations and this Order. Each Copermittee is individually responsible for adoption and enforcement of ordinances and/or policies, implementation of identified control measures/BMPs needed to prevent or reduce pollutants in storm water runoff, and for the allocation of funds for the capital, operation and maintenance, administrative, and enforcement expenditures necessary to implement and enforce such control measures/BMPs under its jurisdiction.

Discussion: The Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A – D) are clear in placing responsibility on municipalities for control of urban runoff from third party activities and land uses to their MS4.[95] In order for municipalities to assume this responsibility, they must implement ordinances, permits, and plans addressing urban runoff from third parties. Assessments for compliance with their ordinances, permits, and plans are essential for a municipality to ensure that third parties are not causing the municipality to be in violation of its municipal storm water permit. When conditions of non-compliance are determined, enforcement is necessary to ensure that violations of municipality ordinances and permits are corrected. When the Copermittees determine a violation of its storm water ordinance, it must pursue correction of the violation. Without enforcement, third parties do not have incentive to correct violations. USEPA supports enforcement by municipalities when it states "Effective inspection and

[92] San Diego County Copermittees, 2005. Report of Waste Discharge. Pages 32-33.
[93] USEPA, 1999. Storm Water O&M Fact Sheet, Catch Basin Cleaning. EPA 832-F-99-011.
[94] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.
[95] USEPA, 2000. EPA Administered Permit Programs: The National Pollutant Discharge Elimination System. Code of Federal Regulations, Vol. 40, Part 122.

enforcement requires […] penalties to deter infractions and intervention by the municipal authority to correct violations. Enforcement mechanisms […] also must be described."[96]

Finding D.3.g: Education is an important aspect of every effective urban runoff management program and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions impact receiving water quality and how these impacts can be minimized.

Discussion: Education is a critical BMP and an important aspect of the urban runoff management programs. USEPA finds that "An informed and knowledgeable community is critical to the success of a storm water management program since it helps ensure the following: Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important [and] greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters."[97]

Regarding target audiences, USEPA also states "The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children."

Finding D.3.h: Public participation during the development of urban runoff management programs is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.

Discussion: This finding is supported by the Phase II Storm Water Regulations, which state "early and frequent public involvement can shorten implementation schedules and broaden public support for a program." USEPA goes on to explain, "public participation is likely to ensure a more successful storm water program by providing valuable expertise and a conduit to other programs and governments."[98]

Finding D.4.a: Since urban runoff does not recognize political boundaries, watershed-based urban runoff management can greatly enhance the protection of receiving waters within a watershed. Such management provides a means to focus on the most important water quality problems in each watershed. By focusing on the most important water quality problems, watershed efforts can maximize protection of beneficial use in an efficient manner. Watershed management of urban runoff does not require Copermittees to expend resources outside of their jurisdictions. Watershed management requires the Copermittees within a watershed to develop a watershed-based management strategy, which can then be implemented on a jurisdictional basis.

Discussion: In recent years, addressing water quality issues from a watershed perspective has increasingly gained attention. Regarding watershed-based permitting, the USEPA *Watershed-Based NPDES Permitting Policy Statement* issued on Jan. 7, 2004 states the following:

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[96] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA/833-B-92-002.
[97] USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. EPA 833-R-00-002.
[98] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68755.

> USEPA continues to support a holistic watershed approach to water quality management. The process for developing and issuing NPDES permits on a watershed basis is an important tool in water quality management. USEPA believes that developing and issuing NPDES permits on a watershed basis can benefit all watershed stakeholders, from the NPDES permitting authority to local community members. A watershed-based approach to point source permitting under the NPDES program may serve as one innovative tool for achieving new efficiencies and environmental results. USEPA believes that watershed-based permitting can:
>
> - lead to more environmentally effective results;
> - emphasize measuring the effectiveness of targeted actions on improvements in water quality;
> - provide greater opportunities for trading and other market based approaches;
> - reduce the cost of improving the quality of the nation's waters;
> - foster more effective implementation of watershed plans, including total maximum daily loads (TMDLs); and
> - realize other ancillary benefits beyond those that have been achieved under the CWA (e.g., facilitate program integration including integration of Clean Water Act and Safe Drinking Water Act programs).
>
> Watershed-based permitting is a process that ultimately produces NPDES permits that are issued to point sources on a geographic or watershed basis. In establishing point source controls in a watershed-based permit, the permitting authority may focus on watershed goals, and consider multiple pollutant sources and stressors, including the level of nonpoint source control that is practicable. In general, there are numerous permitting mechanisms that may be used to develop and issue permits within a watershed approach.

This USEPA guidance is in line with SWRCB and Regional Board watershed management goals. For example, the SWRCB's TAC recommends watershed-based water quality protection, stating "Municipal permits should have watershed specific components." The TAC further recommends that "All NPDES permits and Waste Discharge Requirements should be considered for reissuance on a watershed basis."

In addition, the Basin Plan states that "public agencies and private organizations concerned with water resources have come to recognize that a comprehensive evaluation of pollutant contributions on a watershed scale is the only way to realistically assess cumulative impacts and formulate workable strategies to truly protect our water resources. Both water pollution and habitat degradation problems can best be solved by following a basin-wide approach."

In light of USEPA's policy statement and the SWRCB's and Regional Board's watershed management goals, the Regional Board seeks to expand watershed management in the regulation of urban runoff. Watershed-based MS4 permits can provide for more effective receiving water quality protection by focusing on specific water quality problems. The entire watershed for the receiving water can be assessed, allowing for critical areas and practices to be targeted for corrective actions. Known sources of pollutants of concern can be investigated for potential water quality impacts. Problem areas can then be addressed, leading to eventual improvements in receiving water quality. Management of urban runoff on a watershed basis allows for specific water quality problems to be targeted so that efforts result in maximized water quality improvements.[99]

[99] Regional Board, 2004. San Diego County Municipal Storm Water Permit Reissuance Analysis Summary. P. 1.

Finding D.4.b: Some urban runoff issues, such as residential education, can be effectively addressed on a regional basis. Regional approaches to urban runoff management can improve program consistency and promote sharing of resources, which can result in implementation of more efficient programs.

Discussion: Regional activities are generally directed at developing consistency between watershed and jurisdictional programs (e.g., through standards development), and collaborating on program activities such as education and monitoring to ease implementation and make the most of economies of scale. The Copermittees report having come to an understanding that jurisdictional, watershed, and regional programs cannot be effectively developed and implemented in isolation. In addition, the Copermittees, through WURMP implementation efforts, have learned that many watershed activities can be more effectively implemented (e.g., achieve more water quality benefits) at the regional level due to economies of scale and agree watershed protection should be increasingly emphasized as a focal point of Copermittee efforts under the re-issued Permit.[100]

Finding D.4.c: Both regionally and on a watershed basis, it is important for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially Caltrans, the Department of Defense, and Native American Tribes, is also important. Establishment of a management structure, within which the Copermittees subject to this Order will fund and coordinate those aspects of their joint obligations, will help promote implementation of urban runoff management programs on a watershed and regional basis in a most cost effective manner.

Discussion: Conventional planning and zoning can be limited in their ability to protect the environmental quality of creeks, rivers, and other waterbodies. Watershed-based planning is often ignored, despite the fact that receiving waters unite land by collecting runoff from throughout the watershed. Since watersheds unite land, they can be used as an effective basis for planning. Watershed-based planning enables local and regional areas to realize economic, social, and other benefits associated with growth, while conserving the resources needed to sustain such growth, including water quality. This type of planning can involve four steps: (1) Identify the watersheds shared by the participating jurisdictions; (2) Identify, assess, and prioritize the natural, social, and other resources in the watersheds; (3) Prioritize areas for growth, protection, and conservation, based on prioritized resources; and (4) Develop plans and regulations to guide growth and protect resources. Local governments have started with simple, yet effective, steps toward watershed planning, such as adopting a watershed-based planning approach, articulating the basic strategy in their General Plans, and beginning to pursue the basic strategy in collaboration with neighboring local governments who share the watersheds. Examples of new mechanisms created to facilitate watershed-based planning and zoning include the San Francisquito Creek Watershed Coordinated Resource Management Process and the Santa Clara Basin Watershed Management Initiative.[101]

E. Statute and Regulatory Considerations

Finding E.1: The Receiving Water Limitations (RWL) language specified in this Order is consistent with language recommended by USEPA and established in SWRCB Water Quality Order 99-05, adopted by the SWRCB on June 17, 1999. The RWL in this Order require

[100] San Diego County Copermittees, 2005. Report Of Waste Discharge. P. C.14.
[101] BASMAA, 1999. Start at the Source. Forbes Custom Publishing.

compliance with water quality standards through an iterative approach requiring the implementation of improved and better-tailored BMPs over time. Compliance with receiving water limits based on applicable water quality standards is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality standards and the creation of conditions of pollution.

Discussion: The RWLs in the Order require compliance with water quality standards through an iterative approach for implementing improved and better-tailored BMPs over time. The iterative BMP process requires the implementation of increasingly stringent BMPs until receiving water standards are achieved. This is necessary because implementation of BMPs alone cannot ensure attainment of receiving water quality standards. For example, a BMP that is effective in one situation may not be applicable in another. An iterative process of BMP development, implementation, and assessment is needed to promote consistent compliance with receiving water quality objectives. If assessment of a given BMP confirms that the BMP is ineffective, the iterative process should be restarted, with redevelopment of a new BMP that is anticipated to result in compliance with receiving water quality objectives.

The issue of whether storm water discharges from MS4s must meet water quality standards has been intensely debated in past years. The argument arises because CWA section 402(p) fails to clearly state that municipal dischargers of storm water must meet water quality standards. On the issue of industrial discharges of storm water, the statute clearly indicates that industrial dischargers must meet both (1) the technology-based standard of "best available technology economically achievable (BAT)" and (2) applicable water quality standards. On the issue of municipal discharges however, the statute states that municipal dischargers must meet (1) the technology-based standard of MEP" and (2) "such other provisions that the Administrator or the State determines appropriate for the control of such pollutants." The statute fails, however, to specifically state that municipal dischargers must meet water quality standards.

As a result, the municipal storm water dischargers have argued that they do not have to meet water quality standards; and that they only are required to meet MEP. Environmental interest groups maintain that not only do MS4 discharges have to meet water quality standards, but that MS4 permits must also comply with numeric effluent limitations for the purpose of meeting water quality standards. On the issue of water quality standards, USEPA, the SWRCB, and the Regional Board have consistently maintained that MS4s must indeed comply with water quality standards. On the issue of whether water quality standards must be met by numeric effluent limits, USEPA, the SWRCB (in Orders WQ 91-03 and WQ 91-04), and the Regional Board have maintained that MS4 permits can, at this time, contain narrative requirements for the implementation of BMPs in place of numeric effluent limits.

In addition to relying on USEPA's legal opinion concluding that MS4s must meet MEP and water quality standards, the SWRCB also relied on the CWA's explicit authority for States to require "such other provisions that the Administrator or the State determines appropriate for the control of such pollutants" in addition to the technology-based standard of MEP. To further support its conclusions that MS4 permit dischargers must meet water quality standards, the SWRCB relied on provisions of the CWC that specify that all waste discharge requirements must implement applicable Basin Plans and take into consideration the appropriate water quality objectives for the protection of beneficial uses.

The SWRCB first formally concluded that permits for MS4s must contain effluent limitations based on water quality standards in its Order WQ 91-03. In that Order, the SWRCB also concluded that it was appropriate for Regional Boards to achieve this result by requiring best

management practices, rather than by inserting numeric effluent limitations into MS4 permits. Later, in Order WQ 98-01, the SWRCB prescribed specific precedent setting Receiving Water Limitations language to be included in all future MS4 permits. This language specifically requires that MS4 dischargers meet water quality standards and allows for the use of narrative BMPs (increasing in stringency and implemented in an iterative process) as the mechanism by which water quality standards can be met.

In Order WQ 99-05, the SWRCB modified its receiving water limitations language in Order WQ 98-01 to meet specific objections by USEPA (the modifications resulted in stricter compliance with water quality standards). SWRCB Order WQ 99-05 states:

> "In Order WQ 98-01, the SWRCB ordered that certain receiving water limitation language be included in future municipal storm water permits. Following inclusion of that language in permits issued by the San Francisco Bay and San Diego Regional Boards for Vallejo and Riverside respectively, the USEPA objected to the permits. The USEPA objection was based on the receiving water limitation language. The USEPA has now issued those permits itself and has included receiving water limitation language it deems appropriate.
>
> In light of USEPA's objection to the receiving water limitation language in Order WQ 98-01 and its adoption of alternative language, the SWRCB is revising its instructions regarding receiving water limitation language for municipal storm water permits. It is hereby ordered that Order WQ 98-01 will be amended to remove the receiving water limitation language contained therein and to substitute the USEPA language. Based on the reasons stated here, and as a precedent decision, the following receiving water limitation language shall be included in future municipal storm water permits."

In 1999 case involving MS4 permits issued by USEPA to several Arizona cities (*Defenders of Wildlife v. Browner*, 1999, 197 F. 3d 1035), the United States Court of Appeals for the Ninth Circuit upheld USEPA's requirement for MS4 dischargers to meet water quality standards, but it did so on the basis of USEPA's discretion rather than on the basis of strict compliance with the Clean Water Act. In other words, while holding that the Clean Water Act does not require all MS4 discharges to comply strictly with state water quality standards, the Court also held that USEPA has the authority to determine that ensuring strict compliance with state water quality standards is necessary to control pollutants. On the question of whether MS4 permits must contain numeric effluent limitations, the court upheld USEPA's use of iterative BMPs in place of numeric effluent limits.

On October 14, 1999, the SWRCB issued a legal opinion on the federal appellate decision and provided advice to the Regional Boards on how to proceed in the future. In the memorandum, the SWRCB concludes that the recent Ninth Circuit opinion upholds the discretion of USEPA and the State to (continue to) issue permits to MS4s that require compliance with water quality standards through iterative BMPs. Moreover, the memorandum states that "[…] because most MS4 discharges enter impaired water bodies, there is a real need for permits to include stringent requirements to protect those water bodies. As TMDLs are developed, it is likely that MS4s will have to participate in pollutant load reductions, and the MS4 permits are the most effective vehicles for those reductions." In summary, the SWRCB found that the Regional Boards should continue to include the RWL established in SWRCB Order WQ 99-05 in all future permits.

The issue of the RWLs language was also central to BIA's (and others') appeal of Order No. 2001-01 (Order No. R9-2007-0001 serves as the reissuance of Order No. 2001-01). BIA contended that the MEP standard was a ceiling on what could be required of the Copermittees in implementing their urban runoff management programs, and that Order No. 2001-01's receiving

water limitations requirements exceeded that ceiling. In other words, BIA argued that the Copermittees could not be required to comply with receiving water limitations if they necessitated efforts which went beyond the MEP standard. Again, the courts upheld the Regional Board's discretion to require compliance with water quality standards in municipal storm water permits, without limitation. The Court of Appeal, Fourth Appellate District found that the Regional Board has "the authority to include a permit provision requiring compliance with water quality standards."[102] On further appeal by BIA, the California State Supreme Court declined to hear the matter.

While implementation of the iterative BMP process is a means to achieve compliance with water quality objectives, it does not shield the discharger from enforcement actions for continued non-compliance with water quality standards. Consistent with USEPA guidance,[103] regardless of whether or not an iterative process is being implemented, discharges that cause or contribute to a violation of water quality standards are in violation of Order No. R9-2007-0001.

Finding E.2: The Basin Plan identifies the following beneficial uses for water bodies in the Santa Diego County watersheds: Municipal and Domestic Supply (MUN), Agricultural Supply (AGR), Industrial Process Supply (PROC), Industrial Service Supply (IND), Ground Water Recharge (GWR), Contact Water Recreation (REC1) Non-contact Water Recreation (REC2), Warm Freshwater Habitat (WARM), Cold Freshwater Habitat (COLD), Wildlife Habitat (WILD), Rare, Threatened, or Endangered Species (RARE), Freshwater Replenishment (FRSH), Hydropower Generation (POW), and Preservation of Biological Habitats of Special Significance (BIOL). The following additional beneficial uses are identified for coastal waters of San Diego County: Navigation (NAV), Commercial and Sport Fishing (COMM), Estuarine Habitat (EST), Marine Habitat (MAR), Aquaculture (AQUA), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), and Shellfish Harvesting (SHELL).

Discussion: The San Diego County watersheds include all of Carlsbad, San Dieguito, Penasquitos, San Diego, Pueblo, Sweetwater, and Otay watersheds, and portions of Santa Margarita, San Luis Rey, and Tijuana watersheds. Major Rivers include the Santa Margarita River, the San Luis Rey River, San Dieguito River, San Diego River, Sweetwater River, Otay River and the Tijuana River. Major coastal waterbodies include Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Penasquitos Lagoon, Mission Bay, San Diego Bay, Tijuana River estuary, and the Pacific Ocean. Major inland waterbodies include Lake Henshaw, Lake Wohlford, Lake Hodges, Sutherland Reservoir, Miramar Reservoir, San Vicente Reservoir, El Capitan Reservoir, Cuyamaca Reservoir, Sweetwater Reservoir, Loveland Reservoir, Otay Lakes, Barrett Lake and Morena Reservoir.

The San Diego County watersheds are approximately 2820 square miles and includes unincorporated portions of San Diego County, the Cities of Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, Vista, as well as the San Diego Unified Port District and the San Diego County Regional Airport Authority, portions of the Cleveland National Forests, and the several Indian Reservations. Approximately 2.8 million people reside within the permitted area. Approximately 442 thousand people reside in the unincorporated area while the rest reside within the cities.

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[102] Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.
[103] USEPA, 1998. Jan. 21, 1998 correspondence, "SWRCB/OCC File A-1041 for Orange County," from Alexis Strauss to Walt Petit, and March 17, 1998 correspondence from Alexis Strauss to Walt Petit.

Finding E.3: This Order is in conformance with SWRCB Resolution No. 68-16 and the federal Antidegradation Policy described in 40 CFR 131.12.

Discussion: Urban runoff management programs are required to be designed to reduce pollutants in urban runoff to the maximum extent practicable and achieve compliance with water quality standards. Therefore, implementation of urban runoff management programs, which satisfy the requirements of Order No. R9-2007-0001, will prevent violations of receiving water quality standards. The Basin Plan states that "Water quality objectives must […] conform to US EPA regulations covering antidegradation (40 CFR 131.12) and State Board Resolution 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California." As a result, when water quality standards are met through the implementation of urban runoff management programs, USEPA and SWRCB antidegradation policy requirements are also met.

Finding E.4: Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA addresses five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The adoption and implementation of this NPDES permit relieves the Permittee from developing a non-point source plan, for the urban category, under CZARA. The Regional Board addresses septic systems through the administration of other programs.

Discussion: Coastal states are required to develop programs to protect coastal waters from nonpoint source pollution, as mandated by the federal CZARA. CZARA Section 6217 identifies polluted runoff as a significant factor in coastal water degradation, and requires implementation of management measures and enforceable policies to restore and protect coastal waters. In lieu of developing a separate NPS program for the coastal zone, California's NPS Pollution Control Program was updated in 2000 to address the requirements of both the CWA section 319 and the CZARA section 6217 on a statewide basis. The California Coastal Commission (CCC), the SWRCB, and the nine Regional Water Quality Control Boards are the lead State agencies for upgrading the program, although 20 other State agencies also participate. Pursuant to the CZARA (6217(g) Guidance Document the development of urban runoff management programs pursuant to this NPDES permit fulfills the need for coastal cities to develop an urban runoff non-point source plan identified in the State's Non-point Source Program Strategy and Implementation Plan.[104]

Finding E.5: Section 303(d)(1)(A) of the CWA requires that "Each state shall identify those waters within its boundaries for which the effluent limitations…are not stringent enough to implement any water quality standard (WQS) applicable to such waters." The CWA also requires states to establish a priority ranking of impaired waterbodies known as Water Quality Limited Segments and to establish TMDLs for such waters. This priority list of impaired waterbodies is called the Section 303(d) List. The current Section 303(d) List was approved by the State Water Resources Control Board on February 4, 2003 and on July 25, 2003 by USEPA.

Discussion: Section 303(d) of the federal CWA (CWA, 33 USC 1250, et seq., at 1313(d)), requires States to identify waters that do not meet water quality standards after applying certain required technology-based effluent limits ("impaired" water bodies). States are required to compile this information in a list and submit the list to USEPA for review and approval. This list

[104] SWRCB/CCC, 2000. Nonpoint Source Program Strategy And Implementation Plan, 1998-2013 (PROSIP).

is known as the Section 303(d) list of impaired waters. As part of this listing process, States are required to prioritize waters/watersheds for future development of TMDL. The SWRCB and Regional Boards have ongoing efforts to monitor and assess water quality, to prepare the Section 303(d) list, and to subsequently develop TMDLs. The 2002 California 303(d) List identifies impaired receiving water bodies and their watersheds within the State of California. Urban runoff that is discharged from the Copermittee's MS4s is a leading cause of receiving water quality impairment in the San Diego Region.

Finding E.6: This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on August 14, 2002 for diazinon in Chollas Creek by establishing WQBELs for the Cities of San Diego, Lemon Grove, and La Mesa, the County of San Diego, and the San Diego Unified Port District; and by requiring: 1) legal authority, 2) implementation of a diazinon toxicity control plan and a diazinon public outreach/ education program, 3) achievement of the Compliance Schedule, and 4) a monitoring program. The establishment of WQBELs expressed as iterative BMPs to achieve the WLA compliance schedule is appropriate and is expected to be sufficient to achieve the WLA specified in the TMDL.

Discussion: On August 14, 2002, the Regional Board adopted the TMDL Implementation Plan[105] for diazinon in Chollas Creek by establishing WQBELs for the Cities of San Diego, Lemon Grove, and La Mesa, the County of San Diego, and the San Diego Unified Port District. The adopted Implementation Plan states:

> "The Regional Board will revise existing waste discharge requirements / NPDES permits to incorporate effluent limitations in conformance with the Waste Load Allocations for diazinon as specified above. Modifications to the MS4 Permit can occur when the permit is reopened or during scheduled permit reissuance. Compliance with numeric limitations for diazinon will be required in accordance with a phased schedule of compliance. The compliance schedule will be jointly developed by the Regional Board and the Chollas Creek stakeholders and will be finalized no later than one year following adoption of this TMDL by the Regional Board. The phased compliance schedule will apply only to attainment of numeric limitations for diazinon. All other requirements of this TMDL will be immediately effective upon incorporation into applicable NPDES permits."

On September 30, 2004, the compliance schedule was developed. The Order incorporates the compliance schedule. The TMDL Implementation Plan requires 1) Legal authority, 2) Implementation of a diazinon toxicity control plan and a diazinon public outreach / education program, 3) Achievement of the Compliance Schedule, and 4) Monitoring program. These requirements have been incorporated in the Order. The Implementation Plan states:

> "The municipal Copermittees in the Chollas Creek watershed shall implement the requirements of the MS4 Permit." And

> "The Regional Board will use its enforcement authority as necessary to ensure compliance with applicable waste discharge requirements and Basin Plan waste discharge prohibitions."

Finding E.7: This Order fulfills a component of the TMDL Implementation Plan adopted by this Regional Board on February 9, 2005 for dissolved copper in Shelter Island Yacht Basin (SIYB) by establishing WQBELs expressed as BMPs to achieve the WLA of 30 kg copper / year for the

[105] Regional Board, 2002. Basin Plan Amendment, Attachment A to Resolution No. R9-2002-0123, Chollas Creek Diazinon Total Maximum Daily Load. P. 6-8.

City of San Diego and the San Diego Unified Port District. The establishment of WQBELs expressed as BMPs is appropriate and is expected to be sufficient to achieve the WLA specified in the TMDL.

Discussion: On February 9, 2005, the Regional Board adopted the TMDL Implementation Plan[106] for dissolved copper in the SIYB by establishing WQBELs expressed as BMPs to achieve the WLAs for the San Diego Unified Port District and to a much lesser extent the City of San Diego. The TMDL Implementation Plan states:

> "The Regional Board will regulate discharges of copper to SIYB through the issuance of WDRs, Waivers of WDRs (waivers), or adoption of Waste Discharge prohibitions." And
>
> "The Regional Board will amend Order No. 2001-01, "Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm / Sewer Systems" to require that discharges of copper into SIYB waters via the City's municipal separate storm sewer system not exceed a 30 mg/kg wasteload for copper."

The Order is a WDR, therefore the discharge of copper to SIYB is regulated as required in the TMDL Implementation Plan. As stated in Finding A.2, the Order renews Order No. 2001-01, therefore the TMDL Implementation Plan requirements are included in this Order. The establishment of WQBELs expressed as BMPs is appropriate and is expected to be sufficient to achieve the WLAs specified in the TMDL.

Finding E.8: This Order establishes WQBELs and conditions consistent with the requirements and assumptions of the WLAs in the TMDLs as required by 40 CFR 122.44(d)(1)(vii)(B).

Discussion: The establishment of WQBELs expressed as iterative BMPs to achieve the WLA compliance schedule is appropriate and is expected to be sufficient to achieve the WLAs specified in the TMDL.

Finding E.9: Requirements in this Order that are more explicit than the federal storm water regulations in 40 CFR 122.26 are prescribed in accordance with the CWA section 402(p)(3)(iii) and are necessary to meet the MEP standard.

Discussion: The CWA explicitly preserves independent state authority to enact and implement its own standards and requirements, provided that such standards and requirements are at least as stringent as those that would be mandated by the CWA and the federal regulations. For example, as one general overriding principle, CWA section 510 states "nothing in this chapter shall (1) preclude or deny the right of any State or political subdivision thereof or interstate agency to adopt or enforce (A) any standard or limitation respecting discharges of pollutants, or (B) any requirement respecting control or abatement of pollution […]." When relating specifically to storm water, CWA section 402(p)(3)(B)(iii) clearly provides states with wide-ranging discretion, stating that municipal storm water permits "[s]hall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants"

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[106] Regional Board, 2005. Basin Plan Amendment, Attachment A to Resolution No. R9-2005-0019, Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate a Total Maximum Daily Load for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay. P. 5.

Therefore, where the Order contains requirements more specific than those included in the federal NPDES regulations 40 CFR 122.26(d), it is seeking to meet the above CWA requirements, as well as other particular federal NPDES regulations such as 40 CFR 122.44(d)(1)(i). This federal NPDES regulation requires NPDES permits to include limitations to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." Given the continued impact of urban runoff on receiving waters within the San Diego region, increased specificity in municipal storm water permits is necessary to meet the above CWA and federal regulation requirements.

In a 1992 decision, the U.S. Court of Appeals for the Ninth Circuit (NRDC v. USEPA, 966 F.2d 1292) interpreted the language in Clean Water Act section 402(p)(3)(B)(iii) as providing the State with substantial discretion and authority: "[t]he language in (iii), above, requires the Administrator or the State to design controls. Congress did not mandate a minimum standards approach or specify that USEPA develop minimal performance requirements […] we must defer to USEPA on matters such as this, where USEPA has supplied a reasoned explanation of its choices." The decision in essence holds that USEPA and the States are authorized to require implementation of storm water control programs that, upon "reasoned explanation," accomplish the goals of CWA section 402(p). The Ninth Circuit Court of Appeals further reinforced the State's authority in this area more recently in 1999. In Defenders of Wildlife v. Browner (1999) Case No. 98-71080, the Court cited the language of CWA section 402(p)(3)(B)(iii) and stated "[t]hat provision gives the USEPA discretion to determine what pollution controls are appropriate. As this court stated in NRDC v. USEPA, 'Congress gave the administrator discretion to determine what controls are necessary […].'"

Furthermore, the increased specificity included in the Order is in line with USEPA guidance included in its *Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems*[107] and its *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*.[108] Where the permit is more specific than the federal regulations, it is frequently based on the recommendations of the Guidance Manual. The Interim Permitting Approach also supports increased specificity in storm water permits, recommending that municipal storm water permits use BMPs in first-round storm water permits, and expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards. In cases where adequate information exists to develop more specific conditions or limitations to meet water quality standards, these conditions or limitations are to be incorporated into storm water permits, as necessary and appropriate." It is important to note that the SWRCB cited USEPA's Interim Permitting Approach as support for its decision which upheld the increased specificity of numeric sizing criteria requirements for post-construction BMPs as appropriate requirements in municipal storm water permits.

Finding E.10: Urban runoff treatment and/or mitigation must occur prior to the discharge of urban runoff into a receiving water. Federal regulations at 40 CFR 131.10(a) state that in no case shall a state adopt waste transport or waste assimilation as a designated use for any waters of the

[107] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.
[108] USEPA, 1996. Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits. 61 FR 43761.

U.S. Authorizing the construction of an urban runoff treatment facility within a water of the U.S., or using the water body itself as a treatment system or for conveyance to a treatment system, would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. This is consistent with USEPA guidance to avoid locating structural controls in natural wetlands.

Discussion: Urban runoff treatment and/or mitigation in accordance with any of the requirements in the Order must occur prior to the discharge of storm water or urban runoff into receiving waters. Allowing polluted runoff to enter receiving waters prior to treatment to the MEP will result in degradation of the water body and potential exceedances of water quality standards, from the discharge point to the point of dissipation, infiltration, or treatment. Furthermore, the construction, operation, and maintenance of a pollution control facility in a water body can negatively impact the physical, chemical, and biological integrity, as well as the beneficial uses, of the water body. This requirement is supported by federal regulation 40 CFR 131.10(a) and USEPA guidance. According to USEPA,[109] "To the extent possible, municipalities should avoid locating structural controls in natural wetlands. Before considering siting of controls in a natural wetland, the municipality should demonstrate that it is not possible or practicable to construct them in sites that do not contain natural wetlands… Practices should be used that settle solids, regulate flow, and remove contaminants prior to discharging storm water into a wetland."

Finding E.11: Urban runoff is a significant contributor to the creation and persistence of Toxic Hot Spots in San Diego Bay. CWC section 13395 requires regional boards to reevaluate WDRs associated with toxic hot spots. The SWRCB adopted the Consolidated Toxic Hot Spot Cleanup Plan in June 1999. The Plan states: "The reevaluation [of WDRs associated with toxic hot spots] shall consist of (1) an assessment of the WDRs that may influence the creation or further pollution of the known toxic hot spot, (2) an assessment of which WDRs need to be modified to improve environmental conditions at the known toxic hot spot, and (3) a schedule for completion of any WDR modifications deemed appropriate."

Discussion: Toxic hot spots are those areas in enclosed bays, estuaries, or any adjacent waters in the "contiguous zone" or the "ocean", where pollution or contamination affects the interests of the state, and where hazardous substances have accumulated to levels which: 1) may pose a substantial present or potential hazard to aquatic life, wildlife, fisheries, or human health, or 2) may adversely affect the beneficial uses of the bay, estuary, or ocean waters, or 3) exceeds adopted water quality or sediment quality objectives. San Diego Bay contains several toxic hot spots. In a National Oceanic and Atmospheric Administration (NOAA) study which compared EMAP-type sediment toxicity data from various bays, San Diego Bay ranked second with 56 percent of the area of the Bay considered toxic. In addition to chemical and physical impacts, urban runoff often contains pollutants that cause toxicity to aquatic organisms (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). Toxic pollutants impact the overall quality of aquatic systems and beneficial uses of receiving waters. A study of urban runoff samples from Chollas Creek in San Diego County, revealed toxic concentrations of

[109] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

organophospate pesticides and metals.[110] In Los Angeles County, storm water samples were found to be toxic to various aquatic organisms in the Los Angeles River, the San Gabriel River, Ballona Creek, and the Santa Monica Bay.[111] Also, a water quality data assessment conducted in Aliso Creek in Orange County showed that storm events caused varying degrees of mortality to test organisms.[112] For these reasons, the Order includes directives to prevent urban runoff from contributing to the further degradation of toxic hot spots.

Finding E.12: The issuance of waste discharge requirements and an NPDES permit for the discharge of urban runoff from MS4s to waters of the U.S. is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, section 21000 et seq.) in accordance with the CWC section 13389.

Discussion: CWC Section 13389 exempts the adoption of waste discharge requirements (such as NPDES permits) from CEQA requirements: "Neither the state board nor the regional boards shall be required to comply with the provisions of Chapter 3 (commencing with section 21100) of Division 13 of the Public Resources Code prior to the adoption of any waste discharge requirement, except requirements for new sources as defined in the Federal Water Pollution Control Act or acts amendatory thereof or supplementary thereto."

This CEQA exemption was challenged during BIA's (and others') appeal of Order No. 2001-01 (Order No. R9-2007-0001 serves as the reissuance of Order No. 2001-01). BIA contended that the CEQA exemption did not apply to permit requirements where the Regional Board utilized its discretion to craft permit requirements which were more prescriptive than required by federal law. The Court of Appeal, Fourth Appellate District disagreed with this argument, stating "we also reject Building Industry's argument to the extent it contends the statutory CEQA exemption in Water Code section 13389 is inapplicable to a particular NPDES permit provision that is discretionary, rather than mandatory, under the CWA."[113] On further appeal by BIA, the California State Supreme Court declined to hear the matter.

In a recent decision, the Court of Appeal of the State of California, Second Appellate District, upheld the CEQA exemption for municipal storm water NPDES permits (County of Los Angeles, et al. v. California State Water Resources Control Board, et al.).

F. Public Process

Finding F.1: The Regional Board has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an Order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.

Discussion: Public notification of development of a draft permit is required under Federal regulation 40 CFR 124.10(a)(1)(ii). This regulation states "(a) Scope. (1) The Director shall give public notice that the following actions have occurred: (ii) A draft permit has been prepared

[110] Bay, et al., 2001. Characterization of Stormwater Toxicants from an Urban Watershed to Freshwater and Marine Organisms. Southern California Coastal Water Research Project. Annual Report 1999-2000.
[111] LARWQCB, 2001. The Role of Municipal Operators In Controlling the Discharge of Pollutants in Storm Water from Industrial/Commercial Facilities: A Case for Inspection Activities in the Large and Medium Municipal Separate Storm Sewer Permits.
[112] Regional Board, 2002. Fact Sheet/Technical Report for Regional Board Order No. R9-2002-0001.
[113] Building Industry Association et al., v. State Water Resources Control Board, et al. 2004.

under Sec. 124.6(d)." Public notifications "shall allow at least 30 days for public comment," as required under Federal regulation 40 CFR 124.10(b)(1).

Finding F.2: The Regional Board has, at public meetings on (date), held public hearings and heard and considered all comments pertaining to the terms and conditions of this Order.

Discussion: Public hearings are required under CWC Section 13378, which states "Waste discharge requirements and dredged or fill material permits shall be adopted only after notice and any necessary hearing." Federal regulation 40 CFR 124.12(a)(1) also requires public hearings for draft permits, stating "The Director shall hold a public hearing whenever he or she finds, on the basis or requests, a significant degree of public interest in a draft permit(s)." Regarding public notice of a public hearing, Federal regulation 40 CFR 124.10(b)(2) states that "Public notice of a public hearing shall be given at least 30 days before the hearing."

X. DIRECTIVES DISCUSSION

This section discusses significant changes which have been made to the requirements of the Order from the requirements which were previously included in Order No. 2001-01. For each section of the Order than has been changed there is a discussion which describes the change that was made and provides the rationale for the change. In addition, comments on the Copermittees' ROWD recommendations, as they pertain to each changed requirement of the Order, are provided.

Requirements of the Order that are not discussed in this section have not been significantly changed from those requirements previously included in Order No. 2001-01. For such requirements, discussions and rationale for the requirements can be found in section VII of the Fact Sheet/Technical Report for Regional Board Order No. 2001-01, dated November 6, 2001. Section VII also provides additional background information for those requirements that have undergone significant change which are described in detail in this report. The Fact Sheet/Technical Report is available for download at:

http://www.waterboards.ca.gov/sandiego/programs/sd_stormwater.html

Legal authority citations are provided for each major section of the Order. These citations apply to all applicable requirements within the section for which they are provided.

A. Prohibitions and Receiving Water Limitations

The following legal authority applies to section A:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: The Regional Board Water Quality Control Plan for the San Diego Basin (Basin Plan) contains the following waste discharge prohibition: "The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination, or nuisance as defined in California Water Code Section 13050, is prohibited."

California Water Code section 13050(l) states "(1) 'Pollution' means an alteration of the quality of waters of the state by waste to a degree which unreasonably affects either of the following: (A) The water for beneficial uses. (B) Facilities which serve beneficial uses. (2) 'Pollution' may include "contamination."

California Water Code section 13050(k) states "'Contamination' means an impairment of the quality of waters of the state by waste to a degree which creates a hazard to public health through poisoning or through the spread of disease. 'Contamination' includes any equivalent effect resulting from the disposal of waste, whether or not waters of the state are affected."

California Water Code section 13050(m) states "'Nuisance' means anything which meets all of the following requirements: (1) Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. (2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. (3) Occurs during, or as a result of, the treatment or disposal of wastes."

California Water Code section 13241 requires each regional board to "establish such water quality objectives in water quality control plans as in its judgment will ensure the reasonable protection of beneficial uses and the prevention of nuisance […]."

California Water Code Section 13243 provides that "A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted."

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the Regional Board implement the Basin Plan.

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(A - D) require municipalities to have legal authority to control various discharges to their MS4.

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to "[a]cheive water quality standards established under section 303 of the CWA, including State narrative criteria for water quality."

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Section A of the Order combines two previously distinct requirement sections – Prohibitions and RWLs. These sections have been combined into one section for organization purposes and to reduce redundancy, since both sections address the same issue. In addition, the prohibition specifically addressing post-development runoff has been removed from the Order since it reiterated other more broad prohibitions, making it redundant. These changes have no net effect on the implementation and enforcement of the Order.

B. Non-Storm Water Discharges

The following legal authority applies to section B:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B) requires MS4 operators "to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittees shall prevent all types of illicit discharges into the MS4 except for certain non-storm water discharges.

Section B of the Order has been reworded to simplify and clarify the requirements for addressing non-storm water discharges that are not prohibited. This rewording has no net effect on the implementation and enforcement of the Order.

In their ROWD, the Copermittees recommend expanding the BMP exemption for emergency fire fighting flows so that it would apply to all emergency water flows. However, the Copermittees provide no information regarding what types of urban runoff are considered "emergency water flows." In addition, the level of pollutants in such flows is not discussed. Due to the lack of such information, the requirement regarding emergency fire fighting flows has not been changed.

C. Legal Authority

The following legal authority applies to section C:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that the Copermittees shall develop and implement legal authority to "Control through ordinance, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that the Copermittees shall develop and implement legal authority to "Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

Illicit discharge is defined under Federal NPDES regulation 40 CFR 122.26(b)(2) as "any discharge to a municipal separate storm sewer system that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities."

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(A - D) require municipalities to implement controls to reduce pollutants in urban runoff from commercial, residential, industrial, and construction land uses or activities.

Federal NPDES regulation 40 CFR 122.26(d)(1)(ii) requires from the Copermittee "A description of existing legal authority to control discharges to the municipal separate storm sewer system."

Section C.1.j has been added to the Order to ensure that BMPs implemented by third parties are effective. Since the Copermittees cannot passively receive and discharge pollutants from third parties, the Copermittees must ensure discharges of pollutants to the MS4 are reduced to the MEP. In order to achieve this, the Copermittees must be able to ensure that effective BMPs are being implemented by requiring the third parties to document BMP effectiveness. Regarding the Copermittees' ability to require documentation and reporting from third parties, USEPA states "municipalities should provide documentation of their authority to enter, sample, inspect, review, and copy records, etc., as well as demonstrate their authority to require regular reports."[114]

Section C.2.d has been added to the Order to ensure that the Copermittees' enforcement tools are effective enough to ensure compliance with the Order. USEPA supports the need for the adequate Copermittee enforcement when it states that the Copermittees' general counsels "should state that the applicant has the legal authority to apply and enforce the requirements of 40 CFR 122.26(d)(2)(i)(A-F)."[115]

D. Jurisdictional Urban Runoff Management Program

D.1. Development Planning

The following legal authority applies to section D.1:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWA section 402(a), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F), 40 CFR 131.12, and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(2) provides that Copermittees develop and implement a proposed management program which is to include "A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed."

Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to "[a]cheive water quality standards established under section 303 of the CWA, including State narrative criteria for water quality."

Sections D.1.a and D.1.b (General Plan and Environmental Review Process) require the Copermittees to update and revise their General Plan (or equivalent plan) and environmental review processes to ensure water quality and watershed protection principles are included. The Copermittees are required to detail any changes to the General Plan or environmental review process in their Jurisdictional Urban Runoff Management Program Annual Reports.

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[114] USEPA, 1992. Guidance Manual for the Preparation of Part 2 of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.
[115] Ibid.

The change made to these sections, which requires updating the General Plan and Environmental Review Process on an as needed basis, is supported by information provided in the Copermittees' ROWD. The ROWD states that all Copermittees have either updated, are in the process of updating, or have assessed their General Plan to ensure the General Plans include the required principles and are in compliance with Order No. 2001-01. The ROWD also states that all the Copermittees have updated their environmental review processes.

Section D.1.c (Approval Process Criteria and Requirements) requires that all development projects (regardless of size) implement BMPs to reduce pollutant discharges to the MEP. Source control and site design BMP requirements were not clearly described in this section of Order No. 2001-01. Additional detail has been added to this section to better describe the source control and site design BMPs needed for implementation. This additional detail is consistent with the requirements of the Model SUSMP. However, only source control and site design BMPs that apply to all types of development projects are required (i.e., properly designed trash storage areas).

In addition, Order No. 2001-01's requirement that applicants must provide evidence of coverage under the General Industrial Permit has been removed. This requirement was difficult to implement since industrial tenants for a development project are usually not known during the planning stage.

Sections D.1.d and D.1.d.(1) (Standard Urban Storm Water Mitigation Plans) require the Copermittees to review and update their local SUSMPs for compliance with the Order. The sections also require all Priority Development Projects falling under certain categories to meet SUSMP requirements. The update is necessary to ensure that the Copermittees' local SUSMPs are consistent with the changes that have been made to the Order's SUSMP requirements. The requirement for the development/adoption of a Model SUSMP has been removed since a model was completed and adopted in 2002.

Section D.1.d.(2) (Priority Development Project Categories) has been changed to simplify and clarify the Priority Development Project categories. The two housing development categories were combined into one category that includes 10 or more housing units. In addition, requirements which specifically apply to restaurants have been combined in this section. The section has been modified to clarify that restaurants with less than 5,000 square feet of development are subject to SUSMP requirements, except for the treatment control BMP and hydromodification control requirements. This is consistent with Order No. 2001-01's approach for applying SUSMP requirements to restaurants.

Section D.1.d.(2)(i) includes Retail Gasoline Outlets (RGOs) as a Priority Development Project category because RGOs are points of confluence for motor vehicles for automotive related services such as repair, refueling, tire inflation, and radiator fill-up. RGOs consequently produce significantly greater pollutant loadings of hydrocarbons and trace metals (including copper and zinc) than other urban areas. To meet MEP, source control and structural treatment BMPs are needed at RGOs that meet the following criteria: (a) 5,000 square feet or more of developed area, or (b) a projected ADT of 100 or more vehicles per day. These are appropriate thresholds since development size and volume of traffic are good indicators of potential impacts of urban runoff from RGOs on receiving waters.

In SWRCB WQ Order No. 2000-11, the SWRCB removed RGOs as a SUSMP category because the SWRCB found that RGOs were already heavily regulated and limited on their ability to construct infiltration devices or perform treatment. Order No. 2000-11 also acknowledged that a

threshold (size, average daily traffic, etc.) appropriate to trigger SUSMP requirements should be developed, and that specific findings regarding RGOs should be included in MS4 permits to justify the requirement.[116] The SWRCB also removed the RGO category from the San Diego County MS4 permit (Order No. 2001-01) because the Regional Board did not specifically address the issues raised in WQ Order No. 2000-11.

As discussed further below, the LARWQCB and the Regional Board have adequately addressed these issues. RGOs have been included as a SUSMP category in the Los Angeles County MS4 permit (Order No. R4-01-182), the statewide general Phase II MS4 permit (WQ Order No. 2003-0005-DWQ), and the Regional Board Southern Riverside County MS4 permit (Order No. R9-2004-001). The SWRCB also addressed the inclusion of RGOs through the appeals of MS4 permits issued by the Los Angeles and San Francisco Bay Area Regional Boards. The SWRCB held a workshop addressing RGOs and identified RGOs as significant sources of pollutants. The SWRCB then dismissed the petitions for removal of RGOs from the SUSMP requirements in the Los Angeles and San Francisco Bay Area MS4 permits.

The following issues regarding RGOs have been addressed:

Heavily Regulated - The heavily regulated distinction does not remove RGOs as significant source of pollutants in urban runoff and therefore should not be a basis for exempting them from SUSMP requirements. Other regulation of RGOs is separate from regulation under the CWA and does not necessarily relate to water quality and urban runoff. Moreover, other municipalities already require that RGOs implement structural BMPs, even though RGOs are regulated under other programs.

Treatment Limitations - Inexpensive and effective structural treatment BMPs which reduce pollutants and control peak flow rates and velocities are available for use at RGOs. Studies have shown that some catch basin inserts can remove hydrocarbons and heavy metals, which are typical pollutants of concern at RGOs. Sand or media filters have also been found to be effective and available for use at RGOs. Cisterns are examples of established BMPs to control flow, but RGOs could also use site design measures such as small weirs, baffles, and redirecting roof runoff to pervious areas.

Safety - No evidence has been provided to indicate that use of these structural BMPs at RGOs will pose a safety risk. In fact, filter BMPs have been installed at RGOs in other municipalities without apparent adverse safety effects. In addition, similar BMPs such as oil/water separators have been used for years by RGOs without safety problems.

Threshold - Studies indicate that runoff from RGOs contains similar pollutants to runoff from commercial parking lots. In precedential WQ Order 2000-11, the SWRCB determined that parking lots with a size threshold of 5,000 square feet or more is an appropriate SUSMP category. Based in part on the similarity of pollutants, the 5,000 square feet size threshold was also included for RGOs in the Order. In addition, other municipalities currently use similar size thresholds for RGOs when requiring design standards to mitigate storm water runoff. To provide additional flexibility for the Copermittees, another threshold of 100 or more motor vehicles ADT has been added to the Order. This threshold is based on requirements used in Washington and Oregon for what are considered “high use” sites. This is an appropriate threshold since vehicular traffic is a good indicator of the amount of pollutants generated at a site.

[116] SWRCB, 2000. Order WQ 2000-11.

The Regional Board followed the SWRCB's direction regarding RGOs by including the above discussion in this Fact Sheet, as well as a specific finding that justifies the regulation of urban runoff from RGOs that meet certain criteria. Considering all of the supporting documentation discussed above, it is appropriate to include RGOs as a Priority Development Project category.

Additional detailed supporting information can be found in the 2001 technical report titled *Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts* by the LARWQCB and the Regional Board.

Section D.1.d.(4) (Site Design BMP Requirements) requires the Copermittees to place site design requirements on new development within their jurisdictions. The site design BMP options listed in these sections are consistent with the site design BMPs currently required by the Copermittees in the Model SUSMP. However, the Model SUSMP employs an open-ended approach to requirements for site design BMPs, requiring implementation of site design BMPs "where determined applicable and feasible by the Copermittee." Unfortunately, this approach has proven to be ineffective in integrating site design BMPs in project designs. Audits of ten of the Copermittees' SUSMP programs exhibited that "many of the SUSMP plans reviewed for this program evaluation did not adequately address site design."[117] Moreover, the auditor identified site design as one of three principal areas where further program oversight was necessary.[118]

For these reasons, the Order directs the Copermittees to require new development projects to employ at least one site design BMP from each of the two lists of site design BMP options provided in this section of the Order. Two lists of site design BMP options are provided to represent different categories of site design BMPs available for implementation. The first list includes site design BMPs that are less frequently utilized, though they are effective and achievable. The second list includes site design BMPs which are commonly cited in project proponents' SUSMP reports as the site design BMPs that have been incorporated into Priority Development Projects. Implementation of one site design BMP from each list is required to improve site design implementation at Priority Development Projects, while providing a reasonable and achievable minimum measure for site design BMP implementation. Through its process of conditioning development projects under the CWA section 401 Water Quality Certification program, the Regional Board finds that this level of site design BMP implementation is feasible for all projects. This site design BMP requirement will help ensure that site design BMPs are implemented for new development projects. Site design BMPs are a critical component of urban runoff management at new development projects, since the BMPs provide multiple benefits including preservation of hydrologic conditions, reduction of pollutant discharges, cost effectiveness, and green space.

The Order continues to provide the Copermittees with flexibility in implementing site design BMP requirements by providing lists from which site design BMP approaches can be chosen. Moreover, flexibility is inherently included in the site design options listed - each option provides the opportunity for numerous implementation approaches that can be used to achieve compliance.

In its October 29, 2004 letter to the Copermittees, as well as in subsequent meetings, the Regional Board notified Copermittees of the need for improvement in site design BMP implementation at development projects. In addition, at its May 5, 2005 meeting with the Copermittees, the

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[117] Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 4.

[118] Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 3.

Regional Board suggested that the Copermittees propose specific methods in their ROWD that would improve site design BMP implementation. In response, the Copermittees recommended that the Order "include an option for Copermittees to develop a low-impact design credit program." However, such a requirement would be unenforceable, due to its vague nature. Moreover, if such a credit program were to take years to develop, lack of implementation of site design BMPs would continue unabated. To address this issue, the Order includes minimum requirements for site design BMP implementation, while also providing the Copermittees with their requested option to develop a site design credit program.[119] This provides assurance that site design BMPs will be implemented in a timely manner, while also providing the Copermittees with flexibility for site design credit program development.

The site design BMP options listed do not need to be costly. Some design options, such as concave vegetated surfaces or routing rooftop or walkway runoff to landscaped areas, are cost neutral.[120] Other site design BMPs, such as minimizing parking stall widths or use of efficient irrigation devices, are oftentimes already required. In addition, use of these site design BMPs reduces runoff quantity, allowing for treatment control BMPs on site to be smaller, therefore savings costs. Routing runoff through landscaped areas can also reduce the cost of irrigation.

Section D.1.d.(5) (Source Control BMP Requirements) requires that Priority Development Projects implement minimum source control BMPs. This section has been added to provide more detail and clarify the Order's requirements for source control BMPs. The minimum source control BMPs listed in the section are consistent with the Model SUSMP.

Section D.1.d.(6) (Treatment Control BMP Requirements) clarifies that treatment control BMPs are not required to be designed to treat runoff from preservation areas, or other areas not being disturbed at a priority development project. This is a clarification of the requirements of Order No. 2001-01.

Section D.1.d.(6)(c)(i) ensures that priority development project proponents utilize the most accurate information to determine the volume or flow of runoff which must be treated. Using detailed local rainfall data, the County of San Diego has developed the 85th Percentile Precipitation Isopluvial Map, which exhibits the size of the 85th percentile storm event throughout San Diego County. Since this map uses detailed local rainfall data, it is more accurate for calculating the 85th percentile storm event than other methods which were included in Order No. 2001-01. The other methods found in Order No. 2001-01 were included as options to be used in the event that detailed accurate rainfall data did not exist for various locations within San Diego County. The County of San Diego's development of the 85th Percentile Precipitation Isopluvial Map makes these other less accurate methods superfluous. Therefore, these other methods for calculating the 85th percentile storm event have been removed from the current Order.

Section D.1.d.(6)(d)(i) (Treatment Control BMPs) requires that treatment control BMPs selected for implementation at Priority Development Projects have a removal efficiency rating that is higher than the "low removal efficiency," as presented in the Model SUSMP. The requirement allows exceptions for those projects that, with a feasibility analysis, can justify the use of a treatment control BMP with a low removal efficiency for a Priority Development Project. This requirement is needed because to date, the Copermittees have generally approved low removal efficiency treatment control BMPs without justification or evidence that use of higher efficiency treatment BMPs was considered and found to be infeasible. Specifically, it has been found

[119] See section discussion for section D.1.d.(7) on the site design BMP credit program.
[120] BASMAA, 1999. Start at the Source. P. 149.

during audits of the Copermittees' SUSMP programs that many SUSMP reports do not adequately describe the selection of treatment control BMPs. Moreover, USEPA's contractor Tetra Tech, Inc. recommends that "project proponents should begin with the treatment control that is most effective at removing the pollutants of concern […] and provide justification if that treatment control BMP is not selected."[121]

In the ROWD, the Copermittees acknowledge the need for further attention to the selection and implementation of effective treatment BMPs. They propose to work with the Regional Board to come to a "common understanding" without a fixed permit requirement. However, due to this widespread deficiency regarding treatment control BMP selection in the Copermittees' SUSMP programs, the treatment control BMP feasibility requirement is needed in the Order. The requirement is needed to provide clarification that selection of low efficiency treatment control BMPs over high efficiency BMPs without justification does not meet permit requirements and is not in compliance with the MEP standard.

Section D.1.d.(7) (Site Design BMP Substitution Program) has provisions for the site design BMP credit program which largely mirror components of the program suggested by the Copermittees in their ROWD. In their ROWD, the Copermittees requested the option to develop a site design BMP credit program, under which projects that implement a high level of site design BMPs could receive credit towards compliance with treatment control BMP requirements. The program would provide the opportunity for development projects to avoid partial or full treatment control BMP implementation in exchange for implementation of a high level of site design BMPs. The Regional Board agrees that such a program could be beneficial. As the ROWD notes, the program could achieve equal or greater water quality benefits while also (1) providing greater assurance of adequate operation and maintenance; (2) improved review processes of site design BMP proposals; (3) increased acceptance of site design BMPs; and (4) greater usage of site design BMPs. For this reason, the Regional Board has added to the Order an option for the Copermittees to develop such a program.

In addition to the Copermittees' proposals, the provisions require (1) that runoff originating from pollutant generating exposed impervious areas must be routed through pervious areas prior to entering the MS4, and (2) that development project categories, such as automotive repair shops or streets, roads, highways, or freeways, which have a high potential to generate high levels of pollutants, not be covered under the program. Runoff from pollutant generating impervious areas must be routed through pervious areas in order to ensure that some level of treatment is provided for the protection of water quality. Without such a provision, the program could result in the direct discharge of significant levels of pollutants to the MS4 without treatment. In addition, development projects which frequently generate high levels of pollutants, such as automotive repair shops and streets, roads, highways, and freeways, should not be included in the program due to the need for treatment control BMPs at such development projects. When high levels of pollutants are present at a development project, site design BMPs alone are unlikely to adequately reduce pollutant discharges; treatment BMPs are also needed to polish urban runoff and serve as a last line of defense.

In precedent setting Order No. 2000-11, the State Board determined that implementation of treatment control BMPs is appropriate for development projects falling under the priority development project categories. Therefore, any program which allows development projects to forgo treatment control BMP implementation must include provisions which will achieve similar

[121] Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 5.

water quality benefits. To ensure that this is the case for the site design BMP credit program, minimum provisions for the program have been added to the Order. Due to the addition of the minimum provisions in the Order, the program will not need to undergo a lengthy Regional Board approval process at a later date.

Section D. 1.d.(8) (Treatment Control BMP Design Standards) addresses a need for the Copermittees to develop and apply consistent criteria for the design and maintenance of structural treatment BMPs. Correct BMP design is critical to ensure that BMPs are effective and perform as intended. Without design criteria, there is no assurance that this will occur, since there is no standard for design or review. This issue was noted during audits of the Copermittees' SUSMP programs, where it was found that "some SUSMP reports did not clearly describe how treatment control BMPs were designed."[122] Based upon these findings, it was recommended that the Copermittees "require developers to use standard forms to document the design of treatment control BMPs. As an example, Ventura County has developed a BMP manual that includes standard design procedure forms for BMPs. Ventura County's *Technical Guidance Manual for Storm Water Quality Control Measures* is available at http://www.vcstormwater.org/publications.htm."[123] California Stormwater Quality Association (CASQA) also confirms the necessity of design criteria when it includes such criteria in its New Development and Redevelopment BMP Handbook.[124]

Section D.1.d.(11) (Waiver Provision) allows Copermittees to waive treatment BMPs when all available BMPs have been considered and rejected as infeasible. The requirement also allows the Copermittees to develop a program to require projects that receive waivers, to transfer the cost savings to a fund. The intent of the requirements is to allow Copermittees the necessary flexibility to waive treatment BMPs when it can be established that the implementation of treatment BMPs that meet numeric sizing criteria is not feasible at a given site. This provision also allows Copermittees discretion to transfer the cost savings from such a waiver to a fund for water quality projects within the watershed.

Section D.1.e (Treatment Control BMP Maintenance Tracking) requires steps to be taken by the Copermittees to ensure that approved treatment control BMPs are correctly constructed and maintained, including development of a database. This is critical to ensure that the treatment control BMPs are effective in removing pollutants from urban runoff leaving new development and significant redevelopment projects. Treatment control BMP maintenance has been identified as a critical aspect of addressing urban runoff from new development and significant redevelopment by many prominent urban runoff authorities, including the CASQA which states that "long-term performance of BMPs hinges on ongoing and proper maintenance."[125] USEPA also stresses the importance of BMP maintenance, stating: "Lack of maintenance often limits the effectiveness of storm water structural controls such as detention/retention basins and infiltration devices."[126]

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[122] Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 5.
[123] Ibid.
[124] California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment.
[125] California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment. P. 6-1.
[126] USEPA, 1992. Guidance Manual for the Preparation of Part II of the NPDES Permit Applications for Discharges from Municipal Separate Storm Sewer Systems. EPA 833-B-92-002.

This permit section is needed due to findings that treatment control BMPs and treatment control BMP maintenance have predominantly not been tracked by the Copermittees. Following audits of SUSMP implementation of ten Copermittees, each of the Copermittees were recommended to develop a tracking system for treatment control BMPs and treatment control BMP maintenance. It has been found that "source and treatment control BMPs should be tracked in order to assess the number of BMPs installed, for reporting purposes, and to create an inventory for verifying maintenance in the future."[127] Moreover, during the SUSMP audits, two of the ten Copermittees audited were found to have inadequately maintained treatment BMPs within their jurisdiction.[128] Again, it was recommended that Copermittees "should periodically inspect selected SUSMP projects to verify if BMPs are being properly maintained."[129] USEPA also recommends "post-construction inspection and maintenance of BMPs" in the Phase II storm water regulations.[130]

At its May 5, 2005 meeting with the Copermittees, the Regional Board requested that the Copermittees propose a program for addressing treatment control BMP tracking and inspection in their ROWD. In response, the Copermittees' ROWD did not propose a program but instead recommended that the Order include "an option for the Copermittees to develop a Model Program for Permanent BMP Operation and Maintenance Verification."[131] This proposal lacks sufficient detail to be included in the Order, since it would result in an unenforceable permit requirement. As a result, the Order has been crafted to allow the Copermittees to develop their proposed program, but with minimum measurable outcomes to ensure that the program is adequate and effective.

These minimum measurable outcomes largely incorporate suggestions from the Copermittees' ROWD, though some contain more detailed requirements than what was proposed by the Copermittees. In particular, while the Copermittees are free to prioritize most projects with treatment control BMPs, those projects with drainage insert treatment control BMPs must be categorized as at least a medium priority. This will ensure that such projects will be inspected every other year. Tracking of these projects in this manner is necessary because of the frequent maintenance that drainage inserts require, as well as the sensitivity of drainage insert performance to adequate maintenance. Drainage inserts fill relatively rapidly, causing plugging and bypass, rendering them ineffective. For example, CASQA recommends "frequent maintenance, on the order of several times per year."[132]

Another significant measurable outcome requirement is that all projects with treatment control BMPs must be inspected for operation and maintenance at least once during the permit cycle. This is reasonable, since treatment control BMPs are typically recommended to be maintained semi-annually or annually. An activity which needs to be conducted semi-annually or annually should be spot-checked at least once every five years. Twenty percent of the projects within a jurisdiction with approved treatment BMPs are required to be inspected annually in order to ensure that treatment control BMP operation and maintenance oversight is consistent during the permit cycle.

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[127] Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 6.
[128] Ibid. P. 25, 38.
[129] Ibid.
[130] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845.
[131] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-16.
[132] California Stormwater Quality Association, 2003. Stormwater Best Management Practice Handbook – New Development and Redevelopment. P. M-52.

Section D.1.f (BMP Verification) helps ensure that BMPs constructed at new development sites are consistent with proposed and approved design plans. Correct construction of BMPs is necessary to ensure that the BMPs are effective and that pollutants discharged from new development projects are reduced to the maximum extent practicable and do not cause or contribute to violations of water quality standards. This permit section is needed because it has been found that BMPs frequently are not constructed in the field as they were proposed by applicants and/or approved by Copermittees. Four of the ten Copermittees audited during the SUSMP audits were found to have projects within their jurisdictions with incorrectly constructed BMPs. It was recommended that Copermittees ensure "that the SUSMP BMPs are properly installed in the field. This includes verifying factors such as the location, sizing, and type of BMPs installed."[133] Also recommended is that "Copermittees should ensure that the BMP design details in SUSMP reports are translated to the engineering plan sheets used in the field."[134] In addition, USEPA recommends such practices in the Phase II storm water regulations, promoting "inspections during construction to verify BMPs are built as designed."[135]

Section D.1.g (Hydromodification) addresses the changes in a watershed's runoff characteristics resulting from development, together with associated morphological changes to channels receiving the runoff. These changes are termed hydromodification. As the total area of impervious surfaces increases in previously undeveloped areas, infiltration of rainfall decreases, causing more water to run off the surface at a higher rate. Runoff from developed areas can produce erosive flows in channels under rainfall conditions where previously they did not exist. Moreover, runoff from developed areas increases the duration of time that channels are exposed to erosive flows. The increase in the volume of runoff and the length of time that erosive flows occur ultimately intensify sediment transport, causing changes in sediment transport characteristics and the hydraulic geometry (width, depth, slope) of channels.[136]

These types of changes have been documented in southern California. It has been reported that researchers studying flood frequencies in Riverside County have found that increases in watershed imperviousness of only 9-22% can result in increases in peak flow rates for the two-year storm event of up to 100%.[137] Such changes in runoff have significant impacts on channel morphology. It has recently been found that ephemeral/intermittent channels in southern California appear to be more sensitive to changes in imperviousness than channels in other areas. Morphology of small channels in southern California was found to change with only 2-3% watershed imperviousness, as opposed to 7-10% watershed imperviousness in other parts of the nation.[138]

Stream channels typically respond to increased runoff rates and durations by increasing their cross-sectional area to accommodate the higher flows. This is done through widening of the channel banks, down-cutting of the channel bed, or both. This channel instability results in streambank erosion and habitat degradation, which is a significant impact to beneficial uses. Channel instability causes impacts to beneficial uses through sedimentation, loss of overhead

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[133] Tetra Tech, Inc., 2005. Program Evaluation Report –San Diego Standard Urban Storm Water Mitigation Plan (SUSMP) Evaluation. P. 6.
[134] Ibid.
[135] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845.
[136] Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan. P. 1-1.
[137] Schueler and Holland, 2000. Storm Water Strategies for Arid and Semi-Arid Watersheds (Article 66). The Practice of Watershed Protection.
[138] Coleman, et. al., 2005. Effect of Increases in Peak Flows and Imperviousness on the Morphology of Southern California Streams. P. iv.

cover, and loss of instream habitat structures, such as the loss of pool and riffle sequences.[139] Numerous studies have exhibited the link between urbanization, poor habitat quality, and impaired beneficial uses such as reduced insect and fish diversity.[140] These findings are also supported by the Copermittees' bioassessment data, which typically exhibits Poor to Very Poor Index of Biotic Integrity ratings for San Diego County channels, even though toxicity is frequently not found to be persistent.[141]

This section of the Order expands the requirements for control of hydromodification caused by changes in runoff resulting from development and urbanization. Expansion of these requirements is needed due to the current lack of a clear standard for controlling hydromodification resulting from development. While the Model SUSMP developed by the Copermittees requires project proponents to control hydromodification, it provides no standard or performance criteria for how this is to be achieved. Without any kind of clear standard or criteria, what must be done to prevent hydromodification is not known by project proponents and plan reviewers. As a result, project proponents do not know what to propose (if anything) and Copermittee review staff do not know what to require. Ultimately, Priority Development Projects implement few measures which can be expected to adequately control hydromodification. In any event, it is clear that Priority Development Projects in San Diego County are not implementing the type of measures which have been identified and required in other parts of California as necessary to prevent hydromodification.

To address this situation, this section of the Order requires the development and implementation of a Hydromodification Management Plan and outlines a process for the development and implementation of a standard and criteria to limit hydromodification of downstream channels. The required process is based on processes currently being developed and/or used in the San Francisco Bay Area and Los Angeles and Ventura Counties.[142] It also corresponds with the planned second phase of the Southern California Stormwater Monitoring Coalition's Hydromodification Control Study, which is expected to develop a regional stream classification system, a numerical model to predict the hydrological changes resulting from development, and to identify effective mitigation strategies.

A detailed example of a process that can be used to develop a standard and criteria for control of hydromodification resulting from new development can be found in the Santa Clara Valley Urban Runoff Pollution Prevention Hydromodification Management Plan.[143] It involves developing ratios of work done on representative channel segments by runoff, where work done to a channel segment under pre-urban conditions is compared to work done under existing conditions. The calculated ratio is called the Erosion Potential (Ep) of the channel segment.[144] The Ep ratios for particular channel segments are then compared to field classified erosion conditions (such as stable/low or medium/high level of erosion). This comparison is used to identify an Ep ratio that has a low risk of resulting in an unstable channel or a channel with a medium/high level of

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[139] Schueler and Holland, 2000. The Importance of Imperviousness (Article 1). The Practice of Watershed Protection.
[140] Ibid.
[141] County of San Diego, 2005. San Diego County Municipal Copermittees 2003-2004 Urban Runoff Monitoring Final Report. By MEC Analytical Systems – Weston Solutions, Inc. Index of Biotic Integrity ratings give an absolute value to the benthic community quality based on the range of reference conditions in the region. The Index of Biotic Integrity ratings can be used to evaluate community conditions over time to monitor the effects of habitat degradation or the success of restoration efforts.
[142] See http://www.ccleanwater.org/construction/nd.php or http://www.scvurppp.org/ under "C.3 Submittals" for examples of a Hydromodification Management Plans.
[143] Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan. P. 3-1 – 3-20.
[144] Ep is discussed in detail in the definitions section of the Permit.

erosion. Generally, an Ep of approximately 1, where work done hydraulically on a channel matches a baseline condition, will have a low risk of causing stream instability.

Once an Ep ratio that will result in stable channels is determined, it is used as a standard upon which to base development of runoff flow rate and duration criteria. Stream channel erosion is caused by increases in runoff flow rates and durations for the small and moderate magnitude runoff flows above the threshold for sediment transport and channel bank erosion.[145] Runoff flow rate and duration criteria identify the range of storms for which flow rates and durations must be controlled to pre-project conditions in order to meet the Ep standard. This involves identifying the critical flow that produces the critical shear stress that initiates bed movement or that erodes the toe of channel banks, and then relating the critical flow to a percentage of the 2-year peak flow, which serves as the lower bound of the range of storm events which must be controlled. The upper bound of the range of storm events is based on the storm event where significant post-project increases in the total work done on the channel do not occur.

Due to the ongoing high level of development in San Diego County, this section of the Order also contains an interim hydromodification standard for large Priority Development Projects. Without an interim hydromodification standard, major Priority Development Projects will be developed without hydromodification controls, resulting in impacts to relatively stable streams with good habitat quality. Examples of areas that can be expected to be developed in the near future include the Otay Valley Hydrologic Area and the Bonsall Hydrologic Subarea.

Priority Development Projects over 50 acres in size are required to meet the interim criteria because large projects have a greater potential to impact streams through hydromodification. Larger projects create more impervious surface, increasing runoff flow rates and durations to a greater extent, resulting in greater potential for hydromodification of receiving channels. The 50 acre size limit was chosen based on high priority status placed on construction sites larger than 50 acres. Applying an interim criteria to projects over 50 acres in size is manageable for Copermittees because of the relative infrequency of development projects larger than 50 acres. Approximately 88% of the construction sites with coverage under the statewide General Construction Storm Water Permit are smaller than 50 acres in size. Moreover, since larger Priority Development Projects typically have greater resources, they have the capability to conduct the necessary analyses and implement measures to maintain the morphology of receiving channels. For example, such analysis (together with proposed implementation of flow rate and duration controls) has been conducted for the Rancho Mission Viejo project in southern Orange County.[146]

The Copermittees' ROWD essentially proposes a continuation of the current process for addressing hydromodification. As with the existing process, it is proposed that the project proponent will somehow demonstrate that the Priority Development Project will not impact downstream erosion or stream habitat. However, as discussed above, without a standard or specific criteria for how this will be done, neither the project proponent or a Copermittee's project review staff will know what needs to be implemented. Without specific standards or criteria, effective measures cannot be expected to be implemented to control hydromodification. For this reason, this section contains requirements that specific standards and criteria to control hydromodification be developed.

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[145] Santa Clara Valley Urban Runoff Pollution Prevention Program, 2005. Hydromodification Management Plan. P. 5-1.

[146] County of Orange, 2004. The Ranch Plan Draft Environmental Impact No. 589. Section 4.5.

Section D.1.h (Enforcement of Development Sites) ensures that the Copermittees will use enforcement to pursue corrections of noted violations at development sites. The section is being added to the Development Planning to complement the requirements for inspections of post-construction BMPs and BMP maintenance. Where ineffective BMP implementation or inadequate BMP maintenance is noted during inspections, Copermittees must take effective enforcement actions that ensure violations are corrected and pollutants are reduced to the maximum extent practicable. USEPA recommends the development of ordinances and the use of enforcement procedures to address post-construction storm water management issues in the Phase II storm water regulations.[147]

D. 2. Construction

The following legal authority applies to section D.2:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D) provides that the proposed management program include "A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(1) provides that the proposed management program include "A description of procedures for site planning which incorporate consideration of potential water quality impacts."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(2) provides that the proposed management program include "A description of requirements for nonstructural and structural best management practices."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(3) provides that the proposed management program include "A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include "A description of appropriate educational and training measures for construction site operators."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermitee must demonstrate that it can control "through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity."

Federal NPDES regulation 40 CFR 122.26(b)(14) provides that "The following categories of facilities are considered to be engaging in 'industrial activity' for the purposes of this subsection: […] (x) Construction activity including cleaning, grading and excavation activities […]."

[147] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68845.

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Section D.2.a (Ordinance Update and Approval Process) requires each Copermittee to review and update its grading and storm water ordinances as necessary to comply with the MS4 permit. By updating the grading and storm water ordinances, the Copermittees will have the necessary legal authority to require construction sites to implement effective BMPs that will reduce pollutant discharges to the maximum extent practicable. The Order allows the Copermittees 365 days to review and update their ordinances. The 365 days should be more than adequate to allow for the relatively minor changes that might be needed since their ordinances were last updated under Order No. 2001-01.

This section now requires the Copermittees to review project proponents' storm water management plans for compliance with local regulations, policies, and procedures. USEPA recommends that it is often easier and more effective to incorporate storm water quality controls during the site plan review process or earlier.[148] In the Phase I storm water regulations, USEPA states that a primary control technique is good site planning.[149] USEPA goes on to say that the most efficient controls result when a comprehensive storm water management system is in place.[150] To determine if a construction site is in compliance with construction and grading ordinances and permits, USEPA states that the "MS4 operator should review the site plans submitted by the construction site operator before ground is broken."[151] Site plan review aids in compliance and enforcement efforts since it alerts the "MS4 operator early in the process to the planned use or non-use of proper BMPs and provides a way to track new construction activities."[152] During audits of San Diego Copermittee storm water programs, it was found on two separate occasions that site plan and SWPPP review were inadequate and inconsistent.[153]

Section D.2.b (Source Identification) requires the Copermittees to develop and update a watershed based inventory of all construction sites regardless of size or ownership. This section has been modified to require at least monthly updates of construction site inventories to ensure the Copermittees have a more accurate inventory of construction sites within their jurisdiction. A regularly updated inventory of active construction sites will assist the Copermittees in ensuring that all sites are inspected per Order requirements. In the ROWD, the Copermittees provide support for more regular updates by stating "Any inventory…is likely to change significantly within weeks or even days."[154] Reporting of the inventory to the Regional Board would remain on an annual basis in the Jurisdictional Urban Runoff Management Program Annual Report.

Section D.2.c (BMP Implementation) includes modifications to the requirements for each Copermittee to designate and ensure implementation of a set of minimum BMPs at construction sites. These modifications are based on Regional Board findings and experience during implementation of Order No. 2001-01. During audits of the Copermittees' storm water programs,

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[148] USEPA, 1992. Guidance 833-8-92-002. Section 6.3.2.1.
[149] Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48034.
[150] Ibid.
[151] USEPA, 2000. Guidance 833-R-00-002. Section 4.6.2.4, P. 4-30.
[152] Ibid., P. 4-31.
[153] Tetra Tech, Inc., 2002. Program Evaluation Report – San Diego Area Storm Water Programs – El Cajon. P. 15; and Tetra Tech, 2005. Program Evaluation Report – San Diego Area Storm Water Programs – Port of San Diego. P. 15.
[154] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-23.

BMP implementation at construction sites was found to be second only to education in the number of deficiencies and potential permit violations. Eleven cities had deficiencies or potential permit violations, with the most common being that BMPs were not adequately implemented at construction sites and that the Copermittees' standards were not up to date. Both private and public construction sites were found to have inadequately implemented BMPs.[155] In addition, the only civil liability assessed on a municipality for violations of an MS4 permit under the previous municipal permit, Order No. 2001-01, was based in part on a Copermittee's failure to adequately implement or require implementation of BMPs at a construction site.[156]

This section describes the types of BMPs that are required to be implemented at construction sites. Many of these BMPs are found in Order No. 2001-01.[157] Differences in the BMP requirements from Order No. 2001-01 include: Removal of site priority specific BMP designations; removal of seasonal restrictions on grading; more specificity on slope stabilization; more specificity on phased grading; and the addition of advanced treatment requirements. Since pollution prevention methods are considered a BMP, the pollution prevention requirements have been moved to the BMP implementation section.

Unlike Order No. 2001-01, this Order does not require the Copermittee to designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites. This change was made in recognition of most Copermittees' application of one consistent set of BMPs throughout their jurisdictions.

The Order's requirements for seasonal restrictions on grading have been changed. Seasonal restrictions on grading for storm water are difficult to implement due to the conflict between seasonal grading restrictions and endangered bird's breeding seasons; therefore the seasonal grading restrictions have not been included with the other BMPs in the Order. Found in southern California, the Least Bell's Vireo and the Coastal California Gnatcatcher are listed as federally endangered and threatened, respectively.[158] Permits issued by the California Department of Fish and Game (CDFG) restrict grading during these birds' breeding seasons, which is from April 10 to August 31 for the Least Bell's Vireo[159] and from February 15 to August 31 for the Coastal California Gnatcatcher.[160] Ideally storm water restrictions on grading would be during the wet season from October 1 through April 30.[161] Combined these restrictions would limit construction grading to be during the month of September, which is infeasible. Section D.2.c of the Order still requires "project proponents to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events which may occur."

Sections D.2.c.(1)(e-f) of the Order require slope stabilization on all active and inactive slopes during rain events regardless of the season, except in areas implementing advanced treatment. Slope stabilization is also required on inactive slopes throughout the rainy season. These

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[155] Tetra Tech, Inc., various. Program Evaluation Reports San Diego Area Storm Water Programs.
[156] Regional Board, 2005. Order No. R9-2005-0237. Administrative Assessment of Civil Liability against JRMC Realty, Inc. and the City of Escondido. P. 3.
[157] Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. P. 22.
[158] State of California, Department of Fish and Game, 2005. State and Federally Listed Endangered and Threatened Animals of California.
[159] United States Department of the Interior, Fish and Wildlife Service, 2001. Least Bell's Vireo Survey Guidelines.
[160] United States Department of the Interior, Fish and Wildlife Service, 1997. Coastal California Gnatcatcher (*Polioptila californica californica)* Presence/Absence Survey Guidelines.
[161] Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. Directive F.2.g.(2).

requirements are needed because un-stabilized slopes at construction sites are significant sources of erosion and sediment discharges during rainstorms. "Steep slopes are the most highly erodible surface of a construction site, and require special attention."[162] USEPA exhibits the importance of slope stabilization when it states that "slope length and steepness are key influences on both the volume and velocity of surface runoff. Long slopes deliver more runoff to the base of slopes and steep slopes increase runoff velocity; both conditions enhance the potential for erosion to occur."[163] In lieu of vegetation preservation or replanting, soil stabilization is the most effective measure in preventing erosion on slopes. Research has shown that effective soil stabilization can reduce sediment discharge concentrations up to six times, as compared to soils without stabilization.[164] In their ROWD,[165] the Copermittees propose that standardized requirements for slope stabilization be developed after Permit adoption, due to the unique differences between the Copermittees' programs and the "need to develop consensus." However, slope stabilization at construction sites is already the consensus among the regulatory community and is found throughout construction BMP manuals and permits. For these reasons, slope stabilization requirements have been added to the Order, while providing sufficient flexibility for each Copermittee's unique storm water program.

Sections D.2.c.(1)(g-j) of the Order provide more specificity regarding phased grading requirements, prescribing that phased grading be implemented utilizing a maximum disturbed area, as determined by the Copermittees. This specificity has been added to the Order because of the importance of phased grading in controlling sediment from leaving construction sites. Phased grading minimizes the disturbed area and the time that the soil is exposed to erosive conditions.[166] USEPA provides guidance stating "construction should be planned to occur in phases in order to minimize the amount of disturbed land exposed at any one time, thus limiting the overall erosion potential of the site."[167] It is important to note that phased grading does not limit the overall development of a project. Moreover, phased grading should not be confused with seasonal restrictions on grading that were addressed above.

The Copermittees are required to designate a maximum disturbed area to be open at any one time. The Order prescribes that construction projects within the Copermittees' jurisdiction are not allowed to expose more soil than the maximum disturbed area, unless authorized to do so in writing by the Copermittee. Prior to the Copermittee's authorization to exceed the maximum disturbed area, the construction site must be in compliance with applicable storm water regulations and have adequate control practices implemented to prevent storm water pollution. The Copermittee's authorization gives the construction industry the flexibility needed to conduct business while continuing to protect water quality. This permit requirement is not unprecedented. The Caltrans construction standard specifications states that no more than 17 acres be exposed unless otherwise approved by their engineer in writing.[168] If needed, local Caltrans districts can

[162] Schueler, T. and Holland, H., 2000. "Muddy Water In – Muddy Water Out?" The Practice of Watershed Protection. P. 6.
[163] USEPA, 1990. "Sediment and Erosion Control: An Inventory of Current Practices." P. II-1.
[164] Schueler, T. and Holland, H., 2000. "Muddy Water In – Muddy Water Out?" The Practice of Watershed Protection. P. 5.
[165] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-27.
[166] Schueler, T. and Holland, H., 2000. "Muddy Water In – Muddy Water Out?" The Practice of Watershed Protection. P. 5.
[167] USEPA, 1990. "Sediment and Erosion Control: An Inventory of Current Practices." P. III-1.
[168] State of California, Department of Transportation, 2002. "Standard Specifications for Construction of Local Streets and Roads." Section 7-1.01G; P. 52.

decrease the maximum disturbed soil area to 5 acres during the rainy season.[169] In the Order, the Copermittee determines the maximum disturbed acreage size.

In the ROWD,[170] the Copermittees report that because their programs are unique, more time is needed on phased grading to develop consensus and to further dialogue. They speculate that the phased grading requirements will need consultation with the construction community, California Department of Fish and Game, United States Fish and Wildlife Service, and the Army Corps of Engineers. The Copermittees propose that they develop phased grading requirements after adoption of the Order. However, phased grading was a requirement in Order No. 2001-01.[171] In the five years since the adoption of Order No. 2001-01, the Copermittees did not develop a consensus on phased grading requirements. Even though previously required, the Regional Board inspectors have never observed phased grading implemented within the jurisdictions of the Copermittees. The lack of Copermittee action on phased grading during the past Permit cycles has necessitated the adoption of more specific enforceable requirements on phased grading. Caltrans and its private contractors from the construction community have implemented phased grading on construction projects since 2000 with no issues raised by the construction community or resource agencies. The ability of the Copermittee to increase the size of the maximum disturbed area for a given site will enable the construction site to feasibly grade while maintaining compliance with other environmental permits.

Section D.2.c.(1)(k) of the Order requires the implementation of advanced treatment for sediment at construction sites that the Copermittees or the Regional Board determines to be a significant threat to water quality. In evaluating the threat to water quality, the following factors shall be considered: (1) soil erosion potential; (2) the site's slopes; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; and (7) any other relevant factors. Advanced treatment is defined in the Order as "using mechanical or chemical means to flocculate and remove suspended sediment from runoff from construction sites prior to discharge." Advanced treatment consists of a three part treatment train of coagulation, sedimentation, and polishing filtration.

Advanced treatment has been effectively implemented extensively in the other states and in the Central Valley Region of California.[172] In addition, the Regional Board's inspectors have observed advanced treatment being effectively implemented at large sites greater than 100 acres and at small, 5 acre, infill sites. Advanced treatment is often necessary for Copermittees to ensure that discharges from construction sites are not causing or contributing to a violation of water quality standards. For example, the Basin Plan lists the water quality objective for turbidity as 20 NTU for all hydrologic areas and subareas except for the Coronado HA (10.10) and the Tijuana Valley (11.10). For certain construction sites with large slopes and exposed areas, the only technology that is likely to meet 20 NTU is advanced treatment combined with erosion and sediment controls. To ensure the MEP standard and water quality standards are met, the requirement for implementation of advanced treatment at high threat construction sites has been added to the Order, while still providing sufficient flexibility for each Copermittee's unique program.

Sections D.2.c.(1)(l-m) of the Order require the revegetation of a construction site as early as feasible. The Order includes revegetation requirements in the BMP implementation section,

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[169] Caltrans Storm Water Quality Handbooks, 2000. "Construction Site Best Management Practices Manual." Section 2.2.4.1.
[170] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-27.
[171] Regional Board, 2001. Order No. 2001-01, San Diego County MS4 Permit. Directive F.2.b.(4); P. 22.
[172] SWRCB, 2004. Conference on Advanced Treatment at Construction Sites.

while Order No. 2001-01 required revegetation as part of the grading ordinance update. Implementation of revegetation reduces the threat of polluted storm water discharges from construction sites. For example, it has been found that construction sites should permanently stabilize disturbed soils with vegetation at the conclusion of each phase of construction.[173] A survey of grading and clearing programs found one-third of the programs without a time limit for permanent revegetation, "thereby increasing the chances for soil erosion to occur."[174] USEPA states "the establishment and maintenance of vegetation are the most important factors to minimizing erosion during development."[175] With the construction site being responsible for revegetation, the Copermittee will be more likely to enforce revegetation requirements during oversight of construction site requirements.

Section D.2.c.(2) of the Order requires that dry season BMP implementation must include planning for and addressing rain events that may occur during the dry season. This requirements was added to the Order to emphasize that, although rare, thunderstorms do occur in inland areas of the San Diego Region during the dry season.

Section D.2.d (Inspection of Construction Sites) prescribes a minimum inspection frequency for construction sites. Where Order No. 2001-01 required weekly inspections of high priority sites and monthly inspections of medium and low priority sites during the wet season, this Order prescribes biweekly inspections during the wet season of high priority sites, monthly inspections for medium priority sites, and as needed inspections for low priority sites. High priority sites are identified as all sites greater than 50 acres, or greater than 1 acre and tributary to a CWA Section 303(d) water body impaired for sediment or discharging directly to a ESA. Medium priority sites are all sites causing soil disturbance of one acre or more that are not a high priority. The proposed changes to the Order allow the Copermittees to concentrate more effort on sites that are less than 50 acres, but still have significant disturbed areas. The reduction in inspection frequency for sites greater than 50 acres is justified because the sites have generally improved their erosion and sediment control measures since adoption of Order No. 2001-01. Biweekly inspections of these sites in the future should be sufficient to ensure compliance at these sites.

The Order omits Order No. 2001-01's provision allowing a Copermittee to decrease the inspection frequency for high priority sites if the Copermittee certifies in writing to the Regional Board that they have recorded the site's Waste Discharge Identification Number, reviewed the site's Storm Water Pollution Prevention Plan (SWPPP), assured the site's SWPPP is in compliance, and assured the SWPPP is properly implemented at the site. Under Order No. 2001-01, the Regional Board never received from any of the Copermittees a certification to decrease the inspection frequency at high priority sites. Since the certification process was never used, the language has been deleted from the Order.

In their ROWD,[176] the Copermittees recommend that the use of weather triggered action plans be used in place of minimum inspection frequencies at construction sites during the month of October. The Copermittees' proposal is not to be confused with using weather triggered action plans to implement BMPs; rather the plan would be used during October by Copermittees to conduct inspections. The Order does not include this measure because historical rainfall data shows that San Diego received significant rainfall during October in 2005, 2004, and 2000.[177]

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[173] Schueler, T. and Holland, H., 2000. "Muddy Water In – Muddy Water Out?" The Practice of Watershed Protection. P. 5.
[174] Ibid.; P.11.
[175] USEPA, 1990. "Sediment and Erosion Control: An Inventory of Current Practices", P. II-1
[176] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-27.
[177] National Weather Service, Surface Observations at Lindbergh field; www.wrh.noaa.gov/sgx/obs/rtp/linber.html

Moreover, based upon Regional Board inspections, construction sites rarely have been found to have fully implemented their SWPPP by October 1 in anticipation of the rainy season. During those years that rainfall does not occur during October, Copermittees' biweekly inspections during October can ensure that construction sites are implementing and preparing for the eventual rains. Like dry weather inspections, these inspections can also identify sources of non-storm water pollution and discharges.

This section also requires the Copermittees to track the number of inspections for each inventoried construction site. This requirement has been added to ensure that the Copermittees can demonstrate that construction sites are inspected at the minimum frequencies.

Section D.2.e (Enforcement of Construction Sites) requires each Copermittee to develop and implement an escalating enforcement process that achieves prompt and effective corrective actions at all construction sites for violations of the Copermittee's requirements and ordinances. Each Copermittee develops their own unique enforcement procedure tailored for their specific jurisdiction. This requirement is similar to Order No. 2001-01, except that enforcement procedures are required to be escalating and enforcement sanctions are required to be implemented in a prompt and effective manner.

Under Order No. 2001-01, inspections conducted by the Regional Board noted deficiencies in the Copermittees' enforcement procedures and implementation. The most common issues found were that enforcement was not firm and appropriate to correct the violation, and that repeat violations did not result in escalated enforcement procedures. Moreover, in the municipal audit reports, deficiencies and potential permit violations were found in Copermittee's enforcement programs.[178] USEPA supports enforcement of ordinances and permits at construction sites stating "Effective inspection and enforcement requires […] penalties to deter infractions and intervention by the municipal authority to correct violations."[179] In addition, USEPA expects permits issued to municipalities to address "weak inspection and enforcement."[180] For these reasons, the enforcement requirements in this section have been modified, while providing sufficient flexibility for each Copermittee's unique storm water program.

In their ROWD, the Copermittees strongly oppose "the revision of Permit requirements for the purpose of standardizing processes that are necessarily unique to individual jurisdictions."[181] However, the Order does not require that Copermittees standardize enforcement procedures to be the same among all the Copermittees, but requires that each Copermittee will consistently implement their unique enforcement procedures at construction sites within their jurisdiction.

The Order requires that inspectors have the authority to conduct immediate enforcement actions when appropriate. Inspectors conducting immediate enforcement will quickly implement corrections to violations, thereby minimizing and preventing threats to water quality. When inspectors are unable to conduct immediate enforcement actions, the threat to water quality continues until an enforcement incentive is issued to correct the violation. In the municipal audits, storm water inspectors for several municipalities were found to lack the necessary

[178] Tetra Tech, Inc., 2002-05, Program Evaluation Reports – San Diego Area Storm Water Programs – July 23, 2002, Chula Vista P. 11, El Cajon P. 15; April 8, 2003, Oceanside P. 16; December 17, 2003, San Marcos P.20, Vista P.26; June 11, 2004, Poway P. 12, Santee, P. 15; January 31, 2005, Del Mar P.9, Solana Beach, P.12.
[179] USEPA, 1992. Guidance 833-8-92-002. Section 6.3.2.3.
[180] Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48058
[181] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-28.

enforcement authority.[182] In its Phase II Compliance Assistance Guidance, USEPA says that "Inspections give the MS4 operator an opportunity to provide additional guidance and education, issue warnings, or assess penalties."[183] In order to issue warnings and assess penalties during inspections, inspectors need to have the legal authority to conduct enforcement.

D.3. Existing Development

D.3.a Municipal

The following legal authority applies to section D.3.a:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(1) provides that the proposed management program include "A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(3) provides that the proposed management program include "A description for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of deicing activities."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(4) provides that the proposed management program include "A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(5) provides that the proposed management program include "A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include "A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities."

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a

[182] Tetra Tech, Inc., 2003-05. Program Evaluation Reports – San Diego Area Storm Water Programs –April 8, 2003, Oceanside P. 16; June 11, 2004, Poway P. 12, Santee, P. 15; January 31, 2005, Solana Beach, P.12.
[183] USEPA, 2000. 833-R-00-002, Storm Water Phase II Compliance Assistance Guide, P.4-31

level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Section D.3.a.(2) (BMP Implementation) requires the Copermittees to designate minimum BMPs for all municipal areas and activities, regardless of their threat to water quality. The requirement that different types of BMPs be designated for different threat to water quality categories of municipal areas and activities has been removed from the Order to help simplify and clarify the Order's requirements. BMPs required to be implemented at a site can now be based on the sources or activities present at the site. This more closely matches the approach taken by the Copermittees in their JURMPs. Threat to water quality is used to determine inspection frequencies in section D.3.a.(7).

Section D.3.a.(3) (Operation and Maintenance of MS4 and Structural Controls) requires the Copermittees to inspect and remove waste from their MS4s prior to the rainy season. Additional wording has been added to clarify the intent of the requirements. The Copermittees will be required to inspect all storm drain inlets and catch basins. This change will assist the Copermittees in determining which basins/inlets need to be cleaned and at what priority. Removal of trash has been identified by the Copermittees as a priority issue in their long-term effectiveness assessment. To address this issue, wording has been added to require the Copermittees, at a minimum, inspect and remove trash from all their open channels at least once a year.

Section D.3.a.(5) (Sweeping of Municipal Areas) requires the Copermittees to implement a program to sweep all municipal roads, streets, highways, and parking facilities. This section has been added to ensure that the Copermittees are implementing this effective BMP at all appropriate areas. The reporting requirements of the Order have also be modified to ensure that the Copermittees consistently report their sweeping and pollutant removal activities.

Section D.3.a.(6) (Limit Infiltration From Sanitary Sewer to MS4/Provide Preventive Maintenance of Both) requires the Copermittees to implement controls and measures to limit infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. In their ROWD, the Copermittees requested this section be removed form the Illicit Discharge Detection and Elimination Component and added to the Municipal Component since it is a municipal activity. We agree and have moved the section to the municipal component of the Order.

Section D.3.a.(7) (Inspection of Municipal Areas and Activities) establishes a minimum set of municipal areas and activities for oversight and inspection by the Copermittees. In their ROWD, the Copermittees stated that some high priority areas on the list are not present in San Diego County. In response to this comment, incinerators, uncontrolled sanitary landfills, sites for disposing and treating sewage sludge, and hazardous waste treatment, disposal, and recovery facilities have been removed as high priority municipal areas. Household hazardous waste collection facilities and parks/recreation facilities have been identified by the Copermittees as municipal areas in their JURMPs and therefore have been added to the high priority list.

D.3.b. Industrial and Commercial

The following legal authority applies to section D.3.b:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C) provides that the proposed management program include "A description of a program to monitor and control pollutants in storm water discharges to municipal systems from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(1) provides that the Copermittee must "identify priorities and procedures for inspections and establishing and implementing control measures for such discharges."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(C)(2) provides that the proposed management program shall "Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcategories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD5 , TSS, total phosphorus, total Kjeldhal nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7)(iii) and (iv)."

Federal NPDES regulation 40 CFR 122.26(d)(2)(ii) provides that the Copermittee "Provide an inventory, organized by watershed of the name and address, and a description (such as SIC codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, storm water associated with industrial activity."

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(A) provides that each Copermittee must demonstrate that it can control "through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from site of industrial activity."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes "A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls."

Section D.3.b requires the Copermittees to implement an industrial and commercial program to reduce pollutants in runoff from all industrial and commercial sites/sources. The industrial and commercial sections of Order No. 2001-01 have been combined into one section in this Order. This change will streamline and simplify the Order, without negatively impacting water quality. This change is not unprecedented because industrial and commercial facilities are commonly

addressed together. For example, the Southern Riverside County MS4 Permit[184] combined industrial and commercial programs into one section. In addition, in their ROWD,[185] the Copermittees jointly addressed industrial and commercial components. USEPA contractor Tetra Tech also evaluated and reported on the industrial and commercial programs jointly during their program evaluations.[186]

Section D.3.b.(1)(a) (Commercial Sites/Sources) requires that building material retailers and storage, animal facilities, and power washing services be included in the Copermittee's inventory of commercial sites/sources. In their ROWD, the Copermittees state "Two sources that were not identified in the Permit [Order No. 2001-01] as high priorities (animal facilities and pressure washers) were determined to justify close attention due their significant number and their potential to discharge pollutants." The Regional Board agrees with the Copermittees statement in the ROWD; therefore, animal facilities and pressure washers are included in the source identification section. Building material retailers and storage facilities are included because they are potential sources of pollutants to urban runoff. These facilities typically store and vend building materials in the outdoors exposed to storm water without implementing BMPs.

The Order has revised requirements for identifying industrial sites/sources. The revised requirements are identical to those found in the Southern Riverside County MS4 permit.[187] USEPA requires the same identification: "Measures to reduce pollutants in storm water discharges to municipal separate storm sewers from municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA)."[188] USEPA "also requires the municipal storm sewer permittee to describe a program to address industrial dischargers that are covered under the municipal storm sewer permit."[189] In order to more closely follow USEPA's guidance, this Order also includes operating and closed landfills, and hazardous waste treatment, disposal, storage and recovery facilities.

The Order continues to require the Copermittees to identify industrial sites and sources subject to the General Industrial Permit or other individual NPDES permit. This requirement is despite the Copermittees' recommendation, "The Permit should be amended to eliminate the requirement to include sites with coverage under the General Industrial Permit, or other permits with storm water requirements, on the list of minimum high priority industrial facilities."[190] USEPA supports the municipalities regulating industrial sites and sources that are already covered by a NPDES permit:

> "Municipal operators of large and medium municipal separate storm sewer systems are responsible for obtaining system-wide or area permits for their system's discharges. These permits are expected to require that controls be placed on storm water discharges associated with industrial activity which discharge through the municipal system. It is anticipated that general or individual permits covering industrial storm water discharges to these municipal

[184] Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2; P. 24.
[185] San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.1, P. D-37.
[186] Tetra Tech, Inc., 2002-05. Program Evaluation Reports – San Diego Area Storm Water Programs; July 23, 2002; December 13, 2002; December 26, 2002; April 8, 2003; December 17, 2003; June 11, 2004; January 31, 2005.
[187] Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.b)(2); P. 25.
[188] Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48056.
[189] Ibid.
[190] San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.6, P. D-43

> separate storm sewer systems will require industries to comply with the terms of the permit issued to the municipality, as well as other terms specific to the permittee." [191]

And:

> "Although today's rule will require industrial discharges through municipal storm sewers to be covered by separate permit, USEPA still believes that municipal operators of large and medium municipal systems have an important role in source identification and the development of pollutant controls for industries that discharge storm water through municipal separate storm sewer systems is appropriate. Under the CWA, large and medium municipalities are responsible for reducing pollutants in discharges from municipal separate storm sewers to the maximum extent practicable. Because storm water from industrial facilities may be a major contributor of pollutants to municipal separate storm sewer systems, municipalities are obligated to develop controls for storm water discharges associated with industrial activity through their system in their storm water management program."[192]

The Order's requirement to inventory those sites subject to the General Industrial Permit is identical to the requirements found in the Southern Riverside County MS4 Permit, Order No. R9-2004-001.[193] USEPA supports the list of industrial facilities in the Order when it states the following:

> "The issue of industrial inspections also arose for the Los Angeles County MS4 permit. The State Board, in a memo dated November 9, 2001, from Michael Lauffer of the State board to Dennis Dickerson, Executive Officer of the Los Angeles Regional Board, noted that under Section 402 (p)(3)(B)(iii) of the CWA, the Board has broad authority to require 'such other provisions…as the State determines appropriate…' and that this would provide a basis for requirements that go beyond specific provisions of the EPA regulations. We would agree with the State Board on this matter, and that the Regional Board would have the authority to require inspections of all the industrial facilities listed in the permit [Order], notwithstanding the specific provisions of the EPA regulations."[194]

Section D.3.b.(2) (BMP Implementation) adds a pollution prevention requirement, since pollution prevention methods are considered a BMP. Moving this requirement will streamline the Order, without causing a detrimental effect on water quality.

Section D.3.b.(3) (Inspection of Industrial and Commercial Sites/Sources) includes requirements for inspections of industrial and commercial sites/sources. The Order is similar to the Southern Riverside County MS4 permit[195] in requiring that inspections check for coverage under the General Industrial Permit; assessment of compliance with Copermittee ordinances and permits related to urban runoff; assessment of BMP implementation, maintenance, and effectiveness; visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and education and outreach on storm water pollution prevention. The Order also requires that inspections include review of BMP implementation plans if the site uses or is required to use such a plan, and the review of facility monitoring data if the site monitors its runoff. These changes are necessitated by the results of

[191] Federal Register / Vol. 55, No. 222 / Friday, November 16, 1990 / Rules and Regulations. P. 48006.
[192] Ibid. P. 48000
[193] Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.b)(2); P. 25.
[194] Letter dated March 5, 2004 from Doug Eberhardt, EPA Manager to John Robertus, Executive Officer of Regional Board containing comments on Order No. R9-2004-001.
[195] Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.d)(3); P. 26.

storm water program evaluations.[196] It was observed that 12 Copermittees had deficiencies or potential permit violations in their industrial and commercial component. The inspection section received twice as many comments than any other requirement in the industrial/commercial program evaluation reports section. These changes in the Order mimic USEPA's guidance: "Site inspections should include (1) an evaluation of the pollution prevention plan and any other pertinent documents, and (2) an onsite visual inspection of the facility to evaluate the potential for discharges of contaminated storm water from the site and to assess the effectiveness of the pollution prevention plan." [197] In 1999, USEPA "recognized visual inspection as a baseline BMP for over 10 years," and "visual inspections are an effective way to identify a variety of problems. Correcting these problems can improve the water quality of the receiving water." [198]

Section D.3.b.(3)(c) of the Order requires that at a minimum, 40% of the sites inventoried shall be inspected each year, including all sites determined to pose a high threat to water quality. This requirement maintains inspection frequencies and rates while allowing more flexibility for the Copermittees to decide where to conduct inspections. In the ROWD,[199] the Copermittees reported 18,017 industrial and commercial sources. In fiscal year 2002-2003, the Copermittees conducted 10,133 inspections, giving an inspection rate of 56%. In fiscal year 2003-2004, the Copermittees conducted 8,546 inspections giving an inspection rate of 47%. USEPA guidance[200] says, "management programs should address minimum frequency for routine inspections." The USEPA Fact Sheet – Visual Inspection[201] says, "To be effective, inspections must be carried out routinely. This requires a corporate commitment to implementing them."

In their ROWD,[202] the Copermittees recommend, "The Permit should allow revision of mandated inspection requirements in accordance with demonstrated needs." The Copermittees "strongly discourage Permit requirements that seek to establish minimum levels of inspection activity." The Order includes the minimum level of inspection activity because without minimum levels, the Regional Board has no assurance that inspections of commercial and industrial sites will be conducted. Without inspections, the Copermittees would be unable to adequately verify that industrial and commercial sites are in compliance with their local storm water ordinances and regulations. Even though minimum inspection levels have been included, the Order allows enough flexibility to maximize the effectiveness of inspections by concentrating resources on industrial and commercial sites that are higher threats to water quality without neglecting other industrial and commercial sites. Further flexibility is provided in prioritizing inspections, as discussed next.

The Order no longer includes a section titled "Threat to Water Quality Prioritization." Rather, threat to water quality prioritization is incorporated within the inspection section. The Order requires several criteria to determine if a site is a high threat to water quality that needs an annual inspection. This change is identical to the requirements in the Southern Riverside County MS4 permit,[203] except for the addition of a few criteria recommended in the Copermittees' ROWD.[204] The Copermittees recommended criteria that are included in the Order are No Exposure

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[196] Tetra Tech, Inc., 2002-05. Program Evaluation Reports – San Diego Area Storm Water Programs; July 23, 2002; December 13, 2002; December 26, 2002; April 8, 2003; December 17, 2003; June 11, 2004; January 31, 2005.
[197] USEPA, 1992. Guidance 833-8-92-002, section 6.3.3.4 "Inspection and Monitoring".
[198] USEPA, 1999. 832-F-99-046, "Storm Water Management Fact Sheet – Visual Inspection".
[199] San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.
[200] USEPA, 1992. Guidance 833-8-92-002, section 6.3.3.4 "Inspection and Monitoring".
[201] USEPA, 1999. 832-F-99-046,, "Storm Water Management Fact Sheet – Visual Inspection".
[202] San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.3.
[203] Regional Board, 2004. Order No. R9-2004-001; Riverside County MS4 Permit. Section H.2.d)(1); P. 26.
[204] San Diego County Copermittees, 2005. Report of Waste Discharge. Section D.5.1.

Certification / Notice of Non-Applicability, Compliance History, and Facility Design. "Existing Regulatory Oversight" is already included as a criterion in the Order as "Whether the site is subject to the Statewide Industrial Permit." Self-certification status and Green Business Certification are not included in the Order because these certifications do not ensure that storm water is addressed. In the ROWD,[205] the Copermittees recommend, "The Permit should allow re-prioritization of currently mandated minimum high priority industrial and commercial sources." The Order has been modified to increase flexibility and allow the Copermittees to reprioritize sites as more information is learned about the sites' potential threat to water quality.

In their ROWD[206], the Copermittees recommend, "The Permit should allow and encourage alternatives to current inspection requirements." They suggest utilizing non-inspection methods including self-certification, certified submission of monitoring results demonstrating that benchmarks have been met, third-party inspections, facility- or industry-specific surveys, and/or phone interviews. The proposed alternatives do not provide the same level of compliance oversight as inspections provide; therefore the Order includes such a section not as an alternative to inspections but in addition to inspections. The Order allows the use of these alternatives if they are determined to be necessary by the Copermittee.

Section D.3.b.(4) (Regulation of Mobile Businesses) is a new section. Mobile businesses are service industries that travel to the customer to perform the service rather than the customer traveling to the business to receive the service. Examples of mobile businesses are power washing, mobile vehicle washers, carpet cleaners, port-a-potty servicing, pool and fountain cleaning, mobile pet groomers, and landscapers. These mobile services produce waste streams that could potentially impact water quality if appropriate BMPs are not implemented. Mobile businesses present a unique difficulty in storm water regulation. Due to the transient nature of the business, the regular, effective practice of unannounced inspections is difficult to implement. Also, tracking these mobile businesses is difficult because they are often not permitted or licensed and their services cross Copermittee jurisdictions. The Order takes into account the difficulties in regulating mobile businesses. Only those mobile businesses that are known to operate within their jurisdiction are required to be inventoried and notified. The inventory shall be updated as additional mobile businesses are identified.

The Order requires that mobile businesses shall be inspected as needed. Inspections can be accomplished in response to complaints. Inspections can be scheduled through contacting the business. Impromptu inspections can be conducted if a Copermittee's inspector observes a mobile business operating in the course of the inspector's normal travels throughout their jurisdiction. In their ROWD,[207] the Copermittees recommend, "Copermittees should increase their collaboration on the regulation of mobile businesses". The Order allows but does not require collaboration among the Copermittees. Due to the Copermittee's differences in watersheds, culture, ethnicity, ordinances, regulations, policies and procedures, Copermittee collaboration on regulating mobile businesses is left up to the Copermittees as they see fit.

Section D.3.b.(5) (Enforcement of Industrial and Commercial Sites/Sources) requires that inspectors have authority to conduct immediate enforcement actions when appropriate. Inspectors conducting immediate enforcement will quickly correct violations, thereby minimizing and preventing threats to water quality. When inspectors are unable to conduct immediate enforcement actions, the threat to water quality continues until an enforcement incentive is issued

[205] Ibid. Section D.5.2.
[206] Ibid. Section D.5.4
[207] Ibid. Section D.5.5.

to correct the violation. In the municipal audits, Tetra Tech reported deficiencies where several Copermittees needed to ensure that their storm water inspectors have enforcement authority.[208] In its Phase II Compliance Assistance Guidance, USEPA says that "Inspections give the MS4 operator an opportunity to additional guidance and education, issue warnings, or assess penalties."[209] In order to issue warnings and assess penalties during inspections, inspectors need to have the legal authority to conduct enforcement.

D.3.c. Residential

The following legal authority applies to section D.3.c:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A) provides that the Copermittee develop a proposed management program which includes "A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls."

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Section D.3.c.(2)(b) of the Order moves the residential pollution prevention requirements together with the other BMP requirements in order to improve the organization of the Order. This change has no net effect on the implementation and enforcement of the Order.

Section D.3.c.(2)(c) of the Order moves the requirement for proper management of used oil, toxic materials, and other household hazardous wastes to the residential section of the Order, since this requirement generally applies to residents. This change improves the organization of the Order, and has no net effect on its implementation and enforcement.

Section D.3.c.(4) (Regional Residential Education Program) of the Order requires each Copermittee to participate in a Regional Residential Education Program. An education program specifically targeting residential sources is needed due to the fact that residential housing units encompass the largest category of specific sources in San Diego County and have been identified by the Copermittees as a regional priority source. Moreover, the Copermittees recommend in their ROWD that such a program be developed. Section F.7 of the Order, which is referenced in section D.3.c.(4), expands on the Regional Residential Education Program requirements by requiring that the program focus on bacteria, nutrients, sediment, pesticides, and trash. This is appropriate for a regional education program, since the Copermittees have identified these constituents as regional priorities.

[208] Tetra Tech, Inc., 2002-05. Program Evaluation Reports – San Diego Area Storm Water Programs.
[209] USEPA, 2000. Storm Water Phase II Compliance Assistance Guide. 833-R-00-002. P. 4-31.

D.4. Illicit Discharge Detection and Elimination

The following legal authority applies to section D.4:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B) provides that the proposed management program "shall be based on a description of a program, including a schedule, to detect and remove (or require the discharger to the municipal storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(1) provides that the Copermittee include in its proposed management program "a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal storm sewer system."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(2) provides that the Copermittee include in its proposed management program "a description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(3) provides that the Copermittee include in its proposed management program "procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other sources of non-storm water."

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(4) provides that the Copermittee include in its proposed management program "a description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer."

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(5) provides that the Copermittee include in its proposed management program "a description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers."

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the Copermittee include in its proposed management program "a description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials."

Federal NPDES regulations 40 CFR 122.26(d)(2)(iv)(B)(7) provides that the Copermittee include in its proposed management program "a description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary."

Section D.4.a (Illicit Discharges and Connections) requires the Copermittees to implement a program to actively seek and eliminate illicit connections and discharges (IC/ID). Additional wording has been added to this section to clarify and ensure that all appropriate (i.e., field personnel) municipal personnel are utilized in the program to observe and report these illicit discharges and connections.

Section D.4.b (Develop/Maintain MS4 Map) requires the Copermittees to develop or obtain a map of their entire MS4 system and drainages within their jurisdictions. To provide clarification to the Order, this requirement has been moved to the IC/ID component of the Order from the Dry Weather Field Screening and Analytical Monitoring Specifications (Attachment E in previous Order No. 2001-01).

Section D.4.d (Investigation/Inspection and Follow-Up) requires the Copermittees to conduct follow up investigations and inspect portions of the MS4 for illicit discharges and connections, based on dry weather field screening and analytical monitoring results. The section also requires the Copermittees to establish criteria for triggering follow up investigations. Additional language has been added to this section to clarify the minimum level of effort and timeframes for follow up investigations when dry weather action levels (developed by the Copermittees) are exceeded. Timely investigation and follow up when action levels are exceeded is necessary to identify sources of illicit discharges, especially since many of the discharges are transitory. The requirements for a 48-hour minimum response time when action levels are exceeded and for immediate response to obvious illicit discharges is necessary to ensure timely response by the Copermittees.

In its October 29, 2004 letter to the Copermittees, as well as in subsequent meetings, the Regional Board notified Copermittees that standardized procedures were necessary to ensure timely IC/ID investigations. In the ROWD, the Copermittees state that procedures for dry weather programs should not be standardized and that a minimum response timeframe would hamper their efforts to prioritize and respond to IC/IDs. However, the purpose of the dry weather action levels is to help the Copermittees prioritize and investigate the most likely IC/IDs. Sampling locations that exceed these action levels warrant timely investigation/response, and the minimum time frames in the requirements are reasonable. The Copermittees may also determine that the exceedances do not pose a threat to water quality and therefore do not warrant further investigation. The rationale for no further action for dry weather sampling stations that exceed action levels would be reported in the Jurisdictional Urban Runoff Management Program Annual Report.

D.5. Education Component

The following legal authority applies to section D.5:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(A)(6) provides that the proposed management program include “A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides, and fertilizer which will include, as appropriate, controls such as educational activities, permits, certifications, and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(B)(6) provides that the proposed management program include “A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials.”

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv)(D)(4) provides that the proposed management program include "A description of appropriate educational and training measures for construction site operators."

Section D.5 includes an introductory paragraph that is the same as in Order No. 2001-01, except for the removal of Quasi-Governmental Agencies/ Districts. The Copermittees' ROWD recommends elimination of the requirement to educate quasi-governmental entities.[210]

Section D.5.a (General Requirements) includes education topics from the existing permit with some minor wording and formatting changes. The Copermittees' ROWD recommends that the Copermittees should focus educational efforts on the most important constituents and not on a list of topics.[211] The Regional Board agrees with the focused efforts, but a list of topics is needed to provide a goal of basic storm water knowledge. The Copermittees can choose how and to what degree to address these topics. Copermittees may decide to focus on some topics and not on others. Some topics may be more important for certain target communities or watersheds.

The Regional Board has incorporated the following recommendation from the Copermittees' ROWD into the permit: "Copermittee educational programs should emphasize underserved target audiences, high-risk behaviors, and "allowable" behaviors and discharges."[212] In conducting audits of the Copermittees' storm water program, Tetra Tech found that several of the Copermittees could improve education of specific target audiences with pollutant-specific educational campaigns, messages, or technical guidance.[213]

Section D.5.b (Specific Requirements) requires the Copermittees to educate their own departments and personnel. The new development and redevelopment as well as the municipal construction education requirements were taken from Order No. 2001-01 with some minor wording changes. Additional clarification was added regarding storm water management plans and SUSMP requirements due to deficiencies found during the SUSMP audits. The Regional Board considers it vital for the Copermittees' planning and development staff, who have a broad authority and influence over new and redevelopment projects, to thoroughly understand storm water management plan development and SUSMP requirements. Municipal construction staff also need a thorough understanding of SUSMP requirements to adequately oversee active construction projects which are implementing SUSMPs.

A new requirement has also been added for education of activity specific BMPs for municipal personnel and contractors performing activities that generate pollutants. Education is required at all levels of municipal staff and contractors. Education is especially important for the staff in the field performing activities which might result in discharges of pollutants if proper BMPs are not used. The CASQA Municipal Handbook states that successful implementation of BMPs is dependent on "Effective training of municipal and contract employees working in both fixed facilities and field programs."[214] This training can be conducted in either a formal or an informal tail-gate format.

Section D.5.b.(2) (New Development and Construction Education) requires the Copermittees to educate all project applicants, developers, contractors, property owners, community planning

[210] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-57.
[211] Ibid. P. D-52.
[212] Ibid. P. D-53.
[213] Tetra Tech, Inc., 2002-03. Program Evaluation Reports -- San Diego Area Stormwater Program.
[214] California Stormwater Quality Association, 2003. Stormwater Best Management Practices Handbook, Municipal. P. 5-1

groups, and other responsible parties about stormwater issues and BMPs, including annual training before the rainy season. The first requirement is taken from the existing permit sections on new development and construction, with some minor wording changes and an additional topic at the end to recognize the importance of training for field level construction workers. Different levels of training will be needed for planning groups, owners, developers, contractors, and construction workers, but everyone should get a general education of stormwater requirements. Education of all construction workers can prevent unintentional discharges, such as discharges by workers who are not aware that they are not allowed to wash things down the storm drains. Training for BMP installation workers is imperative because the BMPs will fail if not properly installed and maintained.[215] Training for field level workers can be formal or informal tail-gate format.

Section D.5.b.(3) (Residential, General Public, and School Children Education) requires the Copermittees to collaboratively develop and implement a plan to educate residential, general public, and school children through use of mass media, mailers, door hangers, booths at public events, classroom education, field trips, hands-on experiences, or other educational methods. USEPA supports education of the general community when it states: "An informed and knowledgeable community is critical to the success of a storm water management program since it helps ensure the following:

> Greater support for the program as the public gains a greater understanding of the reasons why it is necessary and important. […]
>
> Greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters."[216]

Regarding target audiences, USEPA also finds that "The public education program should use a mix of appropriate local strategies to address the viewpoints and concerns of a variety of audiences and communities, including minority and disadvantaged communities, as well as children."[217] The SWRCB TAC also supports education of schoolchildren, stating:

> "Target Audiences should include:
>
> 1. Government: Educate government agencies and officials to achieve better communication, consistency, collaboration, and coordination at the federal, state and local levels.
> 2. K-12/Youth Groups: Establish statewide education programs, including curricula, on watershed awareness and nonpoint source pollution problems and solutions, based on a state lead role building upon and coordinating with existing local programs.
> 3. Development Community: Educate the development community, including developers, contractors, architects, and local government planners, engineers, and inspectors, on nonpoint source pollution problems associated with development and redevelopment and construction activities and involve them in problem definitions and solutions.
> 4. Business and Industrial Groups."[218]

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[215] Ibid P.2-6.
[216] USEPA, 2000. Storm Water Phase II Compliance Assistance guide. EPA 833-R-00-002.
[217] Ibid.
[218] SWRCB, 1994. Urban Runoff Technical Advisory Committee Report and Recommendations. Nonpoint Source Management Program.

D.6 Public Participation

The following legal authority applies to section D.6:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

No significant changes have been made to this section of the Order.

E. Watershed Urban Runoff Management Program

The following legal authority applies to section E:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(a)(3)(ii) states: "The Director may […] issue distinct permits for appropriate categories of discharges […] including, but not limited to […] all discharges within a system that discharge to the same watershed […]"

Federal NPDES regulations 40 CFR 122.26(a)(3)(v) states: "Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed, or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas [watersheds] which contribute storm water to the system."

Federal NPDES regulation 40 CFR 122.26(a)(5) states: "The Director may issue permits for municipal separate storm sewers that are designated under paragraph (a)91)(v) of this section on a system-wide basis, a jurisdiction-wide basis, watershed basis, or other appropriate basis."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) states: "Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls."

Section E.2.b of the Order requires the Copermittees to develop a watershed map. The section has been slightly modified from Order No. 2001-01 in that it no longer requires mapping of inventoried construction sites. The reason for this change is the temporary nature of construction sites. The location of construction sites is constantly changing, making the mapping of construction sites not useful.

Section E.2.c of the Order requires identification and description of available water quality data for each watershed. The minimum types of water quality data the Copermittees must consider are listed. For the most part, the listed types of water quality data match the types of data already used by the Copermittees for watershed management. Additional types of monitoring to be considered have been added, such as toxic hot spot and TMDL monitoring, because of their potential to provide useful information during identification and prioritization of watershed water quality problems. The listing of data types is necessary because the Copermittees have previously not used all available watershed water quality data while assessing watershed conditions. For example, in a March 10, 2003 letter, the Regional Board directed the Copermittees to utilize additional available data during WURMP implementation because initial Copermittee data use was limited.

Sections E.2.d and E.2.e of the Order require assessment and analysis of water quality data to prioritize each watershed's water quality problems, together with identification of the sources of the high priority water quality problems. These requirements are essentially the same as the requirements of Order No. 2001-01; they have simply been reorganized to more clearly convey the process required.

Section E.2.f of the Order requires the Copermittees to develop a list of Watershed Water Quality Activities for potential implementation. This requirement developed over time while working with the Copermittees on their WURMP implementation under Order No. 2001-01. In October 2004 letters, the Regional Board recommended the Copermittees develop a list of Watershed Water Quality Activities for potential implementation. Following receipt of the Regional Board letters, the Copermittees created Watershed Water Quality Activity lists. Although the Copermittees' lists needed improvement, the Regional Board found the lists to be useful planning tools that can be evaluated to identify effective and efficient Watershed Water Quality Activities. Because the lists are useful and have become a part of the WURMP implementation process, a requirement for their development has been written into the Order.

The goal of the WURMPs is to abate sources and reduce pollutant discharges causing the high priority water quality problems within a watershed. For this reason, it is required that the Watershed Water Quality Activity list describes how each Watershed Water Quality Activity will meet this goal.

Section E.2.g of the Order requires the Copermittees within a watershed to develop a strategy for implementation of Watershed Water Quality Activities and Watershed Education activities. The requirement for development of an implementation strategy is necessary because it should guide effective implementation of watershed activities. Moreover, it has been found that many of the Copermittees' current Watershed Water Quality Activities have no clear connection to the high priority water quality problems within the watersheds where they are being implemented. For example, when reviewing the 2003-2004 Watershed Urban Runoff Management Program Annual Report for the San Diego River, the Regional Board found that for several of the Watershed Water Quality Activities being implemented, it is "unclear what the connection is between this project and the identified high priority water quality problems in the watershed."[219] Similar findings were also noted during Regional Board review of the 2002-2003 Watershed Urban Runoff Management Program Annual Reports and issuance of corresponding comment letters.

Section E.2.h of the Order requires the Copermittees to evaluate the effectiveness of proposed activities. This will help the Copermittees choose the most effective activities for implementation. Implementation of effective activities is critical to ensure an effective Watershed Urban Runoff Management Program.

Section E.2.i of the Order requires each Copermittee to implement a certain number of Watershed Water Quality Activities annually. In crafting this section of the Order and the Watershed Water Quality Activity definition, the Regional Board sought to obtain a balance between the enforceability of the Order and Copermittee flexibility in implementing the Order.

So that the section is enforceable, it requires each Copermittee to implement a minimum number of Watershed Water Quality Activities which will directly and significantly abate sources and reduce pollutant discharges causing the high priority water quality problems within a watershed.

[219] Regional Board, 2005. Review of Notices of Violation Issued to the San Diego County Copermittees for Watershed Urban Runoff Management Program Implementation.

This requirement provides measurable outcomes for WURMP implementation. WURMP measurable outcomes are needed in the Order because the Regional Board previously found that Copermittee implementation of Watershed Water Quality Activities was inadequate over the course of several years, despite several Regional Board efforts to precipitate improvement. The Regional Board issued comment letters in March 2003, California Water Code section 13267 information request letters in October 2004, and Notices of Violation in June 2005, all in an attempt to improve the Copermittees' implementation of Watershed Water Quality Activities that would effectively reduce discharges of pollutants causing the watersheds' high priority water quality problems. In addition, in a detailed review of the Copermittees' 2003-2004 Watershed Urban Runoff Management Program Annual Reports, the Regional Board found that for most watersheds, the Copermittees' reported "water quality activities" would not result in any significant reduction of pollutant discharges.[220]

Despite these efforts and findings by the Regional Board, the majority of the Copermittees contended as a group that their WURMP implementation was adequate and that they were in compliance with Order No. 2001-01's WURMP requirements. The Copermittees' position exhibits the lack of clarity and unenforceability of Order No. 2001-01's language regarding implementation of Watershed Water Quality Activities. To rectify this situation and ensure that WURMP implementation actually results in pollutant discharge reductions, a requirement for measurable outcomes has been added to the Order in the form of a minimum number of Watershed Water Quality Activities to be implemented which must reduce the discharge of pollutants and abate pollutant sources.

While section J.1.h specifically requires implementation of a measurable number of Watershed Water Quality Activities, the section and the Watershed Water Quality Activity definition also provide significant flexibility to the Copermittees regarding what constitutes a Watershed Water Quality Activity. The bottom line requirements for Watershed Water Quality Activity is that they reduce pollutant discharges causing high priority water quality problems within a watershed and exceed the baseline jurisdictional requirements. Beyond these bottom line requirements, the Copermittees have ample implementation flexibility. For example, both jurisdictional and regional activities in some circumstances can be considered Watershed Water Quality Activities. The same is true for TMDL activities. In addition, Copermittees can implement Watershed Water Quality Activities within their jurisdictions or outside of their jurisdictions; whichever they prefer. Moreover, Copermittees within a watershed can implement different Watershed Water Quality Activities, provided they are part of the watershed Copermittees' larger watershed strategy.

Details regarding what constitutes a Watershed Water Quality Activity are included in the definition section of the Order. The definition was written to clarify the following points:

- A Watershed Water Quality Activity must abate the sources and/or reduce the discharge of pollutants causing high priority water quality problems in the watershed. Activities that do not specifically abate sources and/or reduce pollutant discharges causing high priority water quality problems in a watershed are not Watershed Water Quality Activities.

- Watershed Water Quality Activities must implement an overall watershed strategy collaboratively developed by the Copermittees within a watershed.

[220] Regional Board, 2005. Supplemental Report for Review of Notices of Violation Issued to the San Diego County Copermittees for Watershed Urban Runoff Management Program Implementation. P. 5-14.

- Jurisdictional activities which exceed the baseline jurisdictional requirements may constitute Watershed Water Quality Activities, if they are more protective of water quality than baseline jurisdictional activities. Such activities must specifically abate sources and/or reduce the discharge of pollutants causing high priority water quality problems within a watershed. The jurisdictional activities must be organized and implemented as part of a larger watershed strategy.

- Specific Watershed Water Quality Activities do not need to be implemented watershed-wide, but all Copermittees within a watershed must implement well-coordinated Watershed Water Quality Activities.

- Watershed Water Quality Activities must be new activities; activities that have been conducted for many years without regard for watershed concerns are not Watershed Water Quality Activities. Moreover, as high priority water quality problems within watersheds continue, efforts to implement new and more effective activities are needed.

- Education, public participation, and planning efforts are not Watershed Water Quality Activities.

- Activities that only consist of monitoring are not Watershed Water Quality Activities. There must also be an element of the monitoring program that directly results in the abatement of sources and/or reduction of pollutant discharges causing high priority water quality problems.

This section of the Order also splits the implementation of Watershed Water Quality Activities into two categories. The first category requires implementation on an annual basis. This helps ensure meaningful and consistent implementation and allows for the use of measurable outcomes. The second category recognizes that not all Watershed Water Quality Activities lend themselves to annual implementation. The Copermittees are provided significant flexibility in taking the steps necessary to implement long-term Watershed Water Quality Activities, since no time frame for implementation is dictated.

Sections E.2.j and E.2.k of the Order require development of a list of potential Watershed Education Activities and implementation of a portion of those activities. Specific implementation of Watershed Education Activities in each jurisdiction within a watershed is being required due to the Regional Board's findings that previous Copermittee reporting often has not exhibited implementation of watershed and pollutant specific education activities. Moreover, the Regional Board has found from the Copermittees' reporting that regional education efforts are not always implemented in all watersheds. These findings have been documented in the Regional Board's Watershed Urban Runoff Management Program Annual Report review letters, which were issued in March 2003 and October 2004.

Implementation of Watershed Education Activities has been split into two categories, in order to represent two types of education pertaining to watershed management of urban runoff. During the previous permit cycle, the Copermittees primarily focused on watershed concept-based education activities. These efforts should proceed, but as high priority water quality problems and impairments within watersheds continue, source and pollutant discharge-based education efforts are also needed. The two categories of Watershed Education Activities provided in the Order ensure that both types of watershed education are conducted.

Section E.2.l of the Order includes minor alterations from Order No. 2001-01 which encourage the Copermittees to seek participation in the WURMP process from other potential interested parties. Increased participation in the WURMP process by interested parties can improve support for WURMP implementation, increasing the probability of implementation of effective programs.

Section E.2.m of the Order requires Copermittee collaboration, including frequent regularly scheduled meetings. The requirement for regularly scheduled meetings has been added based on Regional Board findings that watershed groups which hold regularly scheduled meetings (such as for San Diego Bay) typically produced better programs and work products than watershed groups that went for extended periods of time without scheduled meetings (such as San Dieguito and Los Penasquitos). For example, in their 2002-2003 Annual Reports, the San Dieguito and Los Penasquitos watersheds listed implementation of the same watershed activities, despite the fact that the two watersheds have different high priority water quality problems.

F. Regional Urban Runoff Management Program

The following legal authority applies to section F:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

Federal NPDES regulations 40 CFR 122.26(a)(3)(v) states: "Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed, or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas [watersheds] which contribute storm water to the system."

Federal NPDES regulation 40 CFR 122.26(a)(5) states: "The Director may issue permits for municipal separate storm sewers that are designated under paragraph (a)91)(v) of this section on a system-wide basis, a jurisdiction-wide basis, watershed basis, or other appropriate basis."

Federal NPDES regulation 40 CFR 122.26(d)(2)(iv) states: "Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls."

Section F of the Order requires the Copermittees to develop a Regional Urban Runoff Management Program to facilitate Copermittee implementation of urban runoff management activities on a regional level. The requirement has been included in the Order because of the recognition that some aspects of urban runoff management can be effectively addressed at a regional level. Residential education and implementation of TMDLs covering multiple watersheds are examples of urban runoff issues which can be addressed regionally, since the scope of these issues are not limited to particular jurisdictions or watersheds. Such regional implementation provides opportunities for improved efficiency and utilization of economies of scale.

The Copermittees' ROWD identifies regional urban runoff management as an important aspect of their programs.[221] This requirement for the development of a regional urban runoff management program provides organization and structure for both the Copermittees and Regional Board to track regional efforts. The requirements include continuation of existing regional efforts and identify additional areas for regional implementation. However, significant flexibility has been provided to the Copermittees for new regional requirements. Typically, implementation of such regional requirements is required only where it is determined to be necessary by the Copermittees.

G. Fiscal Analysis

The following legal authority applies to section G:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(vi) provides that "[The Copermittee must submit] for each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs (d)(2)(iii) and (iv) of this section. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds."

Section G has been expanded to achieve better consistency between the Copermittees in reporting budget and expenditure information. The section also requires clarification regarding which expenditures are solely attributable to the urban runoff program, as opposed to those expenditures which are also partially attributable to other programs (such as trash collection and street sweeping). Consistency and clarification of fiscal information are valuable for assessing program effectiveness and adapting programs to help ensure that they are efficient and effective, which is one important purpose of the fiscal analysis.

This section also requires the Copermittees to develop and use a metric for fiscal analysis reporting. This provides standardization of reporting so that figures between Copermittees are comparable, which is one of many types of information which can be used by the Regional Board to better understand Copermittee program implementation. Standardization and comparison of fiscal analysis reporting is supported by the State Board funded NPDES Stormwater Cost Survey, which finds that "standards for reporting costs and stormwater activities are needed to allow accurate cost comparisons to be made between stormwater activities."[222] This document also provides guidance regarding categorization of expenditures for tracking and reporting.

H. Total Maximum Daily Loads

The following legal authority applies to section H:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

[221] San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-12.
[222] Currier, et al., 2005. NPDES Storm Water Cost Survey Final Report. Prepared for California State Water Resources Control Board by Office of Water Programs, California State University, Sacramento. P. 63.

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.44(d)(1) requires municipal storm water permits to include any requirements necessary to "[a]cheive water quality standards established under section 303 of the CWA, including State narrative criteria for water quality."

Federal NPDES regulation 40 CFR 122.44(d)(1)(i) requires NPDES permits to include limitations to "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Section H of the Order incorporates the two TMDLs that have been fully approved and are effective for the Copermittees. These TMDLs are for diazinon in Chollas Creek and for dissolved copper in SIYB.

Where a TMDL has been approved, NPDES permits must contain effluent limitations and conditions consistent with the requirements and assumptions in the TMDL.[223] Effluent limitations are generally expressed in numerical form. However, USEPA recommends that for NPDES-regulated municipal and small construction storm water discharges, effluent limitations should be expressed as best management practices or other similar requirements rather than as numeric effluent limitations.[224] Consistent with USEPA's recommendation, this section implements WQBELs expressed as an iterative BMP approach capable of meeting the WLAs in accordance with the associated compliance schedule. The Order's WQBELs include the numeric WLA as a performance standard and not as an effluent limitation. The WLA can be used to assess if additional BMPs are needed to achieve the TMDL Numeric Target in the waterbody.

Section H.1.a requires the Copermittees to implement BMPs capable of achieving the WLAs for diazinon in the storm drains in accordance with the Compliance Schedule. This requirement is consistent with the USEPA memorandum dated November 22, 2002, which states that NPDES permit conditions must be consistent with the assumptions and requirements of available WLAs.[225]

Section H.1.b requires that the Copermittees not cause or contribute to violations of the Interim TMDL Numeric Targets for diazinon in Chollas Creek. This requirement is necessary to ensure the effectiveness of the BMPs. The BMPs for diazinon control consist primarily of a phase out of the legal uses of diazinon and education and public outreach. Due to the difficulty in measuring the effectiveness of these BMPs directly, an indirect assessment method is necessary in the form of a receiving water limit.

Section H.1.c requires the Copermittees to implement the Diazinon Toxicity Control Plan and Diazinon Public Outreach / Education Program as described in the report titled, *Technical Report for Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County*, August 14, 2002, to achieve the WLA. These BMPs are expected to be effective based on the current monitoring in Chollas Creek which shows dramatically decreasing levels of diazinon in the water column.[226]

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[223] 40 CFR 122.44(d)(1)(vii)(B)
[224] USEPA, 2002. Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs. P. 4.
[225] Ibid.
[226] Chollas Creek Copermittees, 2006. Response to Monitoring in Chollas Creek, Investigation Order No. R9-2004-0277, Proposition 13, PRISM Grant Agreement No. 04-17-559-0, San Diego Region, Integrated Pest Management

Compliance with Section H.1.a and c will be assessed with the WURMP annual reports, which will include a description of all TMDL activities implemented in the watershed and an effectiveness assessment of those activities. Compliance with Section H.1.b will be assessed using the monitoring data collected pursuant to the existing Investigation Order No. R9-2004-0277, *California Department of Transportation and San Diego Municipal Separate Storm Sewer System Copermittees Responsible for the discharge of Diazinon in the Chollas Creek Watershed, San Diego, California* (Investigation Order). This Investigation Order requires water column samples to be collected at two locations and analyzed for diazinon during three storms annually. Water column samples will also be analyzed for total and dissolved copper, lead, and zinc, and hardness. Acute and chronic toxicity tests will be conducted using the water flea for samples from each of these storm events at these two locations. Concentrations of diazinon in sediment at three locations will also be evaluated.

The diazinon water column values obtained from the Investigation Order R9-2004-0277 sampling will be compared with the Interim TMDL Numeric Target adjusted for the time schedule as shown below:

Calendar Year	Year	Waste Load Allocation	Interim TMDL Numeric Target	% Reduction
2004	1	0.460 µg/L	0.5 µg/L	0
2005	2	0.460 µg/L	0.5 µg/L	0
2006	3	0.460 µg/L	0.5 µg/L	0
2007	4	0.414 µg/L	0.45 µg/L	10
2008	5	0.322 µg/L	0.35 µg/L	20
2009	6	0.184 µg/L	0.20 µg/L	30
2010	7	0.045 µg/L	0.05 µg/L	30

Chollas Creek Diazinon TMDL - Background

Chollas Creek was placed on the CWA section 303(d) List of Water Quality Limited Segments (303(d) List) in 1996 for toxicity. The pesticide diazinon was found to be causing the toxicity. The Regional Board has established a TMDL for diazinon to address the toxicity as required by the CWA for water quality limited segments at the August 14, 2002 Regional Board meeting. The State Water Resources Control Board approved the TMDL on July 16, 2003. The Office of Administrative Law approved the TMDL on September 11, 2003. USEPA approved the TMDL on November 3, 2003. Documentation for the Chollas Creek Diazinon TMDL is in the report titled, "Technical Report for Total Maximum Daily Load for Diazinon in Chollas Creek Watershed, San Diego County, August 14, 2002."

The Chollas Creek diazinon TMDL is a concentration based TMDL determined from the CDFG's Water Quality Criteria (WQC) for the protection of freshwater aquatic organisms from diazinon. Using a margin of safety (MOS) of 10%, the TMDL is equal the WLA plus the MOS. The TMDL Numeric Targets and WLA derived from the CDFG WQC are shown in the table below.

(IPM) Education and Outreach Program, 2004-2005 Water and Sediment Quality Monitoring Data Summary for Chollas Creek. P. 48, Figure 4-2.

TMDL Numeric Targets and Waste Load Allocation for Diazinon Acute and Chronic Conditions

Exposure Duration	TMDL Numeric Targets	Margin of Safety	Waste Load and Load Allocations
Acute	0.08 µg/L	0.008 µg/L	0.072 µg/L
Chronic	0.05 µg/L	0.005 µg/L	0.045 µg/L

A compliance schedule for achieving the WLAs was established by the Regional Board Executive Officer on September 30, 2004. This compliance schedule uses an exponential approach to reduction that involves an increasing percent reduction over a 7-year period to meet the objectives. This percent reduction established for WLA in the September 2004 compliance schedule was used to calculate the Interim TMDL Numeric Targets shown in the table below:

Compliance Schedule for Diazinon TMDL Implementation

Calendar Year	Year	Waste Load Allocation	Interim TMDL Numeric Target	% Reduction
2004	1	0.460 µg/L	0.5 µg/L	0
2005	2	0.460 µg/L	0.5 µg/L	0
2006	3	0.460 µg/L	0.5 µg/L	0
2007	4	0.414 µg/L	0.45 µg/L	10
2008	5	0.322 µg/L	0.35 µg/L	20
2009	6	0.184 µg/L	0.20 µg/L	30
2010	7	0.045 µg/L	0.05 µg/L	30

The WLAs shall not be exceeded more than 1 time in any 3-year period. Season and flow conditions will not be a consideration.

Section H.2.a requires the Copermittees in the SIYB watershed to implement BMPs to maintain a total annual copper load of less than or equal to 30 kg copper/year.

Section H.2.b requires the Copermittees in the SIYB watershed to implement, at a minimum, the BMPs contained in the Copermittees' JURMP which address the discharge of copper to achieve the total annual copper load in Section H.2.a above. The WLA was established to maintain the current discharge level of 30 kg copper/year which leads to the conclusion that the current BMPs being implemented in the Copermittees' JURMP will be effective in maintaining this discharge level. Compliance with these requirements will be assessed by re-evaluating the data and assumptions used to estimate the WLA to SIYB of 30 kg copper/year. The Copermittees will be required to evaluate if any changes have occurred in the watershed which could cause or contribute to a higher copper urban runoff discharge and any actions necessary to address these changes. Because the original WLA for municipalities in SIYB was calculated using land use data, drainage area size, event mean concentration and modeling with no actual water quality samples, it is appropriate to use the same or similar method to assess compliance.

SIYB Copper TMDL - Background

SIYB is a popular recreational marina located at the north end of San Diego Bay. It is a semi-enclosed marina that supports a high density of recreational vessels in an area of low tidal flushing. The SIYB watershed is within the City of San Diego. SIYB was placed on the CWA Section 303(d) List of Water Quality Limited Segments (303(d) List) in 1996 due to high concentrations of dissolved copper. The Regional Board has established a TMDL for dissolved copper in SIYB as required by the CWA at the February 9, 2005 Regional Board meeting. The SWRCB approved resolution R9-2005-0019 on September 22, 2005. The Office of Administrative Law approved the TMDL on December 2, 2006 and Resolution R9-2005-0019

has been forwarded to USEPA for final review and approval. Documentation for the SIYB Copper TMDL is included in the report titled, "Total Maximum Daily Load for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay, Technical Report, February 9, 2005."

The existing dissolved copper load from urban runoff to SIYB was estimated to be roughly 30 kg copper/year or 1% of total loading. Due to the relatively insignificant magnitude of the contribution of dissolved copper from urban runoff, no reductions were assigned to urban runoff and the WLA was assigned the existing 30 kg copper/year. The Basin Plan has been amended to include the following "The Regional Board will amend Order No. 2001-01, *Waste Discharge Requirements for Discharges of Urban Runoff from the Municipal Separate Storm /Sewer Systems* to require that discharges of copper into Shelter Island Yacht Basin waters via the City of San Diego's MS4 not exceed a 30 kg/year wasteload for copper."[227]

The WLA for urban runoff was estimated using land use data, drainage area size, event mean concentration for copper in residential areas. This information and assumptions such as wet weather copper concentrations equal dry weather concentrations were used to estimate the WLA of 30 kg copper/year. Once during the permit cycle, the Copermittees will evaluate the data and assumptions used in estimating the WLA to ensure that nothing has changed which could result in a higher copper discharge.

I. Program Effectiveness Assessment

The following legal authority applies to section I:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(v) provides that the Copermittees must include "Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water." Under Federal NPDES regulation 40 CFR 122.42(c) applicants must provide annual reports on the progress of their storm water management programs.

Section I.1.a of the Order requires the Copermittees to assess the effectiveness of the implementation of their jurisdictional programs and activities. The section requires both specific activities and broader programs to be assessed since the effectiveness of jurisdictional efforts may be evident only when considered at different scales. The effectiveness assessment requirements incorporate the approaches developed by the Copermittees in their October 16, 2003 "Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs," including use of "outcome levels" and "major effectiveness assessment elements."

In their ROWD, the Copermittees request that use of particular outcome levels not be required for assessing the effectiveness of specific activities implemented by the Copermittees. Because many of the techniques for using the various outcome levels are still in development, the conditions under which each outcome level must be used is not specified in the Order. However,

[227]Regional Board, 2005. Attachment A to Resolution No. R9-2005-0019, Amendment to the Water Quality Control Plan for the San Diego Region to Incorporate a Total Maximum Daily Load for Dissolved Copper in Shelter Island Yacht Basin, San Diego Bay. P. 5.

during review of the Copermittees' annual reports, the Regional Board has frequently needed to request that the Copermittees improve their effectiveness assessments and utilize the various assessment methods that are available. Moreover, half of the Copermittees audited were found to have inadequate effectiveness assessments which frequently lacked use of measurable goals. For these reasons, the Order contains language requiring the Copermittees to utilize the various outcome levels "where applicable and feasible." This will help ensure that the Copermittees vigorously use outcome levels, while also providing the Copermittees with flexibility to develop techniques to use outcome levels where such techniques do not currently exist.

The Copermittees also request in their ROWD that they not be responsible for assessment of the impact of their jurisdictional programs on pollutant load reductions, urban runoff water quality, and receiving water quality (outcome levels 4-6). This request slights the overall goal of the Copermittees' jurisdictional programs, which is to reduce discharged pollutants loads and improve water quality. A link between the Copermittees' jurisdictional programs and improved urban runoff and receiving water conditions must be made whenever adequate information exists. This can help validate current efforts, which is essential for maintaining program support, while also guiding future efforts.

Assessments of jurisdictional programs on water quality have been conducted by Copermittees in the past and have been useful. For example, the City of Encinitas reports decreasing bacteria levels in commercial areas following increased inspections of commercial facilities. The City also reports similar results in residential areas following increased residential education efforts.[228] Such information provides very useful feedback to the Copermittees, since the results are specific and localized. The results provide direct evidence of program impact which may otherwise be missed by assessments conducted at a watershed level. Program assessment capable of linking jurisdictional programs and water quality improvements is an important tool that can exhibit to program managers, decision makers, and the public that jurisdictional urban runoff management program efforts are worthwhile and should continue. For these reasons, the Order requires the Copermittees to assess the impact of their jurisdictional program on pollutant load reductions and water quality, where applicable and feasible.

Section I.1.b of the Order requires the Copermittees improve jurisdictional activities or BMPs when they are found to be ineffective or when water quality impairments are continuing. This requirement fulfills the purpose of conducting effectiveness assessments – to improve and refine the Copermittees' programs. The requirement is consistent with USEPA's Phase II regulations, which state: "If the permittee determines that its original combination of BMPs are not adequate to achieve the objectives of the municipal program, the MS4 should revise its program to implement BMPs that are adequate […]."[229]

Section I.2.a of the Order requires the Copermittees to assess the effectiveness of the implementation of their watershed programs and activities. The section requires both specific activities and broader programs to be assessed since the effectiveness of watershed efforts may be evident only when considered at different scales. The effectiveness assessment requirements incorporate the approaches developed by the Copermittees in their October 16, 2003 "Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs," including use of "outcome levels" and major effectiveness assessment elements.

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[228] City of Encinitas, 2006. Jurisdictional Urban Runoff Management Program Annual Report FY 2004-2005. P. 11-9.
[229] Federal Register / Vol. 64, No. 235 / Wednesday, December 8, 1999 / Rules and Regulations. P. 68762.

As with the jurisdictional assessments discussed for section I.1.a, the Order contains language requiring the Copermittees to utilize outcome levels 1-4 for assessment "where applicable and feasible." This will help ensure that the Copermittees vigorously use the outcome levels, while also providing the Copermittees with flexibility to develop techniques to use outcome levels where such techniques do not currently exist. The section also places particular focus on the Copermittees' utilization of outcome levels 5 and 6, which address urban runoff and receiving water quality. Since the entire thrust of the watershed urban runoff management programs is to improve the high priority water quality problems within the various watersheds, use of outcome levels 5 and 6 is needed to assess the effectiveness of the watershed urban runoff management programs. After 15 years of implementation of the storm water program in San Diego County, impact of the program on water quality must be assessed. Without such assessments, it will not be known whether the watershed urban runoff management programs are achieving their purpose. The Copermittees' receiving waters monitoring program, which is watershed-based, is expected to provide the Copermittees with information to conduct these assessments.

Section I.2.b of the Order includes requirements for modification of watershed activities similar to those for modification of jurisdictional activities discussed in section I.1.b. Please see the section I.1.b discussion for further information.

Section I.3.a of the Order requires the Copermittees to assess the effectiveness of their regional activities and programs in a manner similar to the assessment requirements discussed for section I.1.a and I.2.a. Please see the discussions for these sections for further information. Section I.3.a also requires the Copermittees to evaluate their progress in implementing measures on a regional basis. These evaluations are needed to track the Copermittees' progress towards meeting their goals and objectives for regional urban runoff management.

Section I.4 (TMDL BMP Implementation Plan) requires the Copermittees to assess the effectiveness of their TMDL BMP Implementation Plans or equivalent plans in a manner similar to the assessment of the effectiveness of the watershed urban runoff management programs. This is appropriate, since implementation of TMDL BMP Implementation Plans is similar to implementation of watershed urban runoff management programs.

Section I.5 (Long-Term Effectiveness Assessment) requires the Copermittees to conduct a Long-Term Effectiveness Assessment prior to their submittal of an application for reissuance of the Order. The Long-Term Effectiveness Assessment is necessary to provide support for the Copermittees' proposed changes to their programs in their ROWD. It can also serve as the basis for changes to the Order's requirements. The Copermittees recommend that the Order include a requirement for development of a Long-Term Effectiveness Assessment in their ROWD.[230]

J. Reporting

The following legal authority applies to section J:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that "The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part

[230] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-82.

must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation."

California Water Code section 13267 provides that "the regional board may require than any person who has discharged […] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires."

Section J.1 (Jurisdictional Urban Runoff Management Plans) outlines the information to be included in the Copermittees' JURMPs. It utilizes an approach similar to the approach used in Order No. 2001-01. The information to be included in the JURMP is listed in detail in Attachment D. Significant detail is included in the Order regarding what information should be in the JURMPs in order to provide certainty to the Copermittees when they develop and submit their JURMPs. By providing detail for what information should be included in the JURMP, time spent by the Copermittees and Regional Board on JURMP reporting, review, comment, and response is expected to be reduced.

It is important to note that in many cases, the requirements of the Order should not necessitate a complete rewrite of the JURMPs. Only sections of the Order which are new or have been significantly changed should warrant rewriting of JURMP sections. The Regional Board plans to work with the Copermittees and provide guidance regarding where JURMPs must be updated in accordance with the Order. This will help ensure that rewriting, reporting, and review efforts are minimized.

Sections J.2 and J.3 (Watershed and Regional Urban Runoff Management Plans) include requirements for information to be included in the WURMPs and RURMP that are similar in scope to the requirements for information to be included in the JURMPs (section J.1). Please see the discussion for section J.1 for further information.

Section J.4 (Hydromodification Plan) requires various submittals during the development of the HMP. These submittals are necessary to provide both the Copermittees and the Regional Board the opportunity to review progress being made on the HMP. Frequent review of the HMP as it develops is needed due to the complex nature of the issues the HMP will address. The HMP submittal process included in the Order is based on a successful HMP submittal process previously implemented in the San Francisco Bay Area.

The final HMP requires approval by the Regional Board. Final approval by the Regional Board is necessary because the HMP requirements are new and relatively complex. Full vetting of the HMP before the Regional Board will provide all interested parties the opportunity to participate on HMP development and help ensure a workable end product for the interested parties.

Section J.6 (Report of Waste Discharge) requires submittal of a ROWD prior to the expiration of the Order. The section identifies the minimum information to be included in the ROWD, based

on USEPA's May 17, 1996 guidance "Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems."

K. Modifications of Programs

The following legal authority applies to section K:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Section K of the Order provides a process for the Copermittees to modify their urban runoff management programs. This process will be useful so that the Copermittees can continue to refine and improve their programs based on the findings of their annual program effectiveness assessments. The process allows for minor modifications to the Copermittees' programs where the Copermittees can exhibit that the modifications meet or exceed existing legal requirements under the Order. Such a process avoids lengthy and time consuming formal approvals of proposed modifications before the Regional Board, while still ensuring compliance with applicable legal standards and the Order. The Copermittees requested inclusion of a process in the Order to allow for minor modifications to their urban runoff management programs in their ROWD.[231] The process included in the Order is based on a process utilized by the San Francisco Bay Area Regional Water Quality Control Board in their MS4 permit for Alameda County.[232]

L. All Copermittee Collaboration

The following legal authority applies to section L:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

No significant changes were made to this section.

M. Principal Permittee Responsibilities

The following legal authority applies to section M:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.26(a)(3)(iii)(C) provides that "A regional authority may be responsible for submitting a permit application."

Federal NPDES regulation 40 CFR 122.26(d)(2)(i)(D) provides that "[The Copermittee must demonstrate that it can control] through interagency agreements among coapplicants the

[231] San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-10.
[232] San Francisco Bay Area Regional Water Quality Control Board, 2003. Order No. R2-2003-0021. P. 45.

contribution of pollutants from one portion of the municipal system to another portion of the municipal system."

No significant changes were made to this section.

N. Receiving Waters Monitoring and Reporting Program

The following legal authority applies to section N:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii).

See section V of this Fact Sheet/Technical Report for a discussion of changes to the Receiving Waters Monitoring and Reporting Program.

O. Standard Provisions, Reporting Requirements, and Notifications

The following legal authority applies to section O:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

Section O.2 of the Order has been changed to remove the statement that all plans and reports submitted in compliance with the Order are an enforceable part of the Order. This statement has been removed because it is unnecessary. The Order itself contains sufficient detailed requirements to ensure that compliance with discharge prohibitions, receiving water limits, and the narrative standard of MEP are achieved. Implementation by the Copermittees of programs in compliance with the Order's requirements, prohibitions, and receiving water limits is the pertinent compliance standard to be used under the Order, as opposed to assessing compliance by reviewing the Copermittees' implementation of their plans alone.

Rather than being substantive components of the Order itself, the Copermittees' urban runoff management plans are simply descriptions of their urban runoff management programs required under the Order. These plans serve as procedural correspondence which guides program implementation and aids the Copermittees and Regional Board in tracking implementation of the programs. In this manner, the plans are not functional equivalents of the Order. For these reasons, the Copermittees' urban runoff management plans need not be an enforceable part of the Order.

P. Attachment A

The following legal authority applies to Attachment A:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code Section 13243 provides that "A regional board, in a water quality control plan or in waste discharge requirements, may specify certain conditions or areas where the discharge of waste, or certain types of waste, will not be permitted."

California Water Code Section 13263(a) provides that waste discharge requirements prescribed by the SDRWQCB implement the Basin Plan.

No significant changes were made to this attachment.

Q. Attachment B

The following legal authority applies to Attachment B:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Standard provisions, reporting requirements, and notifications are consistent to all NPDES permits and are generally found in Federal NPDES regulation 40 CFR 122.41.

Attachment B includes Standard Provisions which have been developed by the SWRCB. These Standard Provisions ensure that NPDES permits are consistent and compatible with USEPA's federal regulations. Some Standard Provisions sections specific to publicly owned sewage treatment works are not included in Attachment B.

R. Attachment C

The following legal authority applies to Attachment C:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Attachment C contains definitions for new terms found in the Order. In addition, definitions for terms previously defined in Order No. 2001-01 Attachment D, but which are not found in the current Order, have been deleted.

S. Attachment D

The following legal authority applies to Attachment D:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: California Water Code section 13267 provides that "the regional board may require than any person who has discharged […] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires."

Please see the discussion for section J.1 for further information.

T. Attachment E

The following legal authority applies to Attachment E:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that "The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation."

California Water Code section 13267 provides that "the regional board may require than any person who has discharged […] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires."

Attachment E to the Order outlines the information to be included in the Copermittees' Jurisdictional Urban Runoff Management Program Annual Reports. Significant detail is included in the attachment regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

U. Attachment F

The following legal authority applies to Attachment F:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Federal NPDES regulation 40 CFR 122.42(c) requires that "The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under §

122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation."

California Water Code section 13267 provides that "the regional board may require than any person who has discharged […] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires."

Attachment F to the Order provides a table summary of scheduled submittals required by the Order. Unscheduled submittals are no longer added to the table, since there is no proper due date for such submittals. A task summary has not been created for the Order, since the previous task summary was found to be redundant, repeating information found in the submittal summary and elsewhere in the Order.

V. Receiving Waters Monitoring and Urban Runoff Reporting Program

The following legal authority applies to the Receiving Waters Monitoring and Urban Runoff Reporting Program:

Broad Legal Authority: CWA sections 402(p)(3)(B)(ii-iii), CWC section 13377, and Federal NPDES regulations 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv).

Specific Legal Authority: Copermittees must conduct a comprehensive monitoring program as required under Federal NPDES regulations 40 CFR 122.26(d)(2)(iii).

Federal NPDES regulation 40 CFR 122.42(c) requires that "The operator of a large or medium municipal separate storm sewer system or a municipal separate storm sewer system that has been designated by the director under § 122.26(a)(1)(v) of this part must submit an annual report by the anniversary of the date of the issuance of the permit for such system. The report shall include: (1) The status of implementing the components of the storm water management program that are established as permit conditions; (2) Proposed changes to the storm water management program that are established as permit condition. Such proposed changes shall be consistent with § 122.26(d)(2)(iii) of this part; (3) Revisions, if necessary, to the assessment of controls and the fiscal analysis reported in the permit application under § 122.26(d)(2)(iv) and (d)(2)(v) of this part; (4) A summary of data, including monitoring data, that is accumulated throughout the reporting year; (5) Annual expenditures and budget for year following each annual report; (6) A summary describing the number and nature of enforcement actions, inspections, and public education programs; (7) Identification of water quality improvements or degradation."

California Water Code section 13267 provides that "the regional board may require than any person who has discharged […] shall furnish, under penalty of perjury, technical or monitoring reports which the regional board requires."

1. Purpose

According to USEPA, the benefits of sampling data include, but are not limited to:

1. Providing a means for evaluating the environmental risk of storm water discharges by identifying types and amounts of pollutants present;

2. Determining the relative potential for storm water discharges to contribute to water quality impacts or water quality standard violations;
3. Identifying potential sources of pollutants; and
4. Eliminating or controlling identified sources more specifically through permit conditions.[233]

Equally important, monitoring programs are an essential link in the improvement of urban runoff management efforts. Data collected from monitoring programs can be assessed to determine the effectiveness of management programs and practices, which is vital for the success of the iterative approach used to meet the MEP standard. Specifically, when data indicates that a particular BMP or program component is not effective, improved efforts can be selected and implemented. Also, when water quality data indicate that water quality standards or objectives are being exceeded, particular pollutants, sources, and drainage areas can be identified and targeted for specific urban runoff management efforts.

Considering the benefits described above, the Receiving Waters Monitoring and Reporting Program (MRP) has been designed to determine impacts to receiving water quality and beneficial uses from urban runoff and to use the results to refine the Copermittees' urban runoff management programs for the reduction of pollutant loadings to the MEP. The primary goals of the MRP include:

1. Assess compliance with Order No. R9-2007-0001;
2. Measure and improve the effectiveness of the Copermittees' urban runoff management programs;
3. Assess the chemical, physical, and biological impacts of receiving waters from urban runoff;
4. Characterize urban runoff discharges;
5. Identify sources of specific pollutants;
6. Prioritize drainage and sub-drainage areas that need management actions;
7. Detect and eliminate illicit discharges and illicit connections to the MS4; and
8. Assess the overall health of receiving waters.

Each of the components of the MRP is necessary to meet the objectives listed above. In addition, the MRP has been designed in accordance with the guidance provided by the Southern California Stormwater Monitoring Coalition's Model Monitoring Technical Committee in its August 2004 "Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California." This guidance document was developed in response to Senate Bill 72 (Kuehl), which addressed the standardization of sampling and analysis protocols in municipal stormwater monitoring programs. The technical committee which developed the guidance included representatives from Southern California Regional Water Quality Control Boards (including San Diego), municipal storm water permittees (including the County of San Diego), Heal the Bay, and the Southern California Coastal Water Research Project.

As its title suggests, the guidance essentially developed a model municipal storm water monitoring program for use in Southern California. The model program is structured around five fundamental management questions, outlined below. The MRP is designed as an iterative step towards ensuring that the Copermittees' monitoring program can fully answer each of the five management questions.

[233] USEPA, 1992. NPDES Storm Water Sampling Guidance Document. EPA/833-B-92-001.

1. Are conditions in receiving waters protective, or likely to be protective, of beneficial uses?
2. What is the extent and magnitude of the current or potential receiving water problems?
3. What is the relative urban runoff contribution to the receiving water problem(s)?
4. What are the sources of urban runoff that contribute to receiving water problem(s)?
5. Are conditions in receiving waters getting better or worse?

The justifications for each component of the monitoring program are discussed below.

2. Monitoring Program

Summary of Order No. 2001-01 Monitoring Program and Results

The Copermittees' monitoring under Order No. 2001-01 includes several components: (a) wet weather mass loading station monitoring (including toxicity monitoring); (b) bioassessment monitoring; (c) dry weather field screening and analytical monitoring; (d) coastal storm drain monitoring; and (e) ambient bay and lagoon monitoring. Each of these is briefly summarized below with recent results briefly discussed. The Copermittees' most recent monitoring report is available at:

http://www.projectcleanwater.org/html/wg_monitoring_04-05report.html.

Wet Weather Mass Loading Station Monitoring

The Copermittees' wet weather mass loading station monitoring consists of water quality monitoring during three storm events annually within the main drainage at the base of each major watershed in San Diego County. There are currently 11 wet weather mass loading stations throughout San Diego County, where various constituents of concern, bacterial indicators, and toxicological impacts are measured. Using data collected from the wet weather mass loading stations, persistent wet weather constituents of concern have been identified by the Copermittees in their Baseline Long-Term Effectiveness Assessment document. Persistent wet weather constituents of concern are generally those constituents which have concentrations which persistently exceed water quality objectives. Increasing and decreasing trends in constituent concentrations have also been identified by the Copermittees.

Mass Loading Station Persistent Wet Weather Constituents and Trends[234]

Mass Loading Stations	Persistent Wet Weather Constituents of Concern	Significant Trends Observed
Santa Margarita	Fecal Coliform Total Suspended Solids Turbidity	
San Luis Rey	Total Dissolved Solids	
Agua Hedionda	Fecal Coliform Total Dissolved Solids Total Suspended Solids Turbidity	Increasing chemical oxygen demand Increasing total kjeldahl nitrogen Increasing total phosphorus Increasing total suspended solids Increasing turbidity
Escondido Creek	Fecal Coliform Total Dissolved Solids Turbidity	

[234] San Diego County Copermittees, 2005. Baseline Long-Term Effectiveness Assessment.

San Dieguito River	Total Dissolved Solids	
Penasquitos River	Total Dissolved Solids	
Tecolote Creek	Fecal Coliform Turbidity Diazinon	Increasing arsenic (still below water quality objective) Decreasing total suspended solids Decreasing total zinc
San Diego River	Fecal Coliform	
Chollas Creek	Fecal Coliform Total Suspended Solids Turbidity Diazinon Copper Zinc Toxicity (Ceriodaphnia and Hyalella)	Increasing nitrate Increasing lead Decreasing total suspended solids Decreasing total dissolved solids Decreasing nickel
Sweetwater River	Total Dissolved Solids Fecal Coliform Diazinon	
Tijuana River	Fecal Coliform Ammonia Biochemical Oxygen Demand Chemical Oxygen Demand Total Phosphorus Total Suspended Solids Turbidity Chlorpyrifos Diazinon Malathion Toxicity (Ceriodaphnia)	

Bioassessment Monitoring

Bioassessment monitoring is conducted to provide site-specific information about the health and diversity of freshwater benthic communities within a specific reach of a creek. It consists of collecting samples of the benthic communities during dry weather and conducting a taxonomic identification to measure community abundance and diversity. Benthic community abundance and diversity is then compared to a reference creek to assess benthic community health. Under Order No. 2001-01, the Copermittees are required to conduct bioassessment monitoring on 23 stream reaches. The results from the Copermittees' bioassessment monitoring demonstrate that the beneficial uses of urban streams are being adversely impacted by urban runoff. The San Luis Rey, Carlsbad, San Dieguito, Penasquitos, Mission Bay, San Diego River, San Diego Bay, and Tijuana River watersheds all had Poor to Very Poor Index of Biotic Integrity ratings.[235]

Dry Weather Field Screening and Analytical Monitoring

The Copermittees conduct dry weather field screening and analytical monitoring throughout their jurisdictions at various locations within their MS4s. While a principal purpose of the dry weather field screening and analytical monitoring is to identify illicit discharges and/or connections to the MS4, the data gathered also provides useful information regarding water quality within the Copermittees' MS4s during dry weather conditions. Data from dry weather field screening and

[235] San Diego County Municipal Copermittees, 2005. 2004-2005 Urban Runoff Monitoring Final Report. Executive Summary.

analytical monitoring is often used effectively to identify and abate illicit discharges, but it also indicates high levels of pollutants in the Copermittees' MS4s. The number of exceedances of water quality criteria for various constituents at dry weather field screening and analytical monitoring sites frequently exceeds the number monitoring site visits conducted.[236]

Coastal Storm Drain Monitoring

Coastal storm drain monitoring involves monitoring discharges from coastal storm drains and nearby receiving waters for bacterial indicators. Approximately 59 coastal storm drains are monitored year round on a weekly or monthly basis, depending on the season. For samples collected in receiving waters, total coliform, fecal coliform, and Enterococcus water quality standards were exceeded at a rate of 2.0%, 1.7%, and 4.4% respectively in 2003-2004. Counts of bacterial indicators in samples collected from coastal storm drain discharges greatly exceeded those of samples collected in receiving waters, but were not reported in relation to water quality standards.[237]

Ambient Bay and Lagoon Monitoring

To monitor ambient bay and lagoon conditions, the Copermittees focus on assessing bay and lagoon sediments where contaminants are most likely to be found. Monitoring is conducted in twelve coastal embayments for various constituents, toxicity, and benthic infauna. Most of the embayments monitored were found to contain toxic elements in their sediment. However, this monitoring did occur in embayment areas targeted because of their likelihood to contain contaminated sediment, essentially representing worst-case scenarios.[238]

Mass Loading Station Monitoring

Section II.A.1 of the MRP requires mass loading and toxicity monitoring at monitoring stations located at the bottom of major watersheds within San Diego County. The mass loading monitoring will provide data representing event mean concentrations of pollutants, total pollutant loadings, and toxicity conditions from specific drainage areas. Mass loading monitoring stations are recommended by the Model Monitoring Technical Committee in order to answer management questions 1, 2, and 5.[239] The stations are also expected to contribute towards meeting MRP goals 1, 2, 3, 4, 6, and 8. The mass loading station monitoring included in the MRP is the same as the mass loading station monitoring proposed by the Copermittees in their ROWD.[240]

Sections II.A.1.a and II.A.1.b of the MRP identify the location of the mass loading stations and the frequency of the monitoring to be conducted at the mass loading stations. The locations of the stations are identical to the locations utilized under Order No. 2001-01, and match the locations proposed by the Copermittees in their ROWD.[241] These locations provide substantial coverage of the major watersheds within the San Diego Region portion of San Diego County.

The frequency of monitoring at the mass loading stations has been changed from monitoring each station for three wet weather events every year to monitoring each station for two wet weather

[236] Ibid. Sections 4-12.
[237] Ibid. Attachment A.
[238] Ibid. Executive Summary.
[239] Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Chapter 5.
[240] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 9.
[241] Ibid. Attachment 3, p. 9.

and two dry weather monitoring events every other year. While this is an overall reduced frequency of monitoring at the mass loading stations, it is replaced by the addition of new monitoring stations to be located in the upper watersheds (called temporary watershed assessment stations). The new information generated from the temporary watershed assessment stations, as well as from new monitoring of dry weather events, offsets the reduced amount of information gathered at mass loading stations resulting from the monitoring of fewer wet weather events.

In their ROWD, the Copermittees statistically compared the Order No. 2001-01 monitoring program with the proposed program in order to determine any loss in the ability to observe trends resulting from the reduced wet weather monitoring frequency. The Copermittees' statistical assessments utilized empirical data from the existing monitoring program and used existing trends to predict or model the future data sets to estimate when water quality objectives would be reached assuming that current trends continue. The Copermittees found that "depending upon the current rate of decrease in observed concentration and variability of constituents, the ability to observe trends will not change significantly with the recommended program."[242] Using an example worst case scenario of a data exhibiting a non-significant downward trend (copper in Tecolote Creek), it was estimated that the frequency of monitoring conducted under Order No. 2001-01 would not exhibit concentrations below the water quality objective with 95% confidence for 18 years. Using the frequency of monitoring included in the MRP, however, it would take 22 years to see the same results - a relatively modest increase. The Copermittees further considered the ability to identify statistically significant differences between watersheds or between years when data from only two wet weather events is collected, as opposed to three events. Again, the Copermittees found that results are similar whether two wet weather events or three are monitored.[243]

While the reduction in the frequency of monitoring of wet weather events will certainly impact the ability to observe statistically significant trends and differences to some extent, the new MRP will advance the understanding of conditions in San Diego County watersheds. Segmenting the watershed and adding new temporary watershed assessment stations will provide additional watershed information relative to magnitude and extent, as well as increased spatial coverage to focus management efforts. Moreover, the MRP provides a more comprehensive temporal view of the watershed with the addition of dry weather monitoring, which will improve the Copermittees' ability to complete the pollutant loading picture.[244]

Sections II.A.1.c-f of the MRP include requirements that standard sampling and analysis protocols are followed by the Copermittees during monitoring. These are generally the same requirements included in Order No. 2001-01.

Section II.A.1.g of the MRP lists the constituents to be monitored at mass loading stations and temporary watershed assessment stations. These constituents have not changed from the constituents monitored under Order No. 2001-01.

Section II.A.1.h of the MRP requires the analysis of several additional constituents at stations in the Chollas Creek watershed. These constituents are required for analysis to assess the contribution of urban runoff to the Toxic Hot Spot at the mouth of Chollas Creek. The requirement for this analysis is consistent with the SWRCB's June 1999 Consolidated Toxic Hot Spot Cleanup Plan.

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[242] Ibid. Attachment 3, p. 14.
[243] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, Appendix A, p. 2-5.
[244] Ibid. Attachment 3, p. 18.

Sections II.A.1.i-j of the MRP identify the toxicity testing to be implemented and require that standard toxicity testing procedures be followed during the testing. These toxicity testing requirements have not changed for the toxicity testing requirements of Order No. 2001-01.

Temporary Watershed Assessment Station Monitoring

Section II.A.2.a of the MRP identifies the number of temporary watershed assessment stations to be monitored in a given year for each watershed. Temporary watershed assessment stations will serve to segment watersheds, providing information on sub-watersheds which have previously not been monitored extensively. This will aid in the identification of water quality problem areas and help identify sources. Temporary watershed assessment stations are recommended by the Model Monitoring Technical Committee in order to answer management questions 1, 2, 3, and 5.[245] The stations are also expected to contribute towards meeting MRP goals 1, 2, 3, 4, 5, 6, and 8.

The section allows for the number of stations within a watershed to change, as long as the total number of stations monitored is not reduced. The number and watershed location of the stations and the frequency that they are to be monitored matches the Copermittees' proposal in their ROWD.[246] However, the location of the stations within each watershed is critical in terms of determining the monitoring program's effectiveness. If correctly sited, the stations are expected to be very useful in answering the program's management questions and meeting the program's goals. For this reason, the MRP includes requirements to guide where the stations are located. This will help maximize the utility of the stations, while also providing the Copermittees with adequate flexibility to ultimately choose the locations of the stations. The requirements for locating the stations is based on recommendations made by USEPA's contractor Tetra Tech during its review of the Copermittees' monitoring program proposal.[247]

Section II.A.2.b of the MRP identifies the required frequency of monitoring of temporary watershed assessment stations in a given year. The stations will be monitored with the same frequency as the mass loading stations. This frequency was proposed by the Copermittees in their ROWD.[248] The frequency of monitoring is appropriate for the same reasons it is appropriate at the mass loading stations (see the discussion for sections II.A.1.a and II.A.1.b).

Section II.A.2.c of the MRP requires temporary watershed assessment stations to be monitored in the same manner as mass loading stations, in terms of procedures, protocols, analysis, etc.

Bioassessment Monitoring

Section II.A.3 of the MRP requires the Copermittees to conduct bioassessment monitoring. Bioassessment monitoring is a cost-effective tool that measures the effects of water quality over time.[249] It is an important indicator of stream health and impacts from urban runoff. It can detect impacts that chemical and toxicity monitoring cannot. USEPA encourages permitting authorities to consider requiring biological monitoring methods to fully characterize the nature and extent of

[245] Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. Chapter 5.
[246] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.
[247] Tetra Tech, Inc., 2006. Review of San Diego County MS4 Monitoring Program. P. 13.
[248] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.
[249] California Department of Fish and Game, 2002. California Regional Water Quality Control Board, San Diego Region 2002 Biological Assessment Report: Results of May 2001 Reference Site Study and Preliminary Index of Biotic Integrity.

impacts from urban runoff.[250] Therefore, the Regional Board commonly requires bioassessment monitoring in MS4 and other types of discharge permits.

Bioassessment is the direct measurement of the biological condition, physical condition, and attainment of beneficial uses of receiving waters (typically using benthic macroinvertebrates, periphyton, and fish). Bioassessment monitoring integrates the effects of both water chemistry and physical habitat impacts (e.g., sedimentation or erosion) of various discharges on the biological community native to the receiving waters. Moreover, bioassessment is a direct measurement of the impact of cumulative, sub-lethal doses of pollutants that may be below reasonable water chemistry detection limits, but that still have biological affects.

Because bioassessment focuses on communities of living organisms as integrators of cumulative impacts resulting from water quality or habitat degradation, it defines the ecological risks resulting from urban runoff. Bioassessment not only identifies that an impact has occurred, but also measures the effect of the impact and tracks recovery when control or restoration measures have been taken. These features make bioassessment a powerful tool to assess compliance, evaluate the effectiveness of BMPs, and to track both short and long-term trends (MRP goals 1,2,3, and 8). Bioassessment can also help answer management questions 1, 2, and 5.

Section II.A.3.a of the MRP specifies the number of bioassessment stations to be monitored and their watershed location. This specification is consistent with Order No. 2001-01's bioassessment requirements and the Copermittees' ROWD.[251] This section also identifies the most current established protocol to be used in identifying bioassessment reference stations. The protocol referenced in the Order is specified because it provides a qualitative and repeatable method for identifying reference sites. Moreover, the protocol is well established, since it has been peer reviewed and published.

Section II.A.3.b of the MRP requires bioassessment stations to be collocated with mass loading and temporary watershed assessment stations. This improves the accuracy of the conclusions of the triad approach for a particular area, since all data will be collected from one location within a watershed, instead of several areas. This approach is recommended by the Copermittees in their ROWD.[252]

Section II.A.3.c of the MRP requires bioassessment monitoring to be conducted in May and October, which is a continuation of the standard practice conducted under Order No. 2001-01. Timing of bioassessment monitoring is also required to coincide with dry weather monitoring at mass loading and temporary watershed assessment stations. This improves the accuracy of the conclusions of the triad approach for particular time periods, since all data will be collected at specific times within a watershed, instead of at different times. This approach is recommended by the Copermittees in their ROWD.[253]

Section II.A.3.d of the MRP requires bioassessment monitoring to utilize the targeted riffle composite approach, which is consistent with the SWRCB's Surface Water Ambient Monitoring Program (SWAMP) Quality Assurance Management Plan (QAMP), as amended. Through SWAMP, various bioassessment methods were evaluated and it was found that the targeted riffle

[250] USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 2-5.
[251] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.
[252] Ibid. Attachment 3, p. 10.
[253] Ibid. Attachment 3, p. 10.

composite approach was a particularly efficient method, providing accurate data in a cost efficient manner.

Section II.A.3.e of the MRP requires bioassessment monitoring to include assessment of periphyton (algae). Advantages of bioassessment using periphyton include: (1) they have rapid reproduction rates and very short life cycles, making them valuable indicators of short-term impacts; (2) as primary producers, they are most directly affected by physical and chemical factors; (3) sampling is easy and inexpensive; and (4) algal assemblages are sensitive to some pollutants which may not visibly affect other aquatic assemblages.[254]

Section II.A.3.f of the MRP specifies an approach for calculation of an Index of Biotic Integrity for all bioassessment stations. The specified approach is consistent with USEPA's procedures for developing an Index of Biotic Integrity. The approach is also specified because it is highly repeatable and robust. In addition, the specified approach has previously been utilized by the Copermittees under Order No. 2001-01's requirements.

Section II.A.3.g of the MRP includes a standard requirement for a professional laboratory to perform the bioassessment procedures.

Follow-Up Analysis and Actions

Section II.A.4 of the MRP requires the Copermittees to use the results of the chemistry, toxicity, and bioassessment monitoring to determine if impacts from urban runoff are occurring and when follow-up actions are necessary. The triad approach allows a wide range of measurements to be combined to more efficiently identify pollutants, their sources, and appropriate follow-up actions. Results from the three types of monitoring shall be assessed to evaluate the extent and causes of pollution in receiving waters and to prioritize management actions to eliminate or reduce the sources. The framework provided in Table 3 is to be used to determine conclusions from the data and appropriate follow-up actions. The framework in Table 3 was derived from the Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California.[255] These follow-up actions are expected to primarily help answer management questions 2 and 4, as well as address MRP goals 2, 4, 5, 6 and 7.

When, based on the framework in Table 3, data indicates the presence of toxic pollutants in runoff, the Copermittees are required to conduct a Toxicity Identification Evaluation (TIE). A TIE is a set of procedures used to identify the specific chemical(s) responsible for toxicity to aquatic organisms. When discharges are toxic to a test organism, a TIE must be conducted to confirm potential constituents of concern and rule out others, therefore allowing Copermittees to determine and prioritize appropriate management actions. If a sample is toxic to more than one species, it is necessary to determine the toxicant(s) affecting each species. If the type and source of pollutants can be identified based on the data alone and an analysis of potential sources in the drainage area, a TIE is not necessary.

When a TIE identifies a pollutant associated with urban runoff as a cause of toxicity, it is then necessary to conduct follow-up actions to identify the causative agents of toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. Follow-up actions should analyze all potential source(s) causing toxicity,

[254] USEPA, 1999. Rapid Bioassessment Protocols for Use in Wadeable Streams and Rivers. EPA 841-B-99-002. P. 3-3.
[255] Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 5-61.

potential BMPs to eliminate or reduce the pollutants causing toxicity, and suggested monitoring to demonstrate that toxicity has been removed.

Ambient Bay and Lagoon Monitoring

Sections II.A.5.a-c of the MRP requires to Copermittees to conduct monitoring of the ambient conditions of bays, lagoons, and similar waters. Focused monitoring on these resources is needed because of their uniqueness and the high value of their beneficial uses. Such monitoring is recommended by the Stormwater Monitoring Coalition's Model Monitoring Technical Committee.[256]

The MRP requires the Copermittees to assess the data collected for the bays and lagoons over the last three years and refocus the monitoring program based on the assessment conducted. If links between bay and lagoon conditions and mass loading stations are observed, monitoring is to be conducted in all bays and lagoons in order to gain a better understanding of this relationship. If such a linkage is not observed, special studies shall be conducted specific to the various bays and lagoons and the issues they face. The approach outlined in the MRP for the ambient bay and lagoon monitoring program is based on the proposal found in the Copermittees' ROWD.[257] It is expected to help answer management questions 1, 2, and 5, as well as address MRP goals 1, 2, 3, 6, and 8, with regards to bays and lagoons.

Section II.A.5.d of the MRP requires that ambient bay and lagoon monitoring utilize the triad approach for assessment of data. The triad approach links chemistry, toxicity, and bioassessment data to better identify and understand the causes of impacts to beneficial uses. This approach has previously been used by the Copermittees in their ambient bay and lagoon monitoring.[258]

Section II.A.5.e of the MRP requires monitoring of the water column in bays and lagoons as necessary to supply information needed for TMDLs. This requirement has been added to the MRP to better ensure that storm water and TMDL monitoring complement each other where possible. This is expected to improve the efficiency with which monitoring resources are used. The Copermittees support complementary storm water and TMDL efforts in their ROWD.[259]

Coastal Storm Drain Monitoring

Section II.A.6 of the MRP continues the Copermittees' coastal storm drain monitoring program in the same manner as it was conducted under Order No. 2001-01's receiving waters monitoring program. The coastal storm drain monitoring program outlined in the MRP is consistent with the Copermittees' proposal in their ROWD.[260] Coastal storm drain monitoring is critical because one of the primary impacts to coastal receiving waters is the loss of recreational beneficial uses resulting from high levels of bacteria in urban runoff. The coastal storm drain monitoring program is expected to help answer management questions 1, 2, 3, 4 and 5, as well as address MRP goals 1, 2, 3, 4, 5, 6, 7, and 8.

Sections II.A.6.a and II.A.6.b.(1) of the MRP require the Copermittees to identify all coastal storm drains and sample those that are flowing on a monthly basis. All coastal storm drains are

[256] Ibid. P. 5-38.
[257] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 10-12.
[258] San Diego County Copermittees, 2005. San Diego County Copermittees 2004-2005 Urban Runoff Monitoring Final Report. P. ES-2.
[259] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-10.
[260] Ibid. Attachment 4.

required to be part of the program; skipping certain storm drains simply because they are near other storm drains is inappropriate, since each storm drain can have significantly different conditions within its drainage area. One purpose of coastal storm drain monitoring is to identify and abate sources of bacterial contamination. Since the sources of bacterial contamination at a storm drain are generally not known, the potential for a flowing coastal storm drain to be discharging urban runoff with high levels of bacteria cannot be known unless the storm drain is monitored.

The requirement that all coastal storm drains be part of the program is offset by the reduction in sampling frequency to a monthly basis year round, instead of weekly in the summer and monthly in the winter. Moreover, the MRP allows sampling frequency to be further reduced when monitoring results indicate bacteria levels are consistently below an identified criteria. These reductions in sampling frequency are allowed because the Copermittees have found monthly monitoring to typically be representative of storm drain conditions. Also, the Copermittees have identified some storm drains which consistently have low levels of bacteria and do not cause exceedances of standards in receiving waters. Reduction in monitoring frequency provides the Copermittees with more time and resources to investigate problem storm drains, as required in MRP sections II.A.6.b.3-5. The monitoring frequencies in the MRP are recommended by the Copermittees in their ROWD.[261]

Section II.A.6.b.(2) of the MRP requires the Copermittees to notify the Regional Board if they are going to reduce the monitoring frequency of a coastal storm drain. This will allow the Regional Board the opportunity to review the proposed reduction prior to the reduction being enacted by the Copermittee.

Sections II.A.6.b.(3-5) of the MRP identifies when follow-up investigations must be conducted based on results of coastal storm drain monitoring. Criteria to trigger investigations is needed to ensure that problem storm drains are investigated. Without criteria triggering investigations, there is the potential that sources causing high bacteria levels in storms drains and coastal receiving waters could go uninvestigated.

Section II.A.6.b.(6) of the MRP requires the Copermittees to provide notification of exceedances of public health standards so that proper action can be taken by public health agencies.

Toxic Hot Spot Monitoring

Section II.A.7 of the MRP requires the Copermittees to develop and implement a monitoring program for Toxic Hot Spots in San Diego Bay. This requirement is identical to the requirement included in the receiving waters monitoring and reporting program for Order No. 2001-01, and is necessary to ensure the Order is consistent with the SWRCB's June 1999 Consolidated Toxic Hot Spot Cleanup Plan.

Pyrethroids Monitoring

Section II.A.8 of the MRP requires the Copermittees to develop and implement a monitoring program which addresses pyrethroids. A program to monitor pyrethroids is needed because they are the leading insecticides sold to homeowners and have been found at toxic levels in suburban

[261] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 4.

stream sediments in California when investigated.[262] Moreover, their use is likely to increase as diazinon use decreases. Monitoring of pyrethroids will help guide efforts to ensure that the gains achieved by the phasing out of diazinon are not nullified by increased use of pyrethroids.

Since a monitoring program for pyrethroids is new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop a program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

Trash Monitoring

Section II.A 9 of the MRP requires the Copermittees to develop and implement a monitoring program which addresses trash. A program to monitor trash is needed because trash conditions impacting beneficial uses have frequently been observed within the Copermittees' jurisdictions. For example, the Regional Board directed the Copermittees within the watersheds of Chollas and Paleta Creeks to implement the "iterative process" to address violations of water quality standards due to trash conditions within the creeks.[263] The Regional Board also issued a Notice of Violation to the City of Escondido for trash conditions in Escondido Creek.[264] Moreover, the Copermittees have identified trash as a regional priority.[265]

Since a monitoring program for trash is new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

MS4 Discharge Monitoring

Section II.A.10 of the MRP requires the Copermittees to develop and implement a program to monitor and characterize pollutant discharges from MS4 outfalls. After over 15 years of program implementation, most Copermittees have not monitored their MS4 discharges significantly and still do not know the quality of those discharges during various conditions. Such monitoring is critical, since it will provide for prioritization of areas for increased management efforts. It will also provide the Copermittees the ability to better assess and improve their jurisdictional programs and BMPs. For example, the Copermittees' assessment framework calls for assessing changes in load reductions and MS4 discharge quality.[266] Monitoring of MS4 discharges will enable the Copermittees to meet these program assessment goals. Without monitoring of MS4 discharges, it is unclear how these program assessment goals will be met. This type of monitoring is recommended for high priority outfalls by the Stormwater Monitoring Coalitions' Model Monitoring Technical Committee.[267] It is expected to help answer management questions

[262] Science News Online, 2006. A Little Less Green? Studies Challenge the Benign Image of Pyrethroid Insecticides. www.sciencenews.org/articles/20060204/bob9/asp.
[263] Regional Board, 2001. California Water Code Section 13267 Directives Issued to the City of San Diego, City of La Mesa, City of Lemon Grove, and City of National City.
[264] Regional Board, 2000. Notice of Violation No. 2000-181.
[265] San Diego County Copermittees, 2005. Report of Waste Discharge. P. C-3.
[266] San Diego Municipal Stormwater Copermittees, 2003. A Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs. P. 14.
[267] Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 5-55.

3and 4, which is consistent with Tetra Tech's review of the Copermittees' monitoring proposal, which stated "give substantially more attention of questions 3 and 4."[268] It will also address MRP goals 1, 2, 4, 5, 6, and 7.

Since a monitoring program for MS4 discharges is new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

Source Identification Studies

Section II.A.11 of the MRP requires the Copermittees to develop and implement a program to identify sources of discharges of pollutants causing the high priority water quality problems within each watershed. Identification of sources causing high priority water quality problems is a central purpose of urban runoff management programs. Monitoring which enables the Copermittees to identify sources of water quality problems aids the Copermittees in focusing their management efforts and improving their programs. In turn, the Copermittees' programs can abate identified sources, which will improve the quality of urban runoff discharges and receiving waters. This monitoring is needed to address management question 4 (What are the sources to urban runoff that contribute to receiving water problems?). Source identification monitoring is a key component of the Model Monitoring Program, which states "once it has been determined […] that urban runoff is, or is likely to be, a significant source of one or more receiving water problems, then more intensive source identification efforts are called for."[269] Moreover, in its review of the Copermittees' monitoring proposal, Tetra Tech finds that "after some years of assessment monitoring, it is time to look more systematically at determining the relative urban contributions and the sources of urban runoff that contribute to identified receiving water problems."[270]

Since a monitoring program for source identification is mostly new, the Copermittees are provided significant leeway in the development and implementation of the program. The Copermittees can utilize the flexibility incorporated into the MRP to develop program that is workable for them while providing the necessary information. Moreover, the MRP provides the Copermittees with over a year to develop the program.

TMDL Monitoring

Section II.A.12 of the MRP requires the Copermittees to continue to monitor for TMDLs in Chollas Creek as required in the Regional Board's Investigation Order No. R9-2004-0277.

Regional Monitoring Program

Section II.B.1 of the MRP requires the Copermittees to conduct regional monitoring if directed by the Executive Officer. Such investigations may be required under CWC sections 13267 and 13383.

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[268] Tetra Tech Inc., 2006. Review of San Diego County MS4 Monitoring Program. P. 15.
[269] Model Monitoring Technical Committee, 2004. Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California. P. 4-17.
[270] Tetra Tech Inc., 2006. Review of San Diego County MS4 Monitoring Program. P. 15.

Section II.B.2 of the MRP allows the Copermittees to participate in Bight '08. This will provide the Copermittees and Regional Board with insight on the impact of urban runoff on a regional level in the Southern California Bight. Participation in Bight '08 was recommended by the Copermittees in their ROWD.[271] Since participation in Bight '08 is optional for the Copermittees, this section outlines the monitoring which must be conducted if the Copermittees do not participate in the study. The monitoring the Copermittees are to conduct if they do not participate in Bight '08 is consistent with the monitoring they are required to conduct in other years.

Special Studies

Section II.C of the MRP requires the Copermittees to conduct special investigations if directed by the Executive Officer. Such investigations may be required under California Water Code sections 13267 and 13383.

Dry Weather Field Screening and Analytical Monitoring

Section II.D of the MRP requires the Copermittees to conduct dry weather field screening and analytical monitoring. In general, the Order's requirements are the same as the dry weather monitoring requirements of Order No. 2001-01. Significant changes in the requirements are discussed below.

Section II.D.1 of the MRP requires the Copermittees to select dry weather monitoring stations to cover the entire MS4 system, as well as be in compliance with minimum guidelines/criteria. These criteria require a minimum number of stations per square mile. Additional language has been added to provide the Copermittees flexibility in providing equivalent coverage of the MS4 with fewer stations.

In its October 29, 2004 letter to the Copermittees, as well as in subsequent meetings, the Regional Board notified the Copermittees that a process should be developed for determining the minimum number of dry weather sampling stations that should be required in each jurisdiction. The process was needed due to the apparent disparity in the number of sampling stations among the Copermittees. The Copermittees formed a subcommittee to address this issue, but were unable to develop a consensus process. As a result, the Copermittees have requested that a standardized method for determining number of dry monitoring stations not be included in the Order. In response, the Regional Board has relied on Order No. 2001-01's requirements and some additional clarifying language. This continues Order No. 2001-01's process for identifying the number of stations, while allowing the Regional Board to evaluate the adequacy of the each Copermittee's number of dry weather stations.

Order No. 2001-01's requirement for a monitoring map (Task 5) has been moved to the Illicit Discharge Detection and Elimination Component of Order No. R9-2007-0001. This has been done for clarification purposes, since map development is not expressly a monitoring effort.

Section II.D.3 of the MRP requires the Copermittees to collect and analyze dry weather samples using laboratory or field screening methods. Language to has been added to this section to reflect that the Copermittees must collect samples for analytical laboratory analysis for at least 25% of dry weather monitoring stations.

[271] San Diego County Copermittees, 2005. Report of Waste Discharge. Attachment 3, p. 12.

In the ROWD, the Copermittees requested field screening be allowed for surfactants and dissolved copper constituents. The Copermittees also requested that Colilert and Enterolert methods should be allowed for bacteria sampling. The Regional Board agrees with the Copermittees' proposed changes since they will expedite the turnaround time for sampling results for these constituents and assist the Copermittees in their IC/ID investigations. In response the Copermittees' request, surfactants and dissolved copper have been added to the list of field screening constituents. A footnote has also been added allowing for use of Colilert and Enterolert methods for bacteria.

Monitoring Provisions

Section II.E of the MRP includes monitoring provisions which are standard requirements for all municipal storm water permits.

3. Reporting Program

Section III.1 of the MRP discusses submittal of the Jurisdictional Urban Runoff Management Program Annual Reports. The section continues the approach utilized under the requirements of Order No. 2001-01, where Copermittees submit their reports to the Principal Permittee to be unified into one document. The section moves forward the due date for these annual reports from January 31 to September 30. This requires jurisdictional annual reports to be submitted closer to the end of the reporting period they address, which will result in earlier review by the Regional Board. Submittal will also be staggered with submittal of the watershed and regional annual reports, spreading out Regional Board review of annual reports, leading to faster review. Earlier and faster review is useful, because Regional Board comments can be received and responded to quicker by the Copermittees. In this manner, Copermittee programs can be modified and benefit from the jurisdictional annual report review, comment, response process at an earlier date, leading to more effective program over the long-term. In their ROWD, the Copermittees agree that separating due dates for jurisdictional and watershed annual reports would be helpful in spreading out the workload associated with their preparation.[272]

Sections III.2.a and III.2.c of the MRP continues the reporting approach utilized under the requirements of Order No. 2001-01, where Lead Permittees for each watershed submit their annual reports to the Principal Permittee to be unified into one document.

Section III.2.b of the MRP outlines the information to be included in the Copermittees' Watershed Urban Runoff Management Program Annual Reports. Significant detail is included regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

Section III.3 of the MRP outlines the information to be included in the Copermittees' RURMP Annual Reports. Significant detail is included regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

[272] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-81.

Section III.4.a of the MRP requires the Copermittees to annually submit a description of the monitoring that will be conducted prior to the start of each monitoring year. This is needed because of the changes the monitoring program frequently undergoes each year. For example, as monitoring programs develop, some monitoring components of the programs are added or dropped. In addition, requirements for conducting monitoring efforts such as TIEs may be applicable. A description of the monitoring to be conducted each year will aid the Regional Board and Copermittees in tracking monitoring activities and compliance with the MRP.

Section III.4.b of the MRP outlines the information to be included in the Copermittees' Receiving Waters Monitoring Annual Reports. The information required to be included in the reports is needed to meet the goals of the MRP and answer the MRP's management questions. The reporting requirements emphasize identifying and assessing the impact of urban runoff on receiving water quality, as well as the impact of the Copermittees' programs on urban runoff quality. Significant detail is included regarding what information should be in the annual reports in order to provide certainty to the Copermittees when they develop and submit their annual reports. By providing detail for what information should be included in the annual reports, time spent by the Copermittees and Regional Board to generate, review, and comment on annual reports should be reduced.

Section III.4.c of the MRP requires the Copermittees to submit a description of the new monitoring programs to be developed under the MRP. Submittal of such a document is necessary in order to identify the monitoring that will be conducted and provide the Regional Board the opportunity to review the monitoring programs.

Section III.4.d of the MRP requires the City of San Diego to report on the Shelter Island Yacht Basin TMDL in order to exhibit that the WLA can be expected to continue to be met. This report is necessary, since MS4 discharge monitoring is not required by the TMDL.

Section III.4.e of the MRP requires that monitoring programs comply with standard provisions, notifications, and reporting requirements.

Section III.4.f of the MRP requires that the Copermittees make data available to the Regional Board during report preparation, if requested. This is a necessary option since monitoring annual reports are not submitted for many months after much of the monitoring data is collected.

Section III.5 of the MRP allows for the Copermittees to develop and submit a reporting format for annual report integration. In their ROWD, the Copermittees requested a requirement that annual reporting ultimately be integrated.[273] Rather than including annual report integration as a requirement in the Order, it is included as an option for the Copermittees to utilize. Annual report integration is left as an option because information addressing what such integration would encompass is largely unknown. Annual reporting is an important tool for the Regional Board for compliance assessment. Where the outcomes regarding compliance assessment are uncertain, it is more appropriate to incorporate such concepts into the Order as options, instead of requirements. However, nothing in the Order prevents the Copermittees from developing an annual report integration format for Regional Board review and approval. To clarify Regional Board expectations for an annual report integration format, minimum standards for the format are provided in the Order.

[273] San Diego County Copermittees, 2005. Report of Waste Discharge. P. D-77.

Section III.6 of the MRP includes universal reporting requirements, which have not changed from the requirements of Order No. 2001-01.

Section III.7 of the MRP clarifies that reporting should continue as it is conducted under Order No. 2001-01 until reporting requirements under Order No. R9-2007-0001 begin.

ATTACHMENT
39

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

ORDER NO. 2001-01

NPDES NO. CAS0108758

WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES OF URBAN RUNOFF FROM THE MUNICIPAL SEPARATE STORM SEWER SYSTEMS (MS4s) DRAINING THE WATERSHEDS OF THE COUNTY OF SAN DIEGO, THE INCORPORATED CITIES OF SAN DIEGO COUNTY, AND THE SAN DIEGO UNIFIED PORT DISTRICT

The California Regional Water Quality Control Board, San Diego Region (hereinafter SDRWQCB), finds that:

1. **COPERMITTEES ARE DISCHARGERS OF URBAN RUNOFF:** Each of the persons in Table 1 below, hereinafter called Copermittees or dischargers, owns or operates a municipal separate storm sewer system (MS4), through which it discharges urban runoff into waters of the United States within the San Diego Region. These MS4s fall into one or more of the following categories: (1) a medium or large MS4 that services a population of greater than 100,000 or 250,000 respectively; or (2) a small MS4 that is "interrelated" to a medium or large MS4; or (3) an MS4 which contributes to a violation of a water quality standard; or (4) an MS4 which is a significant contributor of pollutants to waters of the United States.

Table 1. Municipal Copermittees

1.	City of Carlsbad	11.	City of National City
2.	City of Chula Vista	12.	City of Oceanside
3.	City of Coronado	13.	City of Poway
4.	City of Del Mar	14.	City of San Diego
5.	City of El Cajon	15.	City of San Marcos
6.	City of Encinitas	16.	City of Santee
7.	City of Escondido	17.	City of Solana Beach
8.	City of Imperial Beach	18.	City of Vista
9.	City of La Mesa	19.	County of San Diego
10.	City of Lemon Grove	20.	San Diego Unified Port District

2. **URBAN RUNOFF CONTAINS "WASTE" AND "POLLUTANTS":** Urban runoff contains waste, as defined in the California Water Code, and pollutants, as defined in the federal Clean Water Act, and adversely affects the quality of the waters of the State.

3. **URBAN DEVELOPMENT AND RUNOFF CAUSES RECEIVING WATER DEGRADATION:** Urban runoff discharges from MS4s are a leading cause of receiving water quality impairment in the San Diego Region and throughout the United States. As runoff flows over urban areas, it picks up harmful pollutants such as pathogens, sediment (resulting from human activities), fertilizers, pesticides, heavy metals, and petroleum products. These pollutants often become dissolved or suspended in urban runoff and are conveyed and discharged to receiving waters, such as streams, lakes, lagoons, bays, and the ocean without treatment. Once in receiving waters, these pollutants harm aquatic life primarily through toxicity and habitat degradation. Furthermore, the pollutants can enter the food chain and may eventually enter the tissues of fish and humans.

There is a strong direct correlation between "urbanization" and "impacts to receiving water quality". In general, the more heavily developed the area, the greater the impacts to receiving waters from urban runoff.

These impacts especially threaten environmentally sensitive areas (such as Clean Water Act section 303(d) impaired water bodies, areas designated as Areas of Special Biological Significance, water bodies designated with the RARE beneficial use, and preserves containing receiving waters designated under the Multi Species Conservation Program within the Cities and County of San Diego). Such environmentally sensitive areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, urban development that is ordinarily insignificant in its impact on the environment may, in a particularly sensitive environment, be significant.

4. **URBAN DEVELOPMENT INCREASES POLLUTANT LOAD, VOLUME, AND VELOCITY OF RUNOFF:** During urban development two important changes occur. First, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops, and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing a very effective natural purification process. Because pavement and concrete can neither absorb water nor remove pollutants, the natural purification characteristics of the land are lost.

   Secondly, urban development creates new pollution sources as human population density increases and brings with it proportionately higher levels of car emissions, car maintenance wastes, municipal sewage, pesticides, household hazardous wastes, pet wastes, trash, etc. which can either be washed or directly dumped into the MS4.

   As a result of these two changes, the runoff leaving the developed urban area is significantly greater in volume, velocity and pollutant load than the pre-development runoff from the same area.

   The significance of the impacts of urban development on receiving waters is determined by the scope of the project, such as the size of the project, the project land-use type, etc. Large projects (such as commercial developments greater than 100,000 square feet, home subdivisions greater than 10 units, and streets, roads, highways, and freeways) generally have large amounts of impervious surface, and therefore have greater potential to significantly impact receiving waters by increasing erosion (through increased peak flow rates, flow velocities, flow volumes, and flow durations) than smaller projects. Projects of particular land use types also have greater potential to significantly impact receiving waters due to the presence of typically large amounts of pollutants on site or an increased potential for pollutants to move off site (such as automotive repair shops, restaurants, parking lots, streets, roads, highways, and freeways, hillside development, and retail gasoline outlets).

5. **WATER QUALITY DEGRADATION INCREASES WITH PERCENT IMPERVIOUSNESS:** The increased volume and velocity of runoff from developed urban areas greatly accelerates the erosion of downstream natural channels. Numerous studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving water quality. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as a 10% conversion from natural to impervious surfaces. (Developments of medium density single family homes range between 25 to 60% impervious). Today "% impervious coverage" is believed to be a reliable indicator and predictor of the water quality degradation expected from planned new development.

6. **URBAN RUNOFF IS A HUMAN HEALTH THREAT:** Urban runoff contains pollutants, which threaten human health. Human illnesses have been clearly linked to recreating (i.e.,

swimming, surfing, etc.) near storm drains flowing to coastal beach waters. Such flows from urban areas often result in the posting or closure of local beaches.

Pollutants transported to receiving waters by urban runoff can also enter the food chain. Once in the food chain they can "bioaccumulate" in the tissues of invertebrates (e.g., mussels, oysters, and lobsters) and fish which may be eventually consumed by humans. Furthermore, some pollutants are also known to "biomagnify". This phenomenon can result in pollutant concentrations in the body fat of top predators that are millions of times greater than the concentrations in the tissues of their lower trophic (food chain) counterparts or in ambient waters.

7. **POLLUTANT TYPES:** The most common categories of pollutants in urban runoff include total suspended solids, sediment (due to anthropogenic activities); pathogens (e.g., bacteria, viruses, protozoa); heavy metals (e.g., copper, lead, zinc and cadmium); petroleum products and polynuclear aromatic hydrocarbons; synthetic organics (e.g., pesticides, herbicides, and PCBs); nutrients (e.g., nitrogen and phosphorus fertilizers), oxygen-demanding substances (decaying vegetation, animal waste), and trash.

8. **URBAN STREAMS AS AN MS4 COMPONENT:** Historic and current development make use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and a receiving water.

9. **URBAN RUNOFF CAUSES BENEFICIAL USE IMPAIRMENT**: Individually and in combination, the discharge of pollutants and increased flows from MS4s can cause or threaten to cause a condition of pollution (i.e., unreasonable impairment of water quality for designated beneficial uses), contamination, or nuisance. The discharge of pollutants from MS4s can cause the concentration of pollutants to exceed applicable receiving water quality objectives and impair or threaten to impair designated beneficial uses.

10. **COPERMITTEES IMPLEMENT URBAN RUNOFF MANAGEMENT PROGRAMS (URMPs):** Copermittee implementation of Urban Runoff Management Programs (URMPs) designed to reduce discharges of pollutants and flow into and from MS4s to the maximum extent practicable (MEP) can protect receiving water quality by promoting attainment of water quality objectives necessary to support designated beneficial uses. To be most effective, URMPs must contain both structural and non-structural best management practices (BMPs).

11. **BEST MANAGEMENT PRACTICES (BMPs):** Pollutants can be effectively reduced in urban runoff by the application of a combination of pollution prevention, source control, and treatment control BMPs. Source control BMPs (both structural and non-structural) minimize the contact between pollutants and flows (e.g., rerouting run-on around pollutant sources or keeping pollutants on-site and out of receiving waters). Treatment control (or structural) BMPs remove pollutants from urban runoff. Where feasible, use of BMPs which utilize natural processes should be assessed. These types of BMPs, such as grassy swales and constructed wetlands, can frequently be as effective as less natural BMPs, while providing additional benefits such as aesthetics and habitat.

12. **POLLUTION PREVENTION**: Pollution prevention, the initial reduction/elimination of pollutant generation at its source, is the best "first line of defense" for Copermittees and should be used in conjunction with source control and treatment control BMPs. Pollutants that are never generated do not have to be controlled or treated. Encouragement during planning processes of the use of pollution prevention BMPs can be an effective means for pollution prevention BMPs to be implemented, through such methods as education, landscaping, etc.

13. **RECEIVING WATER LIMITATIONS:** Compliance with receiving water limits based on applicable water quality objectives is necessary to ensure that MS4 discharges will not cause or contribute to violations of water quality objectives and the creation of conditions of pollution.

14. **RECEIVING WATER LIMITATION COMPLIANCE STRATEGY**: Implementation of BMPs cannot ensure attainment of receiving water quality objectives under all circumstances; some BMPs may not prove to be as effective as anticipated. An iterative process of BMP development, implementation, monitoring, and assessment is necessary to assure that an Urban Runoff Management Program is sufficiently comprehensive and effective to achieve compliance with receiving water quality objectives.

15. **COPERMITTEES' RESPONSIBILITY FOR ILLICIT DISCHARGES FROM THIRD PARTIES:** As operators of MS4s, the Copermittees cannot passively receive and discharge pollutants from third parties. By providing free and open access to an MS4 that conveys discharges to the waters of the United States, the operator of an MS4 that does not prohibit and/or control discharges into its system essentially accepts responsibility for those discharges.

16. **COPERMITTEES' RESPONSIBILITY BASED ON LAND USE AUTHORITY**: Utilizing their land use authority, Copermittees authorize and realize benefits from the urban development which generates the pollutants and runoff that impair receiving waters. Since the Copermittees utilize their legal authority to authorize urbanization, they must also exercise their legal authority to ensure that the resulting increased pollutant loads and flows do not further degrade receiving waters.

17. **THREE PHASES OF URBAN DEVELOPMENT**: Urban development has three major phases: (1) land use planning for new development; (2) construction; and (3) the "use" or existing development phase. Because the Copermittees authorize, permit, and profit from each of these phases, and because each phase has a profound impact on water quality, the Copermittees have commensurate responsibilities to protect water quality during each phase.

    In other words, Copermittees are held responsible for the short and long-term water quality consequences of their land use planning, construction, and existing development decisions.

18. **PLANNING PHASE FOR NEW DEVELOPMENT**: Because land use planning and zoning is where urban development is conceived, it is the phase in which the greatest and most cost-effective opportunities to protect water quality exists. When a Copermittee incorporates policies and principles designed to safeguard water resources into its General Plan and development project approval processes, it has taken a far-reaching step towards the preservation of local water resources for future generations.

19. **CONSTRUCTION PHASE**: Construction activities are a significant cause of receiving water impairment. Siltation is currently the largest cause of river impairment in the United States. Sediment runoff rates from construction sites greatly exceed natural erosion rates of undisturbed lands causing siltation and impairment of receiving waters. In addition to requiring implementation of the full range of BMPs, an effective construction runoff program must include local plan review, permit conditions, field inspections, and enforcement.

20. **EXISTING DEVELOPMENT:** The Copermittees' wet weather monitoring results collected during the past decade, as well as volumes of other references in the literature today, confirm substantial pollutant loads to receiving waters in runoff from existing urban development. Implementation of jurisdictional and watershed URMPs, which include extensive controls on existing development, can reduce pollutant loadings over the long term.

21. **CHANGES NEEDED**: Because the urbanization process is a direct and leading cause of water quality degradation in this Region, fundamental changes to existing policies and

practices about urban development are needed if the beneficial uses of San Diego's natural water resources are to be protected.

22. **DUAL REGULATION OF INDUSTRIAL AND CONSTRUCTION SITES:** Discharges of runoff from industrial and construction sites in this Region are subject to dual (state and local) regulation. (1) All industries and construction sites are subject to the local permits, plans, and ordinances of the municipal jurisdiction in which it is located. Pursuant to this Order, local (storm water, grading, construction, and use) permits, plans, and ordinances must (a) prohibit the discharge of pollutants and non-storm water into the MS4; and (b) require the routine use of BMPs to reduce pollutants in site runoff. (2) Many industries and construction sites are also subject to regulation under the statewide General Industrial Storm Water Permit or statewide General Construction Storm Water Permit[1]. These statewide general permits are adopted by the State Water Resources Control Board and enforced by the nine Regional Water Quality Control Boards throughout California. Like the Copermittees' local permits and ordinances, the statewide General Industrial and Construction Permits also (a) prohibit the discharge of pollutants and non-storm water; and (b) require the routine use of BMPs to reduce pollutants in site runoff.

    Recognizing that both authorities share a common goal, the federal storm water regulations at 40 CFR 122.26 (and its preamble) call for the dual system to ensure the most effective oversight of industrial and construction site discharges. Under this dual system, each municipal Copermittee is responsible for enforcing its local permits, plans, and ordinances within its jurisdiction. Similarly, the SDRWQCB is responsible for enforcing both statewide general permits and this Order within the San Diego Region.

23. **EDUCATION:** Education is the foundation of every effective URMP and the basis for changes in behavior at a societal level. Education of municipal planning, inspection, and maintenance department staffs is especially critical to ensure that in-house staffs understand how their activities impact water quality, how to accomplish their jobs while protecting water quality, and their specific roles and responsibilities for compliance with this Order. Public education, designed to target various urban land users and other audiences, is also essential to inform the public of how individual actions impact receiving water quality and how these impacts can be minimized.

24. **ENFORCING LOCAL LEGAL AUTHORITY**: Enforcement of local urban runoff related ordinances, permits, and plans is an essential component of every URMP and is specifically required in the federal storm water regulations and this Order. Routine inspections provide an effective means by which Copermittees can evaluate compliance with their permits and ordinances. Inspections are especially important at high-risk areas for pollutant discharges such as industrial and construction sites.

    When industrial or construction site discharges occur in violation of local permits and ordinances, the SDRWQCB looks to the municipality that has authorized the discharge for appropriate actions (typically education followed by enforcement where education has been unsuccessful). Each Copermittee must also provide enforcement against illegal discharges from other land uses it has authorized, such as commercial and residential developments.

[1] The "statewide General Industrial Storm Water Permit" refers to State Water Resources Control Board Water Quality Order No. 97-03-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities. The "statewide General Construction Storm Water Permit" refers to State Water Resources Control Board Order No. 99-08-DWQ National Pollutant Discharge Elimination System General Permit No. CAS000002, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity.

25. **PUBLIC PARTICIPATION:** Public participation during the URMP development process is necessary to ensure that all stakeholder interests and a variety of creative solutions are considered.

26. **TOXICITY**: Urban runoff discharges from MS4s often contain pollutants that cause toxicity, (i.e., adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part *"All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life....The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge..."* Urban runoff discharges from MS4s are considered toxic when (1) the toxic effect observed in an acute toxicity test exceeds zero Toxic Units Acute (TUa=0); or (2) the toxic effect observed in a chronic toxicity test exceeds one Toxic Unit Chronic (TUc=1).

27. **FOCUS ON MAN-MADE POLLUTANTS AND FLOWS:** The focus of this Order is on the control of urban runoff pollutants and flows which are either generated or accelerated by human activities. This Order is not meant to control background or naturally occurring pollutants and flows.

28. **COMMON WATERSHEDS AND CWA SECTION 303(d) IMPAIRED WATERS**: The Copermittees discharge urban runoff into lakes, drinking water reservoirs, rivers, streams, creeks, bays, estuaries, coastal lagoons, the Pacific Ocean, and tributaries thereto within ten of the eleven hydrologic units (watersheds) comprising the San Diego Region as shown in Table 2 below. During its downstream course, urban runoff is conveyed through lined and unlined (natural, manmade, and partially modified) channels, all of which are defined as components of the Copermittees' MS4.

    Some of the receiving water bodies, which receive or convey urban runoff discharges, have been designated as impaired by the SDRWQCB and USEPA in 1998 pursuant to Clean Water Act section 303(d). Also shown below are the watershed management areas (WMAs) as defined in the SDRWQCB report, Watershed Management Approach, January 2000.

Table 2. Watershed Management Areas (WMAs)

SDRWQCB WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT	COPERMITTEES
Santa Margarita River	Santa Margarita (902.00)	Santa Margarita River and Estuary, Pacific Ocean	1. Coliform Bacteria 2. Nutrients	1. County of San Diego
San Luis Rey River	San Luis Rey (903.00)	San Luis Rey River and Estuary, Pacific Ocean	1. Coliform Bacteria 2. Nutrients	1. City of Escondido 2. City of Oceanside 3. City of Vista 4. County of San Diego
Carlsbad	Carlsbad (904.00)	Batiquitos Lagoon San Elijo Lagoon Agua Hedionda Lagoon Buena Vista Lagoon And Tributary Streams Pacific Ocean	1. Coliform Bacteria 2. Nutrients 3. Sediment	1. City of Carlsbad 2. City of Encinitas 3. City of Escondido 4. City of Oceanside 5. City of San Marcos 6. City of Solana Beach 7. City of Vista 8. County of San Diego
San Dieguito River	San Dieguito (905.00)	San Dieguito River and Estuary, Pacific Ocean	1. Coliform Bacteria	1. City of Del Mar 2. City of Escondido 3. City of Poway 4. City of San Diego 5. City of Solana Beach

SDRWQCB WATERSHED MANAGEMENT AREA (WMA)	HYDROLOGIC UNIT(S)	MAJOR SURFACE WATER BODIES	303(d) POLLUTANT(S) OF CONCERN OR WATER QUALITY EFFECT	COPERMITTEES
				6. County of San Diego
Mission Bay	Peñasquitos (906.00)	Los Peñasquitos Lagoon Mission Bay, Pacific Ocean	1. Coliform Bacteria 2. Metals 3. Nutrients 4. Sediment	1. City of Del Mar 2. City of Poway 3. City of San Diego 4. County of San Diego
San Diego River	San Diego (907.00)	San Diego River, Pacific Ocean	1. Coliform Bacteria	1. City of El Cajon 2. City of La Mesa 3. City of Poway 4. City of San Diego 5. City of Santee 6. County of San Diego
San Diego Bay	Pueblo San Diego (908.00) Sweetwater (909.00) Otay (910.00)	San Diego Bay Sweetwater River Otay River Pacific Ocean	1. Coliform Bacteria 2. Metals 3. Toxicity 4. Benthic Community Degradation	1. City of Chula Vista 2. City of Coronado 3. City of Imperial Beach 4. City of La Mesa 5. City of Lemon Grove 6. City of National City 7. City of San Diego 8. County of San Diego 9. San Diego Unified Port District
Tijuana River	Tijuana (911.00)	Tijuana River and Estuary Pacific Ocean	1. Coliform Bacteria 2. Low Dissolved Oxygen 3. Metals 4. Nutrients 5. Pesticides 6. Synthetic Organics 7. Total Dissolved Solids 8. Trash	1. City of Imperial Beach 2. City of San Diego 3. County of San Diego

29. **CUMULATIVE POLLUTANT LOAD CONTRIBUTIONS:** Because they are interconnected, each MS4 within a watershed contributes to the cumulative pollutant loading, volume, and velocity of urban runoff and the ensuing degradation of downstream receiving water bodies. Accordingly, inland MS4s contribute to coastal impairments.

30. **LAND USE PLANNING ON A WATERSHED SCALE**: Because urban runoff does not recognize political boundaries, "watershed-based" land use planning (pursued collaboratively by neighboring local governments) can greatly enhance the protection of shared natural water resources. Such planning enables multiple jurisdictions to work together to plan for both development and resource conservation that can be environmentally as well as economically sustainable.

31. **INTERGOVERNMENTAL COORDINATION:** Within their common watersheds it is essential for the Copermittees to coordinate their water quality protection and land use planning activities to achieve the greatest protection of receiving water bodies. Copermittee coordination with other watershed stakeholders, especially Caltrans, the Department of Defense, and Native American Tribes, is also critical.

    Establishment of a management structure, within which the Copermittees subject to this Order, will fund and coordinate those aspects of their joint obligations will promote implementation of Urban Runoff Management Programs on a watershed and regional basis in the most cost effective manner.

32. **WASTE REMOVAL:** Waste and pollutants which are deposited and accumulate in MS4 drainage structures will be discharged from these structures to waters of the United States unless they are removed. These discharges may cause or contribute to, or threaten to cause or contribute to, a condition of pollution in receiving waters. Once removed, such accumulated wastes must be characterized and lawfully disposed.

33. **TOXIC HOT SPOTS**: Urban runoff is a significant contributor to the creation and persistence of Toxic Hot Spots in San Diego Bay. California Water Code section 13395 requires regional boards to reevaluate waste discharge requirements (WDRs) associated with toxic hot spots. The State Water Resources Control Board (SWRCB) adopted the Consolidated Toxic Hot Spot Cleanup Plan in June 1999. The Plan states: "The reevaluation [of WDRs associated with toxic hot spots] shall consist of (1) an assessment of the WDRs that may influence the creation or further pollution of the known toxic hot spot, (2) an assessment of which WDRs need to be modified to improve environmental conditions at the known toxic hot spot, and (3) a schedule for completion of any WDR modifications deemed appropriate."

34. **CHANGING THE STORM WATER MANAGEMENT APPROACH**: In contrast to the conventional "conveyance" approach, a more natural approach to storm water management seeks to filter and infiltrate runoff by allowing it to flow slowly over permeable vegetated surfaces. By "preserving and restoring the natural hydrologic cycle", filtration and infiltration can greatly reduce the volume/peak rate, velocity, and pollutant loads of urban runoff. The greatest opportunities for changing from a "conveyance" to a more natural management approach occur during the land use planning and zoning processes and when new development projects are under early design.

35. **INFILTRATION AND POTENTIAL GROUNDWATER CONTAMINATION:** Any drainage feature that infiltrates runoff poses some risk of potential groundwater contamination. Although dependent on several factors, the risks typically associated with properly managed infiltration of runoff (especially from residential land use areas) are not significant. The risks associated with infiltration can be managed by many techniques, including (1) designing landscape drainage features that promote infiltration of runoff, but do not "inject" runoff (injection bypasses the natural processes of filtering and transformation that occur in the soil); (2) taking reasonable steps to prevent the illegal disposal of wastes; and (3) ensuring that each drainage feature is adequately maintained in perpetuity. Minimum conditions needed to protect groundwater are specified in section F.1.b. of this Order.

36. **VECTOR CONTROL:** Certain BMPs implemented or required by municipalities for urban runoff management may create a habitat for vectors (e.g. mosquitoes and rodents) if not properly designed or maintained. Close collaboration and cooperative effort between municipalities and local vector control agencies and the State Department of Health Services during the development and implementation of the Urban Runoff Management Programs is necessary to minimize nuisances and public health impacts resulting from vector breeding.

37. **LEGAL AUTHORITY:** This Order is based on the federal Clean Water Act, the Porter-Cologne Water Quality Control Act (Division 7 of the Water Code, commencing with Section 13000), applicable state and federal regulations, all applicable provisions of statewide Water Quality Control Plans and Policies adopted by the State Water Resources Control Board, the Regional Water Quality Control Plan (Basin Plan) adopted by the Regional Board, the California Toxics Rule, and the California Toxics Rule Implementation Plan.

38. **TOTAL MAXIMUM DAILY LOADS (TMDLs):** 40 CFR 122.44 (d)(vii)(B) requires that NPDES permits contain effluent limitations that are consistent with waste load allocations developed under a TMDL. Several TMDLs are being developed in the San Diego Region for impaired waterbodies that receive Copermittees' discharge. Once these TMDLs are approved by the SDRWQCB and USEPA, Copermittees' discharge of urban runoff into an impaired waterbody will be subject to load allocations established by the TMDLs.

39. **ANTIDEGRADATION:** Conscientious implementation of URMPs that satisfy the requirements contained in this Order will reduce the likelihood that discharges from MS4s will cause or contribute to unreasonable degradation of the quality of receiving waters. Therefore, this Order is in conformance with SWRCB Resolution No. 68-16 and the federal antidegradation policy described in 40 CFR 131.12.

40. **CEQA:** The issuance of waste discharge requirements for the discharge of urban runoff from MS4s to waters of the United States is exempt from the requirement for preparation of environmental documents under the California Environmental Quality Act (CEQA) (Public Resources Code, Division 13, Chapter 3, § 21000 et seq.) in accordance with the CWC § 13389.

41. **PUBLIC NOTICE:** The SDRWQCB has notified the Copermittees, all known interested parties, and the public of its intent to consider adoption of an order prescribing waste discharge requirements that would serve to renew an NPDES permit for the existing discharge of urban runoff.

42. **PUBLIC HEARING**: The SDRWQCB has, at a public meeting on December 13, 2000, held a public hearing and heard and considered all comments pertaining to the terms and conditions of this Order.

IT IS HEREBY ORDERED that the Copermittees, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations adopted thereunder, shall each comply with the following:

A. PROHIBITIONS -- DISCHARGES

1. Discharges into and from MS4s in a manner causing, or threatening to cause, a condition of pollution, contamination, or nuisance (as defined in CWC § 13050), in waters of the state are prohibited.

2. Discharges from MS4s which cause or contribute to exceedances of receiving water quality objectives for surface water or groundwater are prohibited.

3. Discharges from MS4s containing pollutants which have not been reduced to the maximum extent practicable (MEP) are prohibited.

4. Applicable to New Development and Redevelopment:
Post-development runoff containing pollutants loads which cause or contribute to an exceedance of receiving water quality objectives or which have not been reduced to the maximum extent practicable is prohibited.

5. In addition to the above prohibitions, discharges from MS4s are subject to all Basin Plan prohibitions cited in **Attachment A** to this Order.

B. PROHIBITIONS -- NON-STORM WATER DISCHARGES

1. Each Copermittee shall effectively prohibit **all** types of non-storm water discharges into its Municipal Separate Storm Sewer System (MS4) unless such discharges are either authorized by a separate NPDES permit; or not prohibited in accordance with B.2. and B.3. below.

2. Pursuant to 40 CFR 122.26(d)(2)(iv)(B)(1), the following categories of non-storm water discharges need only be prohibited from entering an MS4 if such categories of discharges are identified by the Copermittee as a significant source of pollutants to waters of the United States:

   a. Diverted stream flows;
   b. Rising ground waters;
   c. Uncontaminated ground water infiltration [as defined at 40 CFR 35.2005(20)] to MS4s;
   d. Uncontaminated pumped ground water;
   e. Foundation drains;
   f. Springs;
   g. Water from crawl space pumps;
   h. Footing drains;
   i. Air conditioning condensation;
   j. Flows from riparian habitats and wetlands;

k. Water line flushing;
l. Landscape irrigation;
m. Discharges from potable water sources other than water main breaks;
n. Irrigation water;
o. Lawn watering;
p. Individual residential car washing; and
q. Dechlorinated swimming pool discharges.

3. When a discharge category above is identified as a significant source of pollutants to waters of the United States, the Copermittee shall either:

   a. Prohibit the discharge category from entering its MS4; ***OR***

   b. Not prohibit the discharge category and implement, or require the responsible party(ies) to implement, BMPs which will reduce pollutants to the MEP; ***AND***

   c. For each discharge category not prohibited, the Copermittee shall submit the following information to the SDRWQCB within **365 days** of adoption of this Order:

      (1) The non-storm water discharge category listed above which the Copermittee elects not to prohibit; and

      (2) The BMP(s) for each discharge category listed above which the Copermittee will implement, or require the responsible party(ies) to implement, to prevent or reduce pollutants to the MEP.

4. **Fire Fighting Flows:** Emergency fire fighting flows (i.e., flows necessary for the protection of life or property) do not require BMPs and need not be prohibited. As part of the Jurisdictional URMP, each Copermittee shall develop and implement a program within 365 days of adoption of this Order to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities) identified by the Copermittee to be significant sources of pollutants to waters of the United States.

5. **Dry Weather Analytical Monitoring and Non-Storm Water Discharges:** Each Copermittee shall examine all dry weather analytical monitoring results collected in accordance with section F.5. and Attachment E of this Order to identify water quality problems which may be the result of any non-prohibited discharge category(ies) identified above in Non-Storm Water Discharges to MS4s Prohibition B.2. Follow-up investigations shall be conducted as necessary to identify and control any non-prohibited discharge category(ies) listed above.

C. RECEIVING WATER LIMITATIONS

1. Discharges from MS4s that cause or contribute to the violation of water quality standards (designated beneficial uses and water quality objectives developed to protect beneficial uses) are prohibited.

2. Each Copermittee shall comply with Part C.1, Part A.2, and Part A.5 as it applies to Prohibition 5 in Attachment A of this Order through timely implementation of control measures and other actions to reduce pollutants in urban runoff discharges in accordance with the Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) and other requirements of this Order including any modifications. The Jurisdictional URMP shall be designed to achieve compliance with Part C.1, Part A.2, and Part A.5 as it applies to Prohibition 5 in Attachment A of this Order. If exceedance(s) of water quality standards persist notwithstanding implementation of the URMP and other requirements of this Order, the Copermittee shall assure compliance with Part C.1, Part A.2, and Part A.5 as it applies to Prohibition 5 in Attachment A of this Order by complying with the following procedure:

a. Upon a determination by either the Copermittee or the SDRWQCB that MS4 discharges are causing or contributing to an exceedance of an applicable water quality standard, the Copermittee shall promptly notify and thereafter submit a report to the SDRWQCB that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedance of water quality standards. The report may be incorporated in the annual update to the Jurisdictional URMP unless the SDRWQCB directs an earlier submittal. The report shall include an implementation schedule. The SDRWQCB may require modifications to the report;

b. Submit any modifications to the report required by the SDRWQCB within 30 days of notification;

c. Within 30 days following approval of the report described above by the SDRWQCB, the Copermittee shall revise its Jurisdictional URMP and monitoring program to incorporate the approved modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required;

d. Implement the revised Jurisdictional URMP and monitoring program in accordance with the approved schedule.

So long as the Copermittee has complied with the procedures set forth above and are implementing the revised Jurisdictional URMP, the Copermittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the SDRWQCB to do so.

3. Nothing in this section shall prevent the SDRWQCB from enforcing any provision of this Order while the Copermittee prepares and implements the above report.

D. LEGAL AUTHORITY

1. Each Copermittee shall establish, maintain, and enforce adequate legal authority to control pollutant discharges **into** and **from** its MS4 through ordinance, statute, permit, contract or similar means. This legal authority must, at a minimum, authorize the Copermittee to:

   a. Control the contribution of pollutants in discharges of runoff associated with industrial and construction activity **to** its MS4 and control the quality of runoff **from** industrial and construction sites. This requirement applies both to industrial and construction sites which have coverage under the statewide general industrial or construction storm water permits, as well as to those sites which do not. Grading ordinances shall be upgraded and enforced as necessary to comply with this Order.

   b. Prohibit **all** identified illicit discharges not otherwise allowed pursuant to section B.2 including but not limited to:

      (1) Sewage;

      (2) Discharges of wash water resulting from the hosing or cleaning of gas stations, auto repair garages, or other types of automotive services facilities;

      (3) Discharges resulting from the cleaning, repair, or maintenance of any type of equipment, machinery, or facility including motor vehicles, cement-related equipment, and port-a-potty servicing, etc.;

      (4) Discharges of wash water from mobile operations such as mobile automobile washing, steam cleaning, power washing, and carpet cleaning, etc.;

(5) Discharges of wash water from the cleaning or hosing of impervious surfaces in municipal, industrial, commercial, and residential areas including parking lots, streets, sidewalks, driveways, patios, plazas, work yards and outdoor eating or drinking areas, etc.;

(6) Discharges of runoff from material storage areas containing chemicals, fuels, grease, oil, or other hazardous materials;

(7) Discharges of pool or fountain water containing chlorine, biocides, or other chemicals; discharges of pool or fountain filter backwash water;

(8) Discharges of sediment, pet waste, vegetation clippings, or other landscape or construction-related wastes; and

(9) Discharges of food-related wastes (e.g., grease, fish processing, and restaurant kitchen mat and trash bin wash water, etc.).

c. Prohibit and eliminate illicit connections to the MS4;

d. Control the discharge of spills, dumping, or disposal of materials other than storm water to its MS4;

e. Require compliance with conditions in Copermittee ordinances, permits, contracts or orders (i.e., hold dischargers to its MS4 accountable for their contributions of pollutants and flows);

f. Utilize enforcement mechanisms to require compliance with Copermittee storm water ordinances, permits, contracts, or orders;

g. Control the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements among Copermittees. Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements with other owners of the MS4 such as Caltrans, the Department of Defense, or Native American Tribes is encouraged.;

h. Carry out all inspections, surveillance, and monitoring necessary to determine compliance and noncompliance with local ordinances and permits and with this Order, including the prohibition on illicit discharges to the MS4. This means the Copermittee must have authority to enter, sample, inspect, review and copy records, and require regular reports from industrial facilities discharging into its MS4, including construction sites; and

i. Require the use of best management practices (BMPs) to prevent or reduce the discharge of pollutants to MS4s.

2. Within **180 days** of adoption of this Order, each Copermittee shall provide to the SDRWQCB a statement certified by its chief legal counsel that the Copermittee has adequate legal authority to implement and enforce each of the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and this Order. This statement shall include:

a. Identification of all departments within the jurisdiction that conduct urban runoff related activities, and their roles and responsibilities under this Order. Include an up to date organizational chart specifying these departments and key personnel.

b. Citation of urban runoff related ordinances and the reasons they are enforceable;

c. Identification of the local administrative and legal procedures available to mandate compliance with urban runoff related ordinances and therefore with the conditions of this

Order;

d. Description of how these ordinances are implemented and appealed; and

e. Description of whether the municipality can issue administrative orders and injunctions or if it must go through the court system for enforcement actions.

E. TECHNOLOGY BASED STANDARDS

Each Copermittee shall implement, or require implementation of, best management practices to ensure that the following pollutant discharges **into** and **from** its MS4 are reduced to the applicable technology based standard as specified below:

Table 3. Technology Based Standards[2]

POLLUTANT DISCHARGE FROM	DESCRIPTION	APPLICABLE PERFORMANCE STANDARD
Industrial Activity owned by the Copermittee	Categorical Industry in 40 CFR 122.26	BAT/BCT (pursuant to Statewide General Industrial Permit)
Industrial Activity	All other industry	MEP
Construction Activity owned by the Copermittee	Greater than or Equal to 5 Acres (or less than 5 acres and Part of a Larger Common Plan of Sale or Development)	BAT/BCT (pursuant to Statewide General Construction Permit)
Construction Activity	All Other construction	MEP
Other Sources	All Other Land Use Activities	MEP
MS4s	All discharges from MS4s	MEP

F. JURISDICTIONAL URBAN RUNOFF MANAGEMENT PROGRAM`

Each Copermittee shall take appropriate actions to reduce discharges of pollutants and runoff flow during each of the three major phases of urban development, i.e., the planning, construction, and existing development (or use) phases.

Each Copermittee shall implement a Jurisdictional Urban Runoff Management Program (Jurisdictional URMP) that contains the components shown below as described in Sections F.1. through F.8:

F.1. Land-Use Planning for New Development and Redevelopment Component
F.2. Construction Component
F.3. Existing Development Component
- **a. Municipal**
- **b. Industrial**
- **c. Commercial**
- **d. Residential**

F.4. Education Component
F.5. Illicit Discharge Detection and Elimination Component
F.6. Public Participation Component
F.7. Assessment of Jurisdictional URMP Effectiveness Component
F.8. Fiscal Analysis Component

[2] Pursuant to this Order, each Copermittee shall ensure that pollutants in runoff from industrial and construction sites within its jurisdiction have been reduced to the MEP standard before entering its MS4. The industrial and construction site dischargers themselves however must ensure that pollutants in runoff leaving their sites have been reduced to the BAT/BCT standard pursuant to either the statewide General Industrial or Construction Storm Water Permit. Runoff from industrial and construction sites owned by municipalities and subject to either the General Industrial or Construction Storm Water Permits, must meet the BAT/BCT standard.

F.1. Land-Use Planning for New Development and Redevelopment Component

Each Copermittee shall minimize the short and long-term impacts on receiving water quality from new development and redevelopment. In order to reduce pollutants and runoff flows from new development and redevelopment to the maximum extent practicable, each Copermittee shall at a minimum:

F.1.a Assess General Plan
F.1.b Modify Development Project Approval Processes
F.1.c Revise Environmental Review Processes
F.1.d Conduct Education Efforts Focused on New Development and Redevelopment

F.1.a. Assess General Plan

Each Copermittee's General Plan or equivalent plan (e.g., Comprehensive, Master, or Community Plan) shall include water quality and watershed protection principles and policies to direct land-use decisions and require implementation of consistent water quality protection measures for development projects. As part of its Jurisdictional Urban Runoff Management Program document, each Copermittee shall provide a workplan with time schedule detailing any changes to its General Plan regarding water quality and watershed protection. Examples of water quality and watershed protection principles and policies to be considered include the following:

(1) Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment and where feasible slow runoff and maximize on-site infiltration of runoff.

(2) Implement pollution prevention methods supplemented by pollutant source controls and treatment. Use small collection strategies located at, or as close as possible to, the source (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into an MS4.

(3) Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands, and buffer zones. Encourage land acquisition of such areas.

(4) Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways, and bridges.

(5) Prior to making land use decisions, utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. Require incorporation of structural and non-structural BMPs to mitigate the projected increases in pollutant loads and flows.

(6) Avoid development of areas that are particularly susceptible to erosion and sediment loss; or establish development guidance that identifies these areas and protects them from erosion and sediment loss.

(7) Reduce pollutants associated with vehicles and increasing traffic resulting from development. Coordinate local traffic management reduction efforts with the San Diego County Congestion Management Plan.

(8) Implement the San Diego Association of Government's (SANDAG's) recommendations as found in the Water Quality Element of its Regional Growth Management Strategy.

(9) Post-development runoff from a site shall not contain pollutant loads which cause or contribute to an exceedance of receiving water quality objectives or which have not been reduced to the maximum extent practicable.

F.1.b. Modify Development Project Approval Processes

Prior to project approval and issuance of local permits, Copermittees shall require each proposed project to implement measures to ensure that pollutants and runoff from the development will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of receiving water quality objectives. Each Copermittee shall further ensure that all development will be in compliance with Copermittee storm water ordinances, local permits, all other applicable ordinances and requirements, and this Order.

(1) Development Project Requirements

Each Copermittee shall include development project requirements in local permits to ensure that pollutant discharges and runoff flows from development are reduced to the maximum extent practicable and that receiving water quality objectives are not violated throughout the life of the project. Such requirements shall, at a minimum:

(a) Require project proponent to implement source control BMPs for all applicable development projects.
(b) Require project proponent to implement site design/landscape characteristics where feasible which maximize infiltration, provide retention, slow runoff, and minimize impervious land coverage for all development projects.
(c) Require project proponent to implement buffer zones for natural water bodies, where feasible. Where buffer zone implementation is infeasible, require project proponent to implement other buffers such as trees, lighting restrictions, access restrictions, etc.
(d) Require industrial applicants subject to California's statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction), (hereinafter General Industrial Permit), to provide evidence of coverage under the General Industrial Permit.
(e) Require project proponent to ensure its grading or other construction activities meet the provisions specified in Section F.2. of this Order.
(f) Require project proponent to provide proof of a mechanism which will ensure ongoing long-term maintenance of all structural post-construction BMPs.

(2) Standard Urban Storm Water Mitigation Plans (SUSMPs)

Within 365 days of adoption of this Order, the Copermittees shall collectively develop a model Standard Urban Storm Water Mitigation Plan (SUSMP) to reduce pollutants and runoff flows from all new development and significant redevelopment projects falling under the priority project categories or locations listed in section F.1.b.(2)(a) below. Within 180 days of approval of the model SUSMP in the public process by the SDRWQCB, each Copermittee shall adopt its own local SUSMP, and amended ordinances consistent with the approved model SUSMP, and shall submit both (local SUSMP and amended ordinances) to the SDRWQCB.

Immediately following adoption of its local SUSMP, each Copermittee shall ensure that all new development and significant redevelopment projects falling under the priority project categories or locations listed in F.1.b.(2)(a) below meet SUSMP requirements. The SUSMP requirements shall apply to all priority projects or phases of priority projects which have not yet begun grading or construction activities. If a Copermittee determines that lawful prior approval of a project exists, whereby application of SUSMP requirements to the project is infeasible, SUSMP requirements need not apply to the project. Where feasible, the Copermittees shall utilize the 18 month SUSMP implementation period to ensure that

projects undergoing approval processes include application of SUSMP requirements in their plans.

(a) *Priority Development Project Categories - SUSMP requirements shall apply to all new development and significant redevelopment projects falling under the priority project categories or locations listed below.* Significant redevelopment is defined as the creation or addition of at least 5,000 square feet of impervious surfaces on an already developed site. Significant redevelopment includes, but is not limited to: the expansion of a building footprint or addition or replacement of a structure; structural development including an increase in gross floor area and/or exterior construction or remodeling; replacement of impervious surface that is not part of a routine maintenance activity; and land disturbing activities related with structural or impervious surfaces. Where significant redevelopment results in an increase of less than fifty percent of the impervious surfaces of a previously existing development, and the existing development was not subject to SUSMP requirements, the numeric sizing criteria discussed in section F.1.b.(2)(c) applies only to the addition, and not to the entire development.

i. *Home subdivisions of 100 housing units or more.* This category includes single-family homes, multi-family homes, condominiums, and apartments.

ii. *Home subdivisions of 10-99 housing units.* This category includes single-family homes, multi-family homes, condominiums, and apartments.

iii. *Commercial developments greater than 100,000 square feet.* This category is defined as any development on private land that is not for heavy industrial or residential uses where the land area for development is greater than 100,000 square feet. The category includes, but is not limited to: hospitals; laboratories and other medical facilities; educational institutions; recreational facilities; commercial nurseries; multi-apartment buildings; car wash facilities; mini-malls and other business complexes; shopping malls; hotels; office buildings; public warehouses; automotive dealerships; commercial airfields; and other light industrial facilities.

iv. *Automotive repair shops.* This category is defined as a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 7532-7534, or 7536-7539.

v. *Restaurants.* This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet.

vi. *All hillside development greater than 5,000 square feet.* This category is defined as any development which creates 5,000 square feet of impervious surface which is located in an area with known erosive soil conditions, where the development will grade on any natural slope that is twenty-five percent or greater.

vii. *Environmentally Sensitive Areas: All development and redevelopment located within or directly adjacent to or discharging directly to an environmentally sensitive area (where discharges from the development or redevelopment will enter receiving waters within the environmentally sensitive area), which either creates 2,500 square feet of impervious surface on a proposed project site or increases the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition.* Environmentally sensitive areas include but are not limited to all Clean Water Act Section 303(d) impaired water bodies;

areas designated as Areas of Special Biological Significance by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); water bodies designated with the RARE beneficial use by the State Water Resources Control Board (Water Quality Control Plan for the San Diego Basin (1994) and amendments); areas designated as preserves or their equivalent under the Multi Species Conservation Program within the Cities and County of San Diego; and any other equivalent environmentally sensitive areas which have been identified by the Copermittees. "Directly adjacent" means situated within 200 feet of the environmentally sensitive area. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.

viii. *Parking lots 5,000 square feet or more or with 15 or more parking spaces and potentially exposed to urban runoff.* Parking lot is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce.

ix. *Street, roads, highways, and freeways.* This category includes any paved surface which is 5,000 square feet or greater used for the transportation of automobiles, trucks, motorcycles, and other vehicles.

(b) BMP Requirements – The SUSMP shall include a list of recommended source control and structural treatment BMPs. The SUSMP shall require all new development and significant redevelopment projects falling under the above priority project categories or locations to implement a combination of BMPs selected from the recommended BMP list, including at a minimum (1) source control BMPs and (2) structural treatment BMPs. The BMPs shall, at a minimum:

i. Control the post-development peak storm water runoff discharge rates and velocities to maintain or reduce pre-development downstream erosion, and to protect stream habitat;
ii. Conserve natural areas where feasible;
iii. Minimize storm water pollutants of concern in urban runoff from the new development or significant redevelopment (through implementation of source control BMPs). Identification of pollutants of concern should include at a minimum consideration of any pollutants for which water bodies receiving the development's runoff are listed as impaired under Clean Water Act section 303(d), any pollutant associated with the land use type of the development, and any pollutant commonly associated with urban runoff;
iv. Remove pollutants of concern from urban runoff (through implementation of structural treatment BMPs);
v. Minimize directly connected impervious areas where feasible;
vi. Protect slopes and channels from eroding;
vii. Include storm drain stenciling and signage;
viii. Include properly designed outdoor material storage areas;
ix. Include properly designed trash storage areas;
x. Include proof of a mechanism, to be provided by the project proponent or Copermittee, which will ensure ongoing long-term structural BMP maintenance;
xi. Include additional water quality provisions applicable to individual priority project categories;
xii. Be correctly designed so as to remove pollutants to the maximum extent practicable;
xiii. Be implemented close to pollutant sources, when feasible, and prior to discharging into receiving waters supporting beneficial uses; and

xiv. Ensure that post-development runoff does not contain pollutant loads which cause or contribute to an exceedance of water quality objectives or which have not been reduced to the maximum extent practicable.

(c) Numeric Sizing Criteria – The SUSMP shall require structural treatment BMPs to be implemented for all priority development projects. All structural treatment BMPs shall be located so as to infiltrate, filter, or treat the required runoff volume or flow prior to its discharge to any receiving waterbody supporting beneficial uses. Structural treatment BMPs may be shared by multiple new development projects as long as construction of any shared structural treatment BMPs is completed prior to the use of any new development project from which the structural treatment BMP will receive runoff.

In addition to meeting the BMP requirements listed in item F.1.b.(2)(b) above, all structural treatment BMPs for a single priority development project shall collectively be sized to comply with the following numeric sizing criteria:

Volume

Volume-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

i. The volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the local historical rainfall record (0.6 inch approximate average for the San Diego County area);[3] or

ii. The volume of runoff produced by the 85th percentile 24-hour rainfall event, determined as the maximized capture storm water volume for the area, from the formula recommended in Urban Runoff Quality Management, WEF Manual of Practice No. 23/ASCE Manual of Practice No. 87, (1998); or

iii. The volume of annual runoff based on unit basin storage volume, to achieve 90% or more volume treatment by the method recommended in California Stormwater Best Management Practices Handbook – Industrial/Commercial, (1993); or

iv. The volume of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile 24-hour runoff event;[4]

OR

Flow

Flow-based BMPs shall be designed to mitigate (infiltrate, filter, or treat) either:

i. The maximum flow rate of runoff produced from a rainfall intensity of 0.2 inch of rainfall per hour; or

[3] This volume is not a single volume to be applied to all of San Diego County. The size of the 85th percentile storm event is different for various parts of the County. The Copermittees are encouraged to calculate the 85th percentile storm event for each of their jurisdictions using local rain data pertinent to their particular jurisdiction (the 0.6 inch standard is a rough average for the County and should only be used where appropriate rain data is not available). In addition, isopluvial maps contained in the County of San Diego Hydrology Manual may be used to extrapolate rainfall data to areas where insufficient data exists in order to determine the volume of the local 85th percentile storm event in such areas. Where the Copermittees will use isopluvial maps to determine the 85th percentile storm event in areas lacking rain data, the Copermittees shall describe their method for using isopluvial maps in the model and local SUSMPs.

[4] Under this volume criteria, hourly rainfall data may be used to calculate the 85th percentile storm event, where each storm event is identified by its separation from other storm events by at least six hours of no rain. Where the Copermittees may use hourly rainfall data to calculate the 85th percentile storm event, the Copermittees shall describe their method for using hourly rainfall data to calculate the 85th percentile storm event in the model and local SUSMPs.

ii. The maximum flow rate of runoff produced by the 85th percentile hourly rainfall intensity, as determined from the local historical rainfall record, multiplied by a factor of two; or

iii. The maximum flow rate of runoff, as determined from the local historical rainfall record, that achieves approximately the same reduction in pollutant loads and flows as achieved by mitigation of the 85th percentile hourly rainfall intensity multiplied by a factor of two.

(d) Equivalent Numeric Sizing Criteria - The Copermittees may develop, as part of the model SUSMP, any equivalent method for calculating the volume or flow which must be mitigated (i.e., any equivalent method for calculating numeric sizing criteria) by post-construction structural treatment BMPs. Such equivalent sizing criteria may be authorized by the SDRWQCB for use in place of the above criteria. In the absence of development and subsequent authorization of such equivalent numeric sizing criteria, the above numeric sizing criteria requirement shall be implemented.

(e) Pollutants or Conditions of Concern – As part of the model SUSMP, the Copermittees shall develop a procedure for pollutants or conditions of concern to be identified for each new development or significant redevelopment project. The procedure shall include, at a minimum, consideration of (1) receiving water quality (including pollutants for which receiving waters are listed as impaired under Clean Water Act section 303(d)); (2) land use type of the development project and pollutants associated with that land use type; (3) pollutants expected to be present on site; (4) changes in storm water discharge flow rates, velocities, durations, and volumes resulting from the development project; and (5) sensitivity of receiving waters to changes in storm water discharge flow rates, velocities, durations, and volumes.

(f) Implementation Process – As part of the model SUSMP, the Copermittees shall develop a process by which SUSMP requirements will be implemented. The process shall identify at what point in the planning process development projects will be required to meet SUSMP requirements. The process shall also include identification of the roles and responsibilities of various municipal departments in implementing the SUSMP requirements, as well as any other measures necessary for the implementation of SUSMP requirements.

(g) Restaurants Less than 5,000 Square Feet - New development and significant redevelopment restaurant projects where the land area development is less than 5,000 square feet shall meet all SUSMP requirements except for structural treatment BMP and numeric sizing criteria requirement F.1.b.(2)(c) and peak flow rate requirement F.1.b(2)(b)(i). A restaurant is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

(h) Waiver Provision – A Copermittee may provide for a project to be waived from the requirement of implementing structural treatment BMPs (F.1.b.(2)(c)) if infeasibility can be established. A waiver of infeasibility shall only be granted by a Copermittee when all available structural treatment BMPs have been considered and rejected as infeasible. Copermittees shall notify the SDRWQCB within 5 days of each waiver issued and shall include the name of the person granting each waiver.

As part of the model SUSMP, the Copermittees may develop a program to require project proponents who have received waivers to transfer the savings in cost, as determined by the Copermittee(s), to a storm water mitigation fund. This program may be implemented by all Copermittees which choose to provide waivers. Funds may be used on projects to improve urban runoff quality within the watershed of the waived

project. The waiver program may identify:

i. The entity or entities that will manage the storm water mitigation fund (i.e., assume full responsibility for)
ii. The range and types of acceptable projects for which mitigation funds may be expended;
iii. The entity or entities that will assume full responsibility for each mitigation project including its successful completion
iv. How the dollar amount of fund contributions will be determined.

(i) Infiltration and Groundwater Protection – To protect groundwater quality, each Copermittee shall apply restrictions to the use of structural treatment BMPs which are designed to primarily function as infiltration devices (such as infiltration trenches and infiltration basins). Such restrictions shall ensure that the use of such infiltration structural treatment BMPs shall not cause or contribute to an exceedance of groundwater quality objectives. At a minimum, use of structural treatment BMPs which are designed to primarily function as infiltration devices shall meet the following conditions:[5]

i. Urban runoff shall undergo pretreatment such as sedimentation or filtration prior to infiltration.
ii. All dry weather flows shall be diverted from infiltration devices.
iii. Pollution prevention and source control BMPs shall be implemented at a level appropriate to protect groundwater quality at sites where infiltration structural treatment BMPs are to be used.
iv. Infiltration structural treatment BMPs shall be adequately maintained so that they remove pollutants to the maximum extent practicable.
v. The vertical distance from the base of any infiltration structural treatment BMP to the seasonal high groundwater mark shall be at least 10 feet. Where groundwater basins do not support beneficial uses, this vertical distance criteria may be reduced, provided groundwater quality is maintained.
vi. The soil through which infiltration is to occur shall have physical and chemical characteristics (such as appropriate cation exchange capacity, organic content, clay content, and infiltration rate) which are adequate for proper infiltration durations and treatment of urban runoff for the protection of groundwater beneficial uses.
vii. Infiltration structural treatment BMPs shall not be used for areas of industrial or light industrial activity; areas subject to high vehicular traffic (25,000 or greater average daily traffic on main roadway or 15,000 or more average daily traffic on any intersecting roadway); automotive repair shops; car washes; fleet storage areas (bus, truck, etc.); nurseries; and other high threat to water quality land uses and activities as designated by each Copermittee.
viii. Infiltration structural BMPs shall be located a minimum of 100 feet horizontally from any water supply wells.

As part of the model and local SUSMPs, the Copermittees may develop alternative restrictions on the use of structural treatment BMPs which are designed to primarily function as infiltration devices.

(j) Downstream Erosion – As part of the model SUSMP and the local SUSMPs, the Copermittees shall develop criteria to ensure that discharges from new development and significant redevelopment maintain or reduce pre-development downstream erosion and protect stream habitat. At a minimum, criteria shall be developed to control peak

[5] These conditions do not apply to structural treatment BMPs which allow incidental infiltration and are not designed to primarily function as infiltration devices (such as grassy swales, detention basins, vegetated buffer strips, constructed wetlands, etc.)

storm water discharge rates and velocities in order to maintain or reduce pre-development downstream erosion and protect stream habitat. Storm water discharge volumes and durations should also be considered.

F.1.c. Revise Environmental Review Processes

(1) To the extent feasible, the Copermittees shall revise their current environmental review processes to include requirements for evaluation of water quality effects and identification of appropriate mitigation measures. The following questions are examples to be considered in addressing increased pollutants and flows from proposed projects:

(a) Could the proposed project result in an increase in pollutant discharges to receiving waters? Consider water quality parameters such as temperature, dissolved oxygen, turbidity and other typical storm water pollutants (e.g., heavy metals, pathogens, petroleum derivatives, synthetic organics, sediment, nutrients, oxygen-demanding substances, and trash).
(b) Could the proposed project result in significant alteration of receiving water quality during or following construction?
(c) Could the proposed project result in increased impervious surfaces and associated increased runoff?
(d) Could the proposed project create a significant adverse environmental impact to drainage patterns due to changes in runoff flow rates or volumes?
(e) Could the proposed project result in increased erosion downstream?
(f) Is the project tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list. If so, can it result in an increase in any pollutant for which the water body is already impaired?
(g) Is project tributary to other environmentally sensitive areas? If so, can it exacerbate already existing sensitive conditions?
(h) Could the proposed project have a potentially significant environmental impact on surface water quality, to either marine, fresh, or wetland waters?
(i) Could the proposed project have a potentially significant adverse impact on ground water quality?
(j) Could the proposed project cause or contribute to an exceedance of applicable surface or groundwater receiving water quality objectives or degradation of beneficial uses?
(k) Can the project impact aquatic, wetland, or riparian habitat?

F.1.d. Conduct Education Efforts Focused on New Development and Redevelopment

(1) Internal: Municipal Staff and Others

Each Copermittee shall implement an education program to ensure that its planning and development review staffs (and Planning Boards and Elected Officials, if applicable) have an understanding of:

(a) Federal, state, and local water quality laws and regulations applicable to development projects;
(b) The connection between land use decisions and short and long-term water quality impacts (i.e., impacts from land development and urbanization); and
(c) How impacts to receiving water quality resulting from development can be minimized (i.e., through implementation of various source control and structural BMPs).

(2) External: Project Applicants, Developers, Contractors, Property Owners, Community Planning Groups

As early in the planning and development process as possible, each Copermittee shall implement a program to educate project applicants, developers, contractors, property owners, and community planning groups on the following topics:

(a) Federal, state, and local water quality laws and regulations applicable to development projects;
(b) Required federal, state, and local permits pertaining to water quality;
(c) Water quality impacts of urbanization; and
(d) Methods for minimizing the impacts of development on receiving water quality.

F.2. Construction Component

Each Copermittee shall implement a Construction Component of its Jurisdictional URMP to reduce pollutants in runoff from construction sites during all construction phases. At a minimum the construction component shall address:

F.2.a. Pollution Prevention
F.2.b. Grading Ordinance Update
F.2.c. Modify Construction and Grading Approval Process
F.2.d. Source Identification
F.2.e. Threat to Water Quality Prioritization
F.2.f. BMP Implementation
F.2.g. Inspection of Construction Sites
F.2.h. Enforcement of Construction Sites
F.2.i. Reporting of Non-compliant Sites
F.2.j. Education Focused on Construction Activities

F.2.a. Pollution Prevention (Construction)

Each Copermittee shall implement pollution prevention methods in its Construction Component and shall require its use by construction site owners, developers, contractors, and other responsible parties, where appropriate.

F.2.b. Grading Ordinance Update (Construction)

Each Copermittee shall review and update its grading ordinances as necessary for compliance with its storm water ordinances and this Order. The updated grading ordinance shall require implementation of BMPs and other measures during all construction activities, including the following BMPs and other measures or their equivalent:

(1) Erosion prevention;
(2) Seasonal restrictions on grading;
(3) Slope stabilization requirements;
(4) Phased grading;
(5) Revegetation as early as feasible;
(6) Preservation of natural hydrologic features;
(7) Preservation of riparian buffers and corridors;
(8) Maintenance of all source control and structural treatment BMPs; and
(9) Retention and proper management of sediment and other construction pollutants on site.

F.2.c Modify Construction and Grading Approval Process (Construction)

Prior to approval and issuance of local construction and grading permits, each Copermittee shall require all individual proposed construction and grading projects to implement measures to ensure that pollutants from the site will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of water quality objectives. Each Copermittee shall further ensure that

all grading and construction activities will be in compliance with applicable Copermittee ordinances (e.g., storm water, grading, construction, etc.) and other applicable requirements, including this Order.

(1) Construction and Grading Project Requirements

Include construction and grading project requirements in local grading and construction permits to ensure that pollutant discharges are reduced to the maximum extent practicable and water quality objectives are not violated during the construction phase. Such requirements shall include the following requirements or their equivalent:

(a) Require project proponent to develop and implement a plan to manage storm water and non-storm water discharges from the site at all times;
(b) Require project proponent to minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events which may occur, as necessary for compliance with this Order;
(c) Require project proponent to emphasize erosion prevention as the most important measure for keeping sediment on site during construction;
(d) Require project proponent to utilize sediment controls as a supplement to erosion prevention for keeping sediment on-site during construction, and never as the single or primary method;
(e) Require project proponent to minimize areas that are cleared and graded to only the portion of the site that is necessary for construction;
(f) Require project proponent to minimize exposure time of disturbed soil areas;
(g) Require project proponent to temporarily stabilize and reseed disturbed soil areas as rapidly as possible;
(h) (h) Require project proponent to permanently revegetate or landscape as early as feasible;
(i) Require project proponent to stabilize all slopes; and
(j) Require project proponents subject to California's statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities, (hereinafter General Construction Permit), to provide evidence of existing coverage under the General Construction Permit.

F.2.d. Source Identification (Construction)

Each Copermittee shall annually develop and update, prior to the rainy season, a watershed based inventory of all construction sites within its jurisdiction regardless of site size or ownership. This requirement is applicable to all construction sites regardless of whether the construction site is subject to the California statewide General NPDES Permit for Storm Water Discharges Associated With Construction Activities (hereinafter General Construction Permit), or other individual NPDES permit. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended, but not required.

F.2.e. Threat to Water Quality Prioritization (Construction)

(1) To establish priorities for construction oversight activities under this Order, the Copermittee shall prioritize its watershed-based inventory (developed pursuant to F.2.d. above) by threat to water quality. Each construction site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) soil erosion potential; (2) site slope; (3) project size and type; (4) sensitivity of receiving water bodies; (5) proximity to receiving water bodies; (6) non-storm water discharges; and (7) any other relevant factors.

(2) A high priority construction site shall at a minimum be defined as a site meeting either of the following criteria or equivalent criteria:

(a) The site is 50 acres or more and grading will occur during the wet season; OR
(b) The site is (1) 5 acres or more and (2) tributary to a Clean Water Act section 303(d) water body impaired for sediment or is within or directly adjacent to or discharging directly to a coastal lagoon or other receiving water within an environmentally sensitive area (as defined in section F.1.b.(2)(a)vii of this Order).

F.2.f. BMP Implementation (Construction)

(1) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality construction sites (as determined under section F.2.e). BMPs are to be implemented year round.

(2) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each construction site within its jurisdiction year round. If particular minimum BMPs are infeasible at any specific site, each Copermittee shall implement, or require the implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order, including BMPs which are more stringent than those required under the statewide General Construction Permit.

(3) Each Copermittee shall implement, or require the implementation of, BMPs year round; however, BMP implementation requirements can vary based on wet and dry seasons.

(4) Each Copermittee shall implement, or require implementation of, additional controls for construction sites tributary to Clean Water Act section 303(d) water bodies impaired for sediment as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for construction sites within or adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)(vii) of this Order) as necessary to comply with this Order.

F.2.g. Inspection of Construction Sites (Construction)

(1) Each Copermittee shall conduct construction site inspections for compliance with its ordinances (grading, storm water, etc.), permits (construction, grading, etc.), and this Order. Inspections shall include review of site erosion control and BMP implementation plans.

(2) Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.2.e above. During the wet season (i.e., October 1 through April 30 of each year), each Copermittee shall inspect, at a minimum, each High Priority construction site, either:

(a) Weekly
OR
(b) Monthly for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):

i. Copermittee has record of construction site's Waste Discharge Identification Number (WDID#) documenting construction site's coverage under the statewide General Construction Permit; and
ii. Copermittee has reviewed the constructions site's Storm Water Pollution Prevention Plan (SWPPP); and

iii. Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
iv. Copermittee finds that the SWPPP is being properly implemented on site.

At a minimum, Medium and Low Priority construction sites shall be inspected by Copermittees twice during the wet season. All construction sites shall be inspected by the Copermittees as needed during the dry season (i.e., May 1 through September 30 of each year).

(3) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

F.2.h. Enforcement of Construction Sites (Construction)

Each Copermittee shall enforce its ordinances (grading, storm water, etc.) and permits (construction, grading, etc.) at all construction sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

F.2.i. Reporting of Non-compliant Sites (Construction)

Each Copermittee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1 (and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.

F.2.j. Education Focused on Construction Activities (Construction)

(1) Internal: Municipal Staff

Each Copermittee shall implement an education program to ensure that its construction, building, and grading review staffs and inspectors have an understanding of:

(a) Federal, state, and local water quality laws and regulations applicable to construction and grading activities.
(b) The connection between construction activities and water quality impacts (i.e., impacts from land development and urbanization).
(c) How erosion can be prevented.
(d) How impacts to receiving water quality resulting from construction activities can be minimized (i.e., through implementation of various source control and structural BMPs).
(e) Applicable topics listed in section F.4. of this Order.

(2) External: Project Applicants, Contractors, Developers, Property Owners, and other Responsible Parties

Each Copermittee shall implement an education program to ensure that project applicants, contractors, developers, property owners, and other responsible parties have an understanding of the topics outlined in section F.2.j.1. above of this Order.

F.3. Existing Development Component

Each Copermittee shall minimize the short and long-term impacts on receiving water quality from all types of existing development.

F.3.a. Municipal (Existing Development)

Each Copermittee shall implement a Municipal (Existing Development) Component to prevent or reduce pollutants in runoff from all municipal land use areas and activities. At a minimum the municipal component shall address:

F.3.a.(1)	Pollution Prevention
F.3.a.(2)	Source Identification
F.3.a.(3)	Threat to Water Quality Prioritization
F.3.a.(4)	BMP Implementation
F.3.a.(5)	Maintenance of Municipal Separate Storm Sewer System
F.3.a.(6)	Management of Pesticides, Herbicides, and Fertilizers
F.3.a.(7)	Inspection of Municipal Areas and Activities
F.3.a.(8)	Enforcement of Municipal Areas and Activities

F.3.a.(1) Pollution Prevention (Municipal)

Each Copermittee shall implement pollution prevention methods in its Municipal (Existing Development) Component and shall require its use by appropriate municipal departments and personnel, where appropriate.

F.3.a.(2) Source Identification (Municipal)

Each Copermittee shall develop, and update annually, a watershed based inventory of the name, address (if applicable), and description of all municipal land use areas and activities which generate pollutants. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended when applicable, but not required.

F.3.a.(3) Threat to Water Quality Prioritization (Municipal)

(a) To establish priorities for oversight of municipal areas and activities required under this Order, each Copermittee shall prioritize each watershed inventory in F.3.a.2. above by threat to water quality and update annually. Each municipal area and activity shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality, each Copermittee shall consider (1) type of municipal area or activity; (2) materials used; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility or area; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; and (9) any other relevant factors.

(b) At a minimum, the high priority municipal areas and activities shall include the following:

i. Roads, Streets, Highways, and Parking Facilities.
ii. Flood Management Projects and Flood Control Devices.
iii. Areas and activities tributary to a Clean Water Act section 303(d) impaired water body, where an area or activity generates pollutants for which the water body is impaired. Areas and activities within or adjacent to or discharging

directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vii of this Order).

iv. Municipal Waste Facilities.
- Active or closed municipal landfills;
- Publicly owned treatment works (including water and wastewater treatment plants) and sanitary sewage collection systems;
- Municipal separate storm sewer systems;
- Incinerators;
- Solid waste transfer facilities;
- Land application sites;
- Uncontrolled sanitary landfills;
- Corporate yards including maintenance and storage yards for materials, waste, equipment and vehicles;
- Sites for disposing and treating sewage sludge; and
- Hazardous waste treatment, disposal, and recovery facilities.

v. Other municipal areas and activities that the Copermittee determines may contribute a significant pollutant load to the MS4.

vi. Municipal airfields.

F.3.a.(4) BMP Implementation (Municipal)

(a) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality municipal areas and activities (as determined under section F.3.a.(3)). The designated minimum BMPs for high threat to water quality municipal areas and activities shall be area or activity specific as appropriate.

(b) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the threat to water quality rating) at each municipal area or activity within its jurisdiction. If particular minimum BMPs are infeasible for any specific area or activity, each Copermittee shall implement, or require implementation of other equivalent BMPs. Each Copermittee shall also implement any additional BMPs as are necessary to comply with this Order.

i. Each Copermittee shall evaluate feasibility of retrofitting existing structural flood control devices and retrofit where needed.

(c) Each Copermittee shall implement, or require implementation of, any additional controls for municipal areas and activities tributary to Clean Water Act section 303(d) impaired water bodies (where an area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for municipal areas and activities within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)(vii) of this Order) as necessary to comply with this Order.

F.3.a.(5) Maintenance of Municipal Separate Storm Sewer System (Municipal)

(a) Each Copermittee shall implement a schedule of maintenance activities at all structural controls designed to reduce pollutant discharges to or from its MS4s and related drainage structures.

(b) Each Copermittee shall implement a schedule of maintenance activities for the municipal separate storm sewer system.

(c) The maintenance activities must, at a minimum, include:

i. Inspection and removal of accumulated waste (e.g. sediment, trash, debris and other pollutants) between May 1 and September 30 of each year;

ii. Additional cleaning as necessary between October 1 and April 30 of each year;

iii. Record keeping of cleaning and the overall quantity of waste removed;

iv. Proper disposal of waste removed pursuant to applicable laws;

v. Measures to eliminate waste discharges during MS4 maintenance and cleaning activities.

F.3.a.(6) Management of Pesticides, Herbicides, and Fertilizers (Municipal)

The Copermittees shall implement BMPs to reduce the contribution of pollutants associated with the application, storage, and disposal of pesticides, herbicides and fertilizers from municipal areas and activities to MS4s. Important municipal areas and activities include municipal facilities, public rights-of-way, parks, recreational facilities, golf courses, cemeteries, botanical or zoological gardens and exhibits, landscaped areas, etc.

Such BMPs shall include, at a minimum: (1) educational activities, permits, certifications and other measures for municipal applicators and distributors; (2) integrated pest management measures that rely on non-chemical solutions; (3) the use of native vegetation; (4) schedules for irrigation and chemical application; and (5) the collection and proper disposal of unused pesticides, herbicides, and fertilizers.

F.3.a.(7) Inspection of Municipal Areas and Activities (Municipal)

At a minimum, each Copermittee shall inspect high priority municipal areas and activities annually. Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

F.3.a.(8) Enforcement of Municipal Areas and Activities (Municipal)

Each Copermittee shall enforce its storm water ordinance for all municipal areas and activities as necessary to maintain compliance with this Order.

F.3.b. Industrial (Existing Development)

Each Copermittee shall implement an Industrial (Existing Development) Component to reduce pollutants in runoff from all industrial sites. At a minimum the industrial component shall address:

F.3.b.(1) Pollution Prevention
F.3.b.(2) Source Identification
F.3.b.(3) Threat to Water Quality Prioritization
F.3.b.(4) BMP Implementation
F.3.b.(5) Monitoring of Industrial Sites
F.3.b.(6) Inspection of Industrial Sites
F.3.b.(7) Enforcement Measures for Industrial Sites
F.3.b.(8) Reporting of Non-compliant Sites

F.3.b.(1) Pollution Prevention (Industrial)

Each Copermittee shall implement pollution prevention methods in its Industrial (Existing Development) Component and shall require its use by industry, where appropriate.

F.3.b.(2) Source Identification (Industrial)

Each Copermittee shall develop and update annually a watershed-based inventory of all industrial sites within its jurisdiction regardless of site ownership. This requirement is applicable to all industrial sites regardless of whether the industrial site is subject the California statewide General NPDES Permit for Storm Water Discharges Associated With Industrial Activities, Except Construction (hereinafter General Industrial Permit) or other individual NPDES permit.

The inventory shall include the following minimum information for each industrial site: name; address; and a narrative description including SIC codes which best reflects the principal products or services provided by each facility. The use of an automated database system, such as Geographical Information System (GIS) is highly recommended, but not required.

F.3.b.(3) Threat to Water Quality Prioritization (Industrial)

(a) To establish priorities for industrial oversight activities under this Order, the Copermittee shall prioritize each watershed-based inventory in F.3.b.(2) above by threat to water quality and update annually. Each industrial site shall be classified as high, medium, or low threat to water quality. In evaluating threat to water quality each Copermittee shall consider (1) type of industrial activity (SIC Code); (2) materials used in industrial processes; (3) wastes generated; (4) pollutant discharge potential; (5) non-storm water discharges; (6) size of facility; (7) proximity to receiving water bodies; (8) sensitivity of receiving water bodies; (9) whether the industrial site is subject to the statewide General Industrial Permit; and (10) any other relevant factors.

(b) At a minimum the high priority industrial sites shall include industrial facilities that are subject to section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA); industrial facilities tributary to a Clean Water Act section 303(d) impaired water body, where a facility generates pollutants for which the water body is impaired; industrial facilities within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)vii of this Order); facilities subject to the statewide General Industrial Permit; and all other industrial facilities that the Copermittee determines are contributing significant pollutant loading to its MS4, regardless of whether such facilities are covered under the statewide General Industrial Permit or other NPDES permit.

F.3.b.(4) BMP Implementation (Industrial)

(a) Each Copermittee shall designate a set of minimum BMPs for high, medium, and low threat to water quality industrial sites (as determined under section F.3.b.(3)). The designated minimum BMPs for high threat to water quality industrial sites shall be industry and site specific as appropriate.

(b) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs (based upon the site's threat to water quality rating) at each industrial site within its jurisdiction. If particular minimum BMPs are infeasible at any specific site, each Copermittee shall implement, or require implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order including BMPs which are more stringent than those required under the statewide General Industrial Permit.

(c) Each Copermittee shall implement, or require implementation of, additional controls for industrial sites tributary to Clean Water Act section 303(d) impaired water bodies (where a site generates pollutants for which the water body is impaired) as necessary to comply

with this Order. Each Copermittee shall implement, or require implementation of, additional controls for industrial sites within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)(vii) of this Order) as necessary to comply with this Order.

F.3.b.(5) Monitoring of Industrial Sites (Industrial)

(a) Each Copermittee shall conduct, or require industry to conduct, a monitoring program for runoff from each high threat to water quality industrial site (identified in F.3.b.(3) above). Group monitoring by multiple industrial sites conducted under group monitoring programs approved by the State Water Resources Control Board is acceptable.

(b) At a minimum, the monitoring program shall provide quantitative data from two storm events per year on the following constituents:

i. Any pollutant listed in effluent guidelines subcategories where applicable;
ii. Any pollutant for which an effluent limit has been established in an existing NPDES permit for the facility;
iii. Oil and grease or Total Organic Carbon (TOC);
iv. pH;
v. Total suspended solids (TSS);
vi. Specific conductance; and
vii. Toxic chemicals and other pollutants that are likely to be present in storm water discharges.

F.3.b.(6) Inspection of Industrial Sites (Industrial)

(a) Each Copermittee shall conduct industrial site inspections for compliance with its ordinances, permits, and this Order. Inspections shall include review of BMP implementation plans.

(b) Each Copermittee shall establish inspection frequencies and priorities as determined by the threat to water quality prioritization described in F.3.b.(3) above. Each Copermittee shall inspect high priority industrial sites, at a minimum:

i. Annually

OR

ii. Bi-annually for any site that the responsible Copermittee certifies in a written statement to the SDRWQCB all of the following (certified statements may be submitted to the SDRWQCB at any time for one or more sites):

- Copermittee has record of industrial site's Waste Discharge Identification Number (WDID#) documenting industrial site's coverage under the statewide General Industrial Permit; and
- Copermittee has reviewed the industrial site's Storm Water Pollution Prevention Plan (SWPPP); and
- Copermittee finds SWPPP to be in compliance with all local ordinances, permits, and plans; and
- Copermittee finds that the SWPPP is being properly implemented on site.

Each Copermittee shall inspect medium and low threat to water quality industrial sites as needed.

(c) Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

(d) To the extent that the SDRWQCB has conducted an inspection of a high priority industrial site during a particular year, the requirement for the responsible Copermittee to inspect this site during the same year will be satisfied.

F.3.b.(7) Enforcement of Industrial Sites (Industrial)

Each Copermittee shall enforce its storm water ordinance at all industrial sites as necessary to maintain compliance with this Order. Copermittee ordinances or other regulatory mechanisms shall include sanctions to ensure compliance. Sanctions shall include the following or their equivalent: Non-monetary penalties, fines, bonding requirements, and/or permit denials for non-compliance.

F.3.b.(8) Reporting of Non-compliant Sites (Industrial)

Each Copermittee shall provide oral notification to the SDRWQCB of non-compliant sites that are determined to pose a threat to human or environmental health within its jurisdiction within 24 hours of the discovery of noncompliance, as required under section R.1 (and B.6 of Attachment C) of this Order.

Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review.

Such oral notification shall be followed up by a written report to be submitted to the SDRWQCB within 5 days of the incidence of non-compliance as required under section R.1(and B.6 of Attachment C) of this Order. Sites are considered non-compliant when one or more violations of local ordinances, permits, plans, or this Order exist on the site.

F.3.c. Commercial (Existing Development)

Each Copermittee shall implement a Commercial (Existing Development) Component to reduce pollutants in runoff from commercial sites. At a minimum the commercial component shall address:

F.3.c.(1) Pollution Prevention
F.3.c.(2) Source Identification
F.3.c.(3) BMP Implementation
F.3.c.(4) Inspection of Commercial Sites and Sources
F.3.c.(5) Enforcement of Commercial Sites and Sources

F.3.c.(1) Pollution Prevention (Commercial)

Each Copermittee shall implement pollution prevention methods in its Commercial (Existing Development) Component and shall require its use by commerce, where appropriate.

F.3.c.(2) Source Identification (Commercial)

Each Copermittee shall develop and update annually an inventory of the following high priority threat to water quality commercial sites/sources listed below. (If any commercial site/source listed below is inventoried as an industrial site, as required under section F.3.b.(2) of this Order, it is not necessary to also inventory it as a commercial site/source).

(a) Automobile mechanical repair, maintenance, fueling, or cleaning;
(b) Airplane mechanical repair, maintenance, fueling, or cleaning;
(c) Boat mechanical repair, maintenance, fueling, or cleaning;

(d) Equipment repair, maintenance, fueling, or cleaning;
(e) Automobile and other vehicle body repair or painting;
(f) Mobile automobile or other vehicle washing;
(g) Automobile (or other vehicle) parking lots and storage facilities;
(h) Retail or wholesale fueling;
(i) Pest control services;
(j) Eating or drinking establishments;
(k) Mobile carpet, drape or furniture cleaning;
(l) Cement mixing or cutting;
(m) Masonry;
(n) Painting and coating;
(o) Botanical or zoological gardens and exhibits;
(p) Landscaping;
(q) Nurseries and greenhouses;
(r) Golf courses, parks and other recreational areas/facilities;
(s) Cemeteries;
(t) Pool and fountain cleaning;
(u) Marinas;
(v) Port-a-Potty servicing;
(w) Other commercial sites/sources that the Copermittee determines may contribute a significant pollutant load to the MS4;
(x) Any commercial site or source tributary to a Clean Water Act section 303(d) impaired water body, where the site or source generates pollutants for which the water body is impaired; and
(y) Any commercial site or source within or directly adjacent to or discharging directly to a coastal lagoon or other receiving water within an environmentally sensitive area (as defined in F.1.b(2)(a)vii of this Order).

The use of an automated database system, such as Geographical Information System (GIS) is highly recommended, but not required.

F.3.c.(3) BMP Implementation (Commercial)

(a) Each Copermittee shall designate a set of minimum BMPs for the high priority threat to water quality commercial sites/sources (listed above in section F.3.c.(2)). The designated minimum BMPs for the high threat to water quality commercial sites/sources shall be site and source specific as appropriate.

(b) Each Copermittee shall implement, or require the implementation of, the designated minimum BMPs at each high priority threat to water quality commercial site/source within its jurisdiction. If particular minimum BMPs are infeasible for any specific site/source, each Copermittee shall implement, or require the implementation of, other equivalent BMPs. Each Copermittee shall also implement or require any additional site specific BMPs as necessary to comply with this Order.

(c) Each Copermittee shall implement, or require implementation of, additional controls for commercial sites or sources tributary to Clean Water Act section 303(d) impaired water bodies (where a site or source generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for commercial sites or sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)(vii) of this Order) as necessary to comply with this Order.

F.3.c.(4) Inspection of Commercial Sites and Sources (Commercial)

Each Copermittee shall inspect high priority commercial sites and sources as needed. Based upon site inspection findings, each Copermittee shall implement all follow-up actions necessary to comply with this Order.

F.3.c.(5) Enforcement of Commercial Sites and Sources (Commercial)

Each Copermittee shall enforce its storm water ordinance for all commercial sites and sources as necessary to maintain compliance with this Order.

F.3.d. Residential (Existing Development)

Each Copermittee shall implement a Residential (Existing Development) Component to prevent or reduce pollutants in runoff from all residential land use areas and activities. At a minimum the residential component shall address:

F.3.d.(1) Pollution Prevention
F.3.d.(2) Threat to Water Quality Prioritization
F.3.d.(3) BMP Implementation
F.3.d.(4) Enforcement of Residential Areas and Activities

F.3.d.(1) Pollution Prevention (Residential)

Each Copermittee shall include pollution prevention methods in its Residential (Existing Development) Component and shall encourage their use by residents, where appropriate.

F.3.d.(2) Threat to Water Quality Prioritization (Residential)

Each Copermittee shall identify high priority residential areas and activities. At a minimum, these shall include:

- Automobile repair and maintenance;
- Automobile washing;
- Automobile parking;
- Home and garden care activities and product use (pesticides, herbicides, and fertilizers);
- Disposal of household hazardous waste (e.g., paints, cleaning products);
- Disposal of pet waste;
- Disposal of green waste;
- Any other residential source that the Copermittee determines may contribute a significant pollutant load to the MS4;
- Any residence tributary to a Clean Water Act section 303(d) impaired water body, where the residence generates pollutants for which the water body is impaired; and
- Any residence within or directly adjacent to or discharging directly to a coastal lagoon or other receiving waters within an environmentally sensitive area (as defined in F.1.b.(2)(a)vii of this Order).

F.3.d.(3) BMP Implementation (Residential)

(a) Each Copermittee shall designate a set of minimum BMPs for high threat to water quality residential areas and activities (as required under section F.3.d.(2)). The designated minimum BMPs for high threat to water quality municipal areas and activities shall be area or activity specific.

(b) Each Copermittee shall require implementation of the designated minimum BMPs for high threat to water quality residential areas and activities. If particular minimum BMPs are infeasible for any specific site/source, each Copermittee shall require implementation of other equivalent BMPs. Each Copermittee shall also implement, or require implementation of, any additional BMPs as are necessary to comply with this Order.

(c) Each Copermittee shall implement, or require implementation of, any additional controls for residential areas and activities tributary to Clean Water Act Section 303(d) impaired water bodies (where a residential area or activity generates pollutants for which the water body is impaired) as necessary to comply with this Order. Each Copermittee shall implement, or require implementation of, additional controls for residential areas within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in section F.1.b.(2)(a)(vii) of this Order) as necessary to comply with this Order.

F.3.d.(4) Enforcement of Residential Areas and Activities (Residential)

Each Copermittee shall enforce its storm water ordinance for all residential areas and activities as necessary to maintain compliance with this Order.

F.4. Education Component

Each Copermittee shall implement an Education Component using all media as appropriate to (1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment. At a minimum the education component shall address the following target communities:

- Municipal Departments and Personnel
- Construction Site Owners and Developers
- Industrial Owners and Operators
- Commercial Owners and Operators
- Residential Community, General Public, and School Children
- Quasi-Governmental Agencies/Districts (i.e., educational institutions, water districts, sanitation districts, etc.)

F.4.a. All Target Communities

At a minimum the Education Program for each target audience shall contain information on the following topics where applicable:

- State and Federal water quality laws
- Requirements of local municipal permits and ordinances (e.g., storm water and grading ordinances and permits)
- Impacts of urban runoff on receiving waters
- Watershed concepts (i.e., stewardship, connection between inland activities and coastal problems, etc.)
- Distinction between MS4s and sanitary sewers
- Importance of good housekeeping (e.g., sweeping impervious surfaces instead of hosing)
- Pollution prevention and safe alternatives
- Household hazardous waste collection
- Recycling

- BMPs: Site specific, structural and source control
- BMP maintenance
- Non-storm water disposal alternatives (e.g., all wash waters)
- Pet and animal waste disposal
- Proper solid waste disposal (e.g., garbage, tires, appliances, furniture, vehicles)
- Equipment and vehicle maintenance and repair
- Public reporting mechanisms
- Green waste disposal
- Integrated pest management
- Native vegetation
- Proper disposal of boat and recreational vehicle waste
- Traffic reduction, alternative fuel use
- Water conservation

F.4.b. Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (educational institutions, water districts, sanitation districts, etc.) Communities

In addition to the topics listed in F.4.a. above, the Municipal, Construction, Industrial, Commercial, and Quasi-Governmental (Educational Institutions, Water Districts, Sanitation Districts) Communities shall also be educated on the following topics where applicable:

- Basic urban runoff training for all personnel
- Additional urban runoff training for appropriate personnel
- Illicit Discharge Detection and Elimination observations and follow-up during daily work activities
- Lawful disposal of catchbasin and other MS4 cleanout wastes
- Water quality awareness for Emergency/First Responders
- California's Statewide General NPDES Permit for Storm Water Discharges Associated with Industrial Activities (Except Construction).
- California's Statewide General NPDES Permit for Storm Water Discharges Associated with Construction Activities
- SDRWQCB's General NPDES Permit for Groundwater Dewatering
- 401 Water Quality Certification by the SDRWQCB
- Statewide General NPDES Utility Vault Permit (NPDES No. CAG990002)
- SDRWQCB Waste Discharge Requirements for Dredging Activities
- Local requirements beyond statewide general permits
- Federal, state and local water quality regulations that affect development projects
- Water quality impacts associated with land development
- Alternative materials & designs to maintain peak runoff values
- How to conduct a storm water inspection
- Potable water discharges to the MS4
- Dechlorination techniques
- Hydrostatic testing
- Spill response, containment, & recovery
- Preventive maintenance
- How to do your job and protect water quality

F.4.c. Residential, General Public, School Children Communities

In addition to the topics listed in F.4.a. above, the Residential, General Public, and School Children Communities shall be educated on the following topics where applicable:

- Public reporting information resources
- Residential and charity car-washing

- Community activities (e.g., "Adopt a Storm Drain, Watershed, or Highway" Programs, citizen monitoring, creek/beach cleanups, environmental protection organization activities, etc.)

F.5. Illicit Discharge Detection and Elimination Component

Each Copermittee shall implement an Illicit Discharge Detection and Elimination Component containing measures to actively seek and eliminate illicit discharges and connections. At a minimum the Illicit Discharge Detection and Elimination Component shall address:

F.5.a	Illicit Discharges and Connections
F.5.b	Dry Weather Analytical Monitoring
F.5.c	Investigation / Inspection and follow-up
F.5.d	Elimination of Illicit Discharges and Connections
F.5.e	Enforce Ordinance
F.5.f	Prevent and Respond To Sewage Spills (Including from Private Laterals and Failing Septic Systems) and Other Spills
F.5.g	Facilitate Public Reporting of Illicit Discharges and Connections – Public Hotline
F.5.h	Facilitate Disposal of Used Oil and Toxic Materials
F.5.i	Limit Infiltration From Sanitary Sewer to MS4

F.5.a. Illicit Discharges and Connections

Each Copermittee shall implement a program to actively seek and eliminate illicit discharges and connections into its MS4. The program shall address all types of illicit discharges and connections excluding those non-storm water discharges not prohibited by the Copermittee in accordance with Section B. of this Order.

F.5.b. Dry Weather Analytical Monitoring

Each Copermittee shall conduct dry weather analytical monitoring of MS4 outfalls within its jurisdiction to detect illicit discharges and connections in accordance with Attachment E of this Order.

F.5.c. Investigation / Inspection and Follow-Up

Each Copermittee shall investigate and inspect any portion of the MS4 that, based on dry weather analytical monitoring results or other appropriate information, indicates a reasonable potential for illicit discharges, illicit connections, or other sources of non-storm water (including non-prohibited discharge(s) identified in Section B. of this Order). Each Copermittee shall establish criteria to identify portions of the system where such follow-up investigations are appropriate.

F.5.d. Elimination of Illicit Discharges and Connections

Each Copermittee shall eliminate all detected illicit discharges, discharge sources, and connections immediately.

F.5.e. Enforce Ordinances

Each Copermittee shall implement and enforce its ordinances, orders, or other legal authority to prevent illicit discharges and connections to its MS4. Each Copermittee shall also implement and enforce its ordinance, orders, or other legal authority to eliminate detected illicit discharges and connections to it MS4.

F.5.f. Prevent and Respond to Sewage Spills (Including from Private Laterals and Failing Septic Systems) and Other Spills

Each Copermittee shall prevent, respond to, contain and clean up all sewage and other spills that may discharge into its MS4 from any source (including private laterals and failing septic systems). Spill response teams shall prevent entry of spills into the MS4 and contamination of surface water, ground water and soil to the maximum extent practicable. Each Copermittee shall coordinate spill prevention, containment and response activities throughout all appropriate departments, programs and agencies to ensure maximum water quality protection at all times.

Each Copermittee shall develop and implement a mechanism whereby it is notified of all sewage spills from private laterals and failing septic systems into its MS4. Each Copermittee shall prevent, respond to, contain and clean up sewage from any such notification.

F.5.g. Facilitate Public Reporting of Illicit Discharges and Connections - - Public Hotline

Each Copermittee shall promote, publicize and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s. Each Copermittee shall facilitate public reporting through development and operation of a public hotline. Public hotlines can be Copermittee-specific or shared by Copermittees. All storm water hotlines shall be capable of receiving reports in both English and Spanish 24 hours per day / seven days per week. Copermittees shall respond to and resolve each reported incident. All reported incidents, and how each was resolved, shall be summarized in each Copermittee's individual Jurisdictional URMP Annual Report.

F.5.h. Facilitate Disposal of Used Oil and Toxic Materials

Each Copermittee shall facilitate the proper management and disposal of used oil, toxic materials, and other household hazardous wastes. Such facilitation shall include educational activities, public information activities, and establishment of collection sites operated by the Copermittee or a private entity. Curbside collection of household hazardous wastes is encouraged.

F.5.i. Limit Infiltration From Sanitary Sewer to MS4/ Provide Preventive Maintenance of Both

Each Copermittee shall implement controls and measures to limit infiltration of seepage from municipal sanitary sewers to MS4s through thorough, routine preventive maintenance of the MS4. Each Copermittee that operates both a municipal sanitary sewer system and a MS4 shall implement controls and measures to limit infiltration of seepage from the municipal sanitary sewers to the MS4s that shall include overall sanitary sewer and MS4 surveys and thorough, routine preventive maintenance of both.

F.6. Public Participation Component

Each Copermittee shall incorporate a mechanism for public participation in the implementation of the Jurisdictional URMP.

F.7. Assessment of Jurisdictional URMP Effectiveness Component

a. As part of its individual Jurisdictional URMP, each Copermittee shall develop a long-term strategy for assessing the effectiveness of its individual Jurisdictional URMP. The long-term assessment strategy shall identify specific direct and indirect measurements that each Copermittee will use to track the long-term progress of its individual Jurisdictional URMP towards achieving improvements in receiving water quality. Methods used for assessing effectiveness shall include the following or their equivalent: surveys, pollutant loading

estimations, and receiving water quality monitoring. The long-term strategy shall also discuss the role of monitoring data in substantiating or refining the assessment.

b. As part of its individual Jurisdictional URMP Annual Report, each Copermittee shall include an assessment of the effectiveness of its Jurisdictional URMP using the direct and indirect assessment measurements and methods developed in its long-term assessment strategy.

F.8. Fiscal Analysis Component

Each Copermittee shall secure the resources necessary to meet the requirements of this Order. As part of its individual Jurisdictional URMP, each Copermittee shall develop a strategy to conduct a fiscal analysis of its urban runoff management program in its entirety. In order to demonstrate sufficient financial resources to implement the conditions of this Order, each Copermittee shall conduct an annual fiscal analysis as part of its individual Jurisdictional URMP Annual Report. This analysis shall, for each fiscal year covered by this Order, evaluate the expenditures (such as capital, operation and maintenance, education, and administrative expenditures) necessary to accomplish the activities of the Copermittee's urban runoff management program. Such analysis shall include a description of the source(s) of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

G. IMPLEMENTATION OF JURISDICTIONAL URMP

Each Copermittee shall have completed full implementation of all requirements of the Jurisdictional URMP section of this Order no later than **365 days after adoption** of this Order, except as stated as follows: Each Copermittee's local SUSMP must be implemented within 180 days of approval of the model SUSMP in the public process by the SDRWQCB.

H. SUBMITTAL OF JURISDICTIONAL URMP DOCUMENT

The written account of the overall program to be conducted by each Copermittee within its jurisdiction during the five-year life of this Order is referred to as the "Jurisdictional URMP Document".

1. Individual – Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP document which describes all activities it has undertaken or is undertaking to implement the requirements of each component of the Jurisdictional URMP section F. of this Order.

   a. At a minimum, the individual Jurisdictional URMP document shall contain the following information for the following components:

      (1) Construction Component

         (a) Which pollution prevention methods will be required for implementation, and how and where they will be required
         (b) Updated grading ordinances
         (c) A description of the modified construction and grading approval process
         (d) Updated construction and grading project requirements in local grading and construction permits
         (e) A completed watershed-based inventory of all construction sites
         (f) A completed prioritization of all construction sites based on threat to water quality
         (g) Which BMPs will be implemented, or required to be implemented, for each priority category
         (h) How BMPs will be implemented, or required to be implemented, for each priority category
         (i) Planned inspection frequencies for each priority category
         (j) Methods for inspection
         (k) A description of enforcement mechanisms and how they will be used

(l) A description of how non-compliant sites will be identified and the process for notifying the SDRWQCB, including a list of current non-compliant sites
(m) A description of the construction education program and how it will be implemented

(2) Municipal (Existing Development) Component

(a) Which pollution prevention methods will be required for implementation, and how and where they will be required
(b) A completed watershed-based inventory of all municipal land use areas and activities
(c) A completed prioritization of all municipal areas and activities based on threat to water quality
(d) Which BMPs will be implemented, or required to be implemented, for each priority category
(e) How BMPs will be implemented, or required to be implemented, for each priority category
(f) Municipal maintenance activities and schedules
(g) Management strategy for pesticides, herbicides, and fertilizer use.
(h) Planned inspection frequencies for the high priority category
(i) Methods for inspection
(j) A description of enforcement mechanisms and how they will be used

(3) Industrial (Existing Development) Component

(a) Which pollution prevention methods will be required for implementation, and how and where they will be required
(b) A completed watershed-based inventory of all industrial sites
(c) A completed prioritization of all industrial sites based on threat to water quality
(d) Which BMPs will be implemented, or required to be implemented, for each priority category
(e) How BMPs will be implemented, or required to be implemented, for each priority category
(f) A description of the monitoring program to be conducted, or required to be conducted
(g) Planned inspection frequencies for each priority category
(h) Methods for inspection
(i) A description of enforcement mechanisms and how they will be used
(j) A description of how non-compliant sites will be identified and the process for notifying the SDRWQCB, including a list of current non-compliant sites

(4) Commercial (Existing Development) Component

(a) Which pollution prevention methods will be required for implementation, and how and where they will be required
(b) A completed watershed-based inventory of high priority commercial sites
(c) Which BMPs will be implemented, or required to be implemented, for high priority sites
(d) How BMPs will be implemented, or required to be implemented, for high priority sites
(e) Planned inspection frequencies for high priority sites
(f) Methods for inspection
(g) A description of enforcement mechanisms and how they will be used

(5) Residential (Existing Development) Component

(a) Which pollution prevention methods will be encouraged for implementation, and how and where they will be encouraged
(b) A completed inventory of high priority residential areas and activities

(c) Which BMPs will be implemented, or required to be implemented, for high priority areas and activities
(d) How BMPs will be implemented, or required to be implemented, for high priority areas and activities
(e) A description of enforcement mechanisms and how they will be used

(6) Education Component

(a) A description of the content, form, and frequency of education efforts for each target community

(7) Illicit Discharges Detection and Elimination Component

(a) A description of the program to actively seek and eliminate illicit discharges and connections
(b) A description of dry weather analytical monitoring to be conducted to detect illicit discharges and connections (see Attachment E)
(c) A description of investigation and inspection procedures to follow-up on dry weather analytical monitoring results or other information which indicate potential for illicit discharges and connections
(d) A description of procedures to eliminate detected illicit discharges and connections
(e) A description of enforcement mechanisms and how they will be used
(f) A description of methods to prevent, respond to, contain, and clean up all sewage (including spills from private laterals and failing septic systems) and other spills in order to prevent entrance into the MS4
(g) A description of the mechanism to receive notification of spills from private laterals
(h) A description of efforts to facilitate public reporting of illicit discharges and connections, including a public hotline
(i) A description of efforts to facilitate proper disposal of used oil and other toxic materials
(j) A description of controls and measures to be implemented to limit infiltration of seepage from sanitary sewers to MS4s
(k) A description of routine preventive maintenance activities on the sanitary system (where applicable) and the MS4

(8) Public Participation Component

(a) A description of how public participation will be included in the implementation of the Jurisdictional URMP

(9) Assessment of Jurisdictional URMP Effectiveness Component

(a) A description of strategies to be used for assessing the long-term effectiveness of the individual Jurisdictional URMP.

(10) Fiscal Analysis Component

(a) A description of the strategy to be used to conduct a fiscal analysis of the urban runoff management program.

(11) Land-Use Planning for New Development and Redevelopment Component

(a) Workplan for inclusion in General Plan (or equivalent plan) of water quality and watershed protection principles and policies
(b) Development project requirements in local development permits
(c) Participation efforts conducted in the development of the Model SUSMP

(d) Environmental review processes revisions
(e) A description of the planning education program and how it will be implemented

(12) Fire Fighting

(a) A description of a program to reduce pollutants from non-emergency fire fighting flows identified by the Copermittee to be significant sources of pollutants.

b. Each Copermittee shall submit to the Principal Permittee(s) each part of its individual Jurisdictional URMP document by the dates specified by the Principal Permittee(s).

c. In addition to submittal of the Jurisdictional URMP document, each Copermittee shall submit to the SDRWQCB its own adopted local SUSMP consistent with the approved Model SUSMP, as described in section F.1.b.(2). of this Order. Each Copermittee's own local SUSMP, along with its amended ordinances, shall be submitted to the SDRWQCB within 180 days of the SDRWQCB's approval of the Model SUSMP.

2. Unified – The Principal Permittee(s) shall submit the unified Jurisdictional URMP document to the SDRWQCB. The unified Jurisdictional URMP document shall be submitted in two parts (the collected Jurisdictional URMPs and the model SUSMP).

The unified Jurisdictional URMP document submittal shall address the requirements of the entire Jurisdictional URMP sections F.1 – F.8. of this Order, with the exception of the local SUSMP requirements (which are to be implemented 180 days after approval of the model SUSMP by the SDRWQCB). The unified Jurisdictional URMP document submittal shall contain a section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee(s), and the twenty individual Jurisdictional URMP documents. The Principal Permittee(s) shall be responsible for the development and production of a stand alone Model SUSMP document meeting the requirements of section F.1.b.(2) of this Order. The Principal Permittee(s) shall submit the unified Jurisdictional URMP document, including the Model SUSMP, to the SDRWQCB within **365 days of adoption** of this Order.

3. Universal Reporting Requirements

All individual and unified Jurisdictional URMP document submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit its individual Jurisdictional Urban Runoff Management Program Document with a signed certified statement. The Principal Permittee(s) shall submit a signed certified statement referring to its individual Jurisdictional Urban Runoff Management Program Document, the section covering common activities conducted collectively by the Copermittees, and the Model SUSMP document meeting the requirements of section F.1.b.(2) of this Order as produced by the Principal Permittee(s).

I. SUBMITTAL OF JURISDICTIONAL URMP ANNUAL REPORT

1. Individual - Each individual Jurisdictional URMP Annual Report shall be a documentation of the activities conducted by each Copermittee during the past annual reporting period. Each Jurisdictional URMP Annual Report shall, at a minimum, contain the following:

a. Comprehensive description of all activities conducted by the Copermittee to meet all requirements of each component of the Jurisdictional URMP section of this Order;

F.1. Land-Use Planning for New Development and Redevelopment Component
F.2. Construction Component
F.3. Existing Development Component (Including Municipal, Industrial, Commercial, Residential, and Education)

F.4. Education Component
F.5. Illicit Discharge Detection and Elimination Component
F.6. Public Participation Component
F.7. Assessment of Jurisdictional URMP Effectiveness Component
F.8. Fiscal Analysis Component

b. Each Copermittee's accounting of all:
   (1) Reports of illicit discharges (i.e., complaints) and how each was resolved (indicating referral source);
   (2) Inspections conducted;
   (3) Enforcement actions taken; and
   (4) Education efforts conducted.

c. Public participation mechanisms utilized during the Jurisdictional URMP implementation process;

d. Proposed revisions to the Jurisdictional URMP;

e. A summary of all urban runoff related data not included in the annual monitoring report (e.g., special investigations);

f. Budget for upcoming year;

g. Identification of management measures proven to be ineffective in reducing urban runoff pollutants and flow; and

h. Identification of water quality improvements or degradation.

2. Unified - The unified Jurisdictional URMP Annual Report shall contain a section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee(s), and the twenty individual Jurisdictional URMP Annual Reports. Each Copermittee shall submit to the Principal Permittee(s) an individual Jurisdictional URMP Annual Report by the date specified by the Principal Permittee(s). The Principal Permittee(s) shall submit a unified Jurisdictional URMP Annual Report to the SDRWQCB by **January 31, 2003 and every January 31 thereafter.** The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted January 31, 2003 shall cover the reporting period July 1, 2001 to June 30, 2002.

3. Universal Reporting Requirements

   All individual and unified Jurisdictional URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit its individual Jurisdictional Urban Runoff Management Program Annual Report with a signed certified statement. The Principal Permittee(s) shall submit a signed certified statement referring to its individual Jurisdictional Urban Runoff Management Program Annual Report and the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

J. WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM

1. Each Copermittee shall collaborate with other Copermittees within its watershed(s) as shown in Table 4. below to identify and mitigate the highest priority water quality issues/pollutants in the watershed(s).

2. Each Copermittee shall collaborate with all other Copermittees discharging urban runoff into the same watershed to develop and implement a Watershed Urban Runoff Management Program (Watershed URMP) for the respective watershed. Each Watershed URMP shall, at a minimum

contain the following:

a. An accurate map of the watershed (preferably in Geographical Information System [GIS] format) that identifies all receiving waters (including the Pacific Ocean); all Clean Water Act section 303(d) impaired receiving waters (including the Pacific Ocean); land uses; MS4s, major highways; jurisdictional boundaries; and inventoried commercial, construction, industrial, municipal sites, and residential areas.

b. An assessment of the water quality of all receiving waters in the watershed based upon (1) existing water quality data; and (2) annual watershed water quality monitoring that satisfies the watershed monitoring requirements of Attachment B ;

c. An identification and prioritization of major water quality problems in the watershed caused or contributed to by MS4 discharges and the likely source(s) of the problem(s);

d. An implementation time schedule of short and long-term recommended activities (individual and collective) needed to address the highest priority water quality problem(s). For this section, "short-term activities" shall mean those activities that are to be completed during the life of this Order and "long-term activities" shall mean those activities that are to be completed beyond the life of this Order;

e. An identification of the Copermittee(s) responsible for implementing each recommended activity, including the selection of the Lead Permittee(s) and the time schedule for implementation. In the event that a Lead Permittee is not selected and identified by the Copermittees in a watershed, the Copermittee identified in Table 4 as the Lead Permittee for that watershed shall be responsible for implementing the requirements of the Lead Permittee in that watershed by default;

f. A mechanism for public participation throughout the entire watershed URMP process;

g. A watershed based education program;

h. A mechanism to facilitate collaborative "watershed-based" (i.e., natural resource-based) land use planning with neighboring local governments in the watershed.

i. Long-term strategy for assessing the effectiveness of the Watershed URMP. The long-term assessment strategy shall identify specific direct and indirect measurements that will track the long-term progress of Watershed URMP towards achieving improvements in receiving water quality. Methods used for assessing effectiveness shall include the following or their equivalent: surveys, pollutant loading estimations, and receiving water quality monitoring. The long-term strategy shall also discuss the role of monitoring data in substantiating or refining the assessment.

Table 4. Copermittees by Watershed

RESPONSIBLE COPERMITTEE(S)	WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM	HYDROLOGIC UNIT OR AREA	MAJOR RECEIVING WATER BODIES
1. County of San Diego	Santa Margarita River	Santa Margarita HU (902.00)	Santa Margarita River and Estuary, Pacific Ocean
1. City of Escondido **2. City of Oceanside** 3. City of Vista 4. County of San Diego	San Luis Rey River	San Luis Rey HU (903.00)	San Luis Rey River and Estuary, Pacific Ocean
1. City of Carlsbad **2. City of Encinitas** 3. City of Escondido	Carlsbad	Carlsbad HU (904.00)	Batiquitos Lagoon San Elijo Lagoon Agua Hedionda Lagoon

RESPONSIBLE COPERMITTEE(S)	WATERSHED URBAN RUNOFF MANAGEMENT PROGRAM	HYDROLOGIC UNIT OR AREA	MAJOR RECEIVING WATER BODIES
4. City of Oceanside 5. City of San Marcos 6. City of Solana Beach 7. City of Vista 8. County of San Diego			Buena Vista Lagoon and Tributary Streams Pacific Ocean
1. City of Del Mar 2. **City of Escondido** 3. City of Poway 4. City of San Diego 5. City of Solana Beach 6. County of San Diego	San Dieguito River	San Dieguito HU (905.00)	San Dieguito River and Estuary Pacific Ocean
1. City of Del Mar 2. City of Poway 3. City of San Diego 4. County of San Diego	Peñasquitos	Miramar Reservoir HA (906.10) Poway HA (906.20)	Los Peñasquitos Creek Los Peñasquitos Lagoon Pacific Ocean
1. City of San Diego	Mission Bay	Scripps HA (906.30) Miramar HA(906.40) Tecolote HA (906.50)	Mission Bay Pacific Ocean
1. City of El Cajon 2. City of La Mesa 3. City of Poway 4. City of San Diego 5. City of Santee 6. County of San Diego	San Diego River	San Diego HU (907.00)	San Diego River Pacific Ocean
1. City of Chula Vista 2. City of Coronado 3. City of Imperial Beach 4. City of La Mesa 5. City of Lemon Grove 6. City of National City 7. City of San Diego 8. County of San Diego **9. San Diego Unified Port District**	San Diego Bay	Pueblo San Diego HU (908.00) Sweetwater HU (909.00) Otay HU (910.00)	San Diego Bay Sweetwater River Otay River Pacific Ocean
1. City of Imperial Beach 2. City of San Diego 3. County of San Diego	Tijuana River	Tijuana (911.00)	Tijuana River and Estuary Pacific Ocean

- The Lead Watershed Copermittee for each watershed is highlighted

K. IMPLEMENTATION OF WATERSHED URMP

Each Copermittee shall have completed full implementation of all requirements of the Watershed URMP section of this Order no later than January 31, 2003 unless otherwise specified.

L. SUBMITTAL OF WATERSHED URMP DOCUMENT

The written account of the overall watershed program to be conducted by each Copermittee during the remaining life of this Order is referred to as the "Watershed URMP Document". The Watershed URMP is conducted concurrently with the Jurisdictional URMP.[6]

[6]As each Copermittee transitions from conducting its management program only within its jurisdiction to conducting it also throughout the entire watershed (with neighboring Copermittees), it is expected that many activities will continue on a jurisdictional level (e.g., enforcement of local ordinances and permits). Implementation of the Watershed URMP is not meant to replace, but to expand implementation of the Jurisdictional URMP. For this reason, it is necessary to report management activities on both levels. This can be accomplished either by submitting both a Jurisdictional URMP Annual Report and a Watershed URMP Annual Report or by submitting a single Watershed URMP Annual Report that contains two separate sections (i.e., watershed activities and jurisdictional activities). Information need only be reported once (to the extent something is covered in the Watershed URMP Annual Report, it need not be covered again the Jurisdictional URMP Annual Report).

1. Each Watershed Specific URMP document shall state how the member Copermittees within each watershed will develop and implement the requirements of the Watershed URMP section J. of this Order. The Copermittees responsible for each of the nine Watershed URMPs are specified in Table 4 above. The Lead Watershed Copermittee for each watershed is highlighted, unless a different Lead Watershed Copermittee is designated. Each Lead Watershed Copermittee shall be responsible for producing its respective Watershed URMP document, as well as for coordination and meetings amongst all member watershed Copermittees. Each Lead Watershed Copermittee is further responsible for the submittal of the Watershed URMP document to the Principal Permittee(s) by the date specified by the Principal Permittee(s).

   a. Each Watershed specific URMP document shall include:
      (1) A completed watershed map
      (2) A water quality assessment and watershed monitoring needed
      (3) Prioritization of water quality problems
      (4) Recommended activities (short and long term)
      (5) Individual Copermittee implementation responsibilities and time schedules for implementation
      (6) A description of watershed public participation mechanisms
      (7) A description of watershed education mechanisms
      (8) A description of the mechanism and implementation schedule for watershed-based land use planning
      (9) A strategy for assessing the long-term effectiveness of the Watershed URMP

2. Unified - The unified Watershed URMP document shall contain a section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee(s), and the nine Watershed Specific URMP documents. The Principal Permittee(s) shall submit the unified Watershed URMP document to the SDRWQCB by **January 31, 2003.**

3. Universal Reporting Requirements.

   All individual and unified Watershed URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit a signed certified statement covering its responsibilities in the specific Watershed URMP Document. The Principal Permittee(s) shall submit a signed certified statement referring to its specific Watershed URMP Document and the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

M. SUBMITTAL OF WATERSHED URMP ANNUAL REPORT

1. Watershed Specific - Each Watershed Specific URMP Annual Report shall be a documentation of the activities conducted by watershed member Copermittees during the previous annual reporting period to meet the requirements of all components of the Watershed URMP section of this Order. Each Watershed URMP Annual Report shall, at a minimum, contain the following:

   a. Comprehensive description of all activities conducted by the watershed member Copermittees to meet all requirements of each component of Watershed URMP section J. of this Order

   b. Public participation mechanisms utilized during the Watershed URMP implementation process;
   c. Mechanism for watershed based land use planning;
   d. Assessment of effectiveness of Watershed URMP;
   e. Proposed revisions to the Watershed URMP;
   f. A summary of watershed effort related data not included in the annual monitoring report (e.g., special investigations); and
   g. Identification of water quality improvements or degradation.

2. Unified - The Unified Watershed URMP Annual Report shall contain a section covering common activities conducted collectively by the Copermittees, to be produced by the Principal Permittee(s), and the nine Watershed Specific URMP Annual Reports. Each Lead Watershed Copermittee shall submit to the Principal Permittee(s) a Watershed Specific URMP Annual Report by the date specified by the Principal Permittee(s). The Principal Permittee(s) shall submit the Unified Watershed URMP Annual Report to the SDRWQCB by January 31, 2004 and every January 31 thereafter. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted January 31, 2004 shall cover the reporting period July 1, 2002 to June 30, 2003.

3. Universal Reporting Requirements

   All individual and unified Watershed URMP submittals shall include an executive summary, introduction, conclusion, recommendations, and signed certified statement. Each Copermittee shall submit a signed certified statement covering its responsibilities in the specific Watershed URMP Annual Report. The Principal Permittee(s) shall submit a signed certified statement referring to its specific Watershed URMP Annual Report and the section covering common activities conducted collectively by the Copermittees as produced by the Principal Permittee(s).

N. ALL COPERMITTEE COLLABORATION

1. Each Copermittee shall collaborate with all other Copermittees regulated under this Order to address common issues, promote consistency among Jurisdictional Urban Runoff Management Programs (Jurisdictional URMPs) and Watershed Urban Runoff Management Programs (Watershed URMPs), and to plan and coordinate activities required under this Order

   a. Management Structure - All Copermittees shall jointly execute and submit to the SDRWQCB no later than **365 days after adoption** of this Order, a Memorandum of Understanding, Joint Powers Authority, or other instrument of formal agreement which at a minimum provides a management structure for the following:

      - Designation of Joint Responsibilities
      - Decision making
      - Watershed activities;
      - Information management of data and reports, including the requirements under this Order; and
      - Any and all other collaborative arrangements for compliance with this Order.

   b. All Copermittees shall jointly develop a standardized format(s) for all reports required under this Order (e.g., annual reports, monitoring reports, fiscal analysis reports, and program effectiveness reports, etc.). The standardized reporting format(s) shall be used by all Copermittees and shall include protocols for electronic reporting. The Principal Permittee(s) shall submit the standardized format(s) to the SDRWQCB no later than **365 days after adoption** of this Order.

O. PRINCIPAL PERMITTEE RESPONSIBILITIES

Within 90 days of adoption of this Order, the Copermittees shall designate the Principal Permittee(s) and notify the SDRWQCB of the name(s) of the Principal Permittee(s). The Principal Permittee(s) may require the Copermittees to reimburse the Principal Permittee(s) for reasonable costs incurred while performing coordination responsibilities and other related tasks. The Principal Permittee(s) shall, at a minimum:

1. Serve as liaison(s) between the Copermittees and the SDRWQCB on general permit issues.

2. Coordinate permit activities among the Copermittees and facilitate collaboration on the development and implementation of programs required under this Order;

3. Integrate individual Copermittee documents and reports required under this Order into single unified documents and reports for submittal to the SDRWQCB as described below. If a reporting date falls on a non-working day or State holiday, then the report is to be submitted on the following working day.

   a. Unified Jurisdictional URMP Document – The Principal Permittee(s) shall submit the unified Jurisdictional URMP document in its entirety (including the model SUSMP) to the SDRWQCB within 365 days of the adoption of this Order.

      The Principal Permittee(s) shall be responsible for producing the sections of the unified Jurisdictional URMP document submittals covering common activities conducted by the Copermittees. The Principal Permittee(s) shall be responsible for the development and production of a stand alone Model SUSMP document meeting the requirements of section F.1.b.(2). of this Order. The Principal Permittee(s) shall also be responsible for collecting and assembling the individual Jurisdictional URMP document submittals covering the activities conducted by each individual Copermittee.

   b. Unified Jurisdictional URMP Annual Reports – The Principal Permittee(s) shall submit unified Jurisdictional URMP Annual Reports to the SDRWQCB by January 31 of each year, beginning on **January 31, 2003**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted January 31, 2003 shall cover the reporting period July 1, 2001 to June 30, 2002.

      The Principal Permittee(s) shall be responsible for producing the section of the unified Jurisdictional URMP Annual Reports covering common activities conducted by the Copermittees. The Principal Permittee(s) shall also be responsible for collecting and assembling the individual Jurisdictional URMP Annual Reports covering the activities conducted by each individual Copermittee.

   c. Unified Watershed URMP Document – The Principal Permittee(s) shall submit the unified Watershed URMP document to the SDRWQCB by **January 31, 2003**. The Principal Permittee(s) shall be responsible for producing the section of the unified Watershed URMP document covering common activities conducted by the Copermittees. The Principal Permittee(s) shall also be responsible for collecting and assembling the watershed specific Watershed URMP documents covering the activities conducted by each individual Copermittee.

   d. Unified Watershed URMP Annual Report - The Principal Permittee(s) shall submit unified Watershed URMP Annual Reports to the SDRWQCB by January 31 of each year, beginning on **January 31, 2004**. The reporting period for these annual reports shall be the previous fiscal year. For example, the report submitted January 3, 2004 shall cover the reporting period July 1, 2002 to June 30, 2003.

      The Principal Permittee(s) shall be responsible for producing the section of the unified Watershed URMP Annual Reports covering common activities conducted by the Copermittees. The Principal Permittee(s) shall also be responsible for collecting and assembling the watershed specific Watershed URMP Annual Reports covering the activities conducted by each individual Copermittee.

   e. Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall be responsible for the production and submittal of the Previous Monitoring and Future Recommendations Report. The report shall be submitted to the SDRWQCB within 180 days

of adoption of this Order.

f. Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall be responsible for the development and production of the Receiving Waters Monitoring Program as it is outlined in Attachment B. The Principal Permittee(s) shall submit the Receiving Waters Monitoring Program to the SDRWQCB within 180 days of adoption of this Order.

g. Receiving Waters Monitoring and Reporting Program - The Principal Permittee(s) shall submit the Receiving Waters Monitoring Annual Report to the SDRWQCB on January 31 of each year, beginning on January 31, 2003.

h. Formal Agreements/Standardized Formats - The Principal Permittee(s) shall submit to the SDRWQCB, within 365 days of adoption of this Order, a formal agreement between the Copermittees which provides a management structure for meeting the requirements of this Order (as described in section N.1.a.). The Principal Permittee(s) shall submit to the SDRWQCB, within 365 days of adoption of this Order, standardized formats for all reports and documents required under this Order.

i. Dry Weather Analytical Monitoring - The Principal Permittee(s) shall collectively submit the Copermittees' dry weather analytical monitoring maps and procedures to the SDRWQCB within 365 days of adoption of this Order.

P. RECEIVING WATERS MONITORING AND REPORTING PROGRAM

1. Pursuant to California Water Code section 13267, each Copermittee shall comply with Monitoring and Reporting Program for No. 2001-01 contained in **Attachment B** of this Order.

2. Each Copermittee shall also comply with standard provisions, reporting requirements, and notifications contained in **Attachment C** of this Order.

Q. TASKS AND SUBMITTAL SUMMARY

The tasks and submittals required under this Order are summarized in Tables 5 and 6 below:

Table 5. Task Summary

Task No.	Task	Permit Section	Completion Date	Frequency
1	Identify discharges not to be prohibited and BMPs required for treatment of discharges not prohibited	B.3.	365 days after adoption of Order	One Time
2	Examine field screening results to identify water quality problems resulting from non-prohibited non-storm water discharges, including follow-up of problems	B.5	January 31, 2003	Annually
3	Notify SDRWQCB of discharges causing or contributing to an exceedance of water quality standards	C.2.a.	Immediate	As Needed
4	Establish adequate legal authority to control pollutant discharges into and from MS4	D.1.	180 days after adoption of Order	One Time
5	Assess General Plan to incorporate water quality and watershed protection principles	F.1.a.	365 days after adoption of Order	One Time
6	Include Development Project Requirements in local permits	F.1.b.(1).	365 days after adoption of Order	One Time
7	Develop Model SUSMP	F.1.b.(2).	365 days after adoption of Order	One Time
8	Develop and adopt individual local SUSMP and amended ordinances	F.1.b.(2).	180 days after approval of Model SUSMP by SDRWQCB	One Time
9	Implement individual jurisdictional SUSMP	F.1.b.(2).	180 days after approval of Model SUSMP by	Continuous

			SDRWQCB	
10	Revise environmental review processes	F.1.c.(1).	365 days after adoption of Order	One Time
11	Conduct education program for municipal planning and development review staff, project applicants, developers, contractors, community planning groups, and property owners	F.1.d.(1). And F.1.d.(2).	365 days after adoption of Order	Ongoing
12	Implement all requirements of Construction Component of Jurisdictional URMP	F.2.a. – F.2.j.	365 days after adoption of Order	Ongoing
13	Notify SDRWQCB of non-compliant construction sites that pose a threat to human or environmental health	F.2.i	Within 24 hours of discovery of noncompliance	As Needed
14	Implement all requirements of Municipal Existing Development Component of Jurisdictional URMP	F.3.a.(1). – F.3.a.(8).	365 days after adoption of Order	Ongoing
15	Implement all requirements of Industrial Existing Development Component of Jurisdictional URMP	F.3.b.(1) – F.3.b.(8)	365 days after adoption of Order	Ongoing
16	Notify SDRWQCB of non-compliant industrial sites that pose a threat to human or environmental health	F.3.b.8	Within 24 hours of discovery of noncompliance	As Needed
17	Implement all requirements of Commercial Existing Development Component of Jurisdictional URMP	F.3.c.(1) – F.3.c.(5)	365 days after adoption of Order	Ongoing
18	Implement all requirements of Residential Existing Development Component of Jurisdictional URMP	F.3.d.(1) – F.3.d.(4)	365 days after adoption of Order	Ongoing
19	Implement all requirements of Education Component of Jurisdictional URMP	F.4.a. – F.4.c.	365 days after adoption of Order	Ongoing
20	Implement all requirements of Illicit Discharge Detection and Elimination Component of Jurisdictional URMP	F.5.a. – F.5.i.	365 days after adoption of Order	Ongoing
21	Implement all requirements of Public Participation Component of Jurisdictional URMP	F.6.	365 days after adoption of Order	Ongoing
22	Develop strategy for assessment of Jurisdictional URMP effectiveness	F.7.a.	365 days after adoption of Order	One Time
23	Assess Jurisdictional URMP effectiveness	F.7.b.	January 31, 2003	Annually
24	Develop strategy for fiscal analysis of urban runoff management program	F.8.	365 days after adoption of Order	One Time
25	Conduct fiscal analysis of urban runoff management program in entirety	F.8.	January 31, 2003	Annually
26	Develop and implement Watershed URMP	J.2.	January 31, 2003	Ongoing
27	Execute formal agreement which provides management structure for meeting Order requirements	N.1.a.	365 days after adoption of Order	One Time
28	Develop standardized formats for all required reports of this Order	N.1.b.	365 days after adoption of Order	One Time
29	Develop Previous Monitoring and Future Recommendations Report	Attachment B	180 days after adoption of Order	One Time
30	Develop Receiving Waters Monitoring Program	Attachment B	180 days after adoption of Order	One Time
31	Implement Receiving Waters Monitoring Program	Attachment B	180 days after adoption of Order	Continuous
32	Develop dry weather analytical and field screening monitoring map and procedures	Attachment E	365 days after adoption of Order	One Time
33	Conduct dry weather analytical and field screening monitoring	Attachment E	May 1, 2002	Annually
34	Complete NPDES applications for issuance of renewal watershed based permits	Attachment C	At least 180 days prior to expiration of Order	One Time
35	Notify SDRWQCB of any incidence of non-compliance with this Order that poses a threat to human or environmental health.	R.1, B.6 of Attachment C	Within 24 hours of discovery of non-compliance	As Needed
36	Designate Principal Permittee(s) and notify SDRWQCB	O.	90 days after adoption of the Order	One Time

Table 6. Submittal Summary

Submittal No.	Submittal	Permit Section	Completion Date	Frequency
1	Submit identification of discharges not to be prohibited and BMPs required for treatment of discharges not prohibited	B.3.	365 days after adoption of Order	One Time
2	Report on discharges causing or contributing to an exceedance of water quality standards, including description of BMP implementation	C.2.a.	With individual Jurisdictional URMP Annual Reports	As Needed
3	Submit Certified Statement of Adequate Legal Authority	D.2.	180 days after adoption of Order	One Time
4	Submit certified statement if particular high priority construction sites are to be inspected monthly rather than weekly in the rainy season	F.2.g.(2).	365 days after adoption of Order and as needed thereafter	As Needed
5	Submit report on non-compliant construction sites that pose a threat to human or environmental health.	F.2.i.	Within 5 Days of discovery of non-compliance	As Needed
6	Submit report on non-compliant industrial sites that pose a threat to human or environmental health.	F.3.b.8.	Within 5 days of discovery of non compliance	As Needed
7	Submit to Principal Permittee(s) individual Jurisdictional URMP document covering requirements for all Components	H.1.a.	Prior to 365 days after adoption of Order (Principal Permittee(s) specifies date of submittal)	One Time
8	(This space reserved).			
9	Principal Permittee(s) shall submit to SDRWQCB unified Jurisdictional URMP document covering requirements for all Components, including Model SUSMP	H.2.a.	365 days after adoption of Order	One Time
10	(This space reserved).			
11	Submit to SDRWQCB local SUSMP and amended ordinances	F.1.b.(2). and H.1.d.	180 days after approval of Model SUSMP	One Time
12	Submit to Principal Permittee(s) individual Jurisdictional URMP Annual Report	I.1.	Prior to January 31, 2003 (Principal Permittee(s) specifies date of submittal)	Annually
13	Principal Permittee(s) shall submit 1st unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	January 31, 2003	One Time and Annually Thereafter
14	Submit to Principal Permittee(s) Watershed Specific URMP document	L.1.	Prior to January 31, 2003 (Principal Permittee(s) specifies date of submittal)	One Time
15	Principal Permittee(s) shall submit unified Watershed Specific URMP document to SDRWQCB	L.2.	January 31, 2003	One Time
16	Principal Permittee(s) shall submit 2nd unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	January 31, 2004	One Time
17	Submit to Principal Permittee(s) Watershed Specific URMP Annual Report	M.1.	Prior to January 31, 2004 (Principal Permittee(s) specifies date of submittal)	Annually
18	Principal Permittee(s) shall submit 1st unified Watershed Specific URMP Annual Report to SDRWQCB	M.2.	January 31, 2004	One Time and Annually Thereafter
19	Principal Permittee(s) shall submit 3rd unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	January 31, 2005	One Time
20	Principal Permittee(s) shall submit 2nd	M.2.	January 31, 2005	One Time

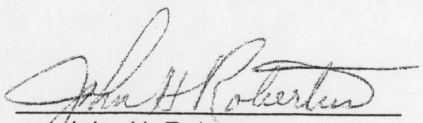
	unified Watershed Specific URMP Annual Report to SDRWQCB			
21	Principal Permittee(s) shall submit 4th unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	January 31, 2006	One Time
22	Principal Permittee(s) shall submit 3rd unified Watershed Specific URMP Annual Report to SDRWQCB	M.2.	January 31, 2006	One Time
23	Principal Permittee(s) shall submit 5th unified Jurisdictional URMP Annual Report to SDRWQCB	I.2.	January 31, 2007	One Time
24	Principal Permittee(s) shall submit formal agreement between Copermittees which provides management structure for meeting Order requirements	N.1.a.	365 days after adoption of Order	One Time
25	Principal Permittee(s) shall submit standardized formats for all reports required under this Order	N.1.b.	365 days after adoption of Order	One Time
26	Principal Permittee(s) submits Previous Monitoring and Future Recommendations Report to SDRWQCB	Attachment B	180 days after adoption of Order	One Time
27	Principal Permittee(s) submits Receiving Waters Monitoring Program document to SDRWQCB	Attachment B	180 days after adoption of Order	One Time
28	Principal Permittee(s) submits Receiving Waters Monitoring Annual Report to SDRWQCB	Attachment B	January 31, 2003	Annually
29	Submit to Principal Permittee(s) dry weather analytical monitoring map and procedures	Attachment E	Prior to 365 days after adoption of Order	One Time
30	Principal Permittee(s) submits collective dry weather analytical monitoring maps and procedures	Attachment E	365 days after adoption of Order	One Time
31	Submit to Principal Permittee(s) dry weather analytical monitoring results as part of individual Jurisdictional URMP Annual Report	Attachment E	Prior to January 31, 2003, as part of individual Jurisdictional URMP Annual Report	Annually
32	Principal Permittee(s) shall submit NPDES applications for issuance of renewal watershed based permits	Attachment C	At least 180 days prior to expiration of this Order	One Time
33	Submit reports of any incidence of non-compliance with this Order that poses a threat to human or environmental health.	R.1, B.6 of Attachment C	Within 5 days of discovery of non compliance	As Needed

R. STANDARD PROVISIONS, REPORTING REQUIREMENTS AND NOTIFICATIONS

1. Each Copermittee shall comply with Standard Provisions, Reporting Requirements, and Notifications contained in **Attachment C** of this Order. This includes 24 hour/5day reporting requirements for any instance of non-compliance with this Order as described in section B.6 of Attachment C.

2. All plans, reports and subsequent amendments submitted in compliance with this Order shall be implemented immediately (or as otherwise specified) and shall be an enforceable part of this Order upon submission to the SDRWQCB. All submittals by Copermittees must be adequate to implement the requirements of this Order.

I, John H. Robertus, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Diego Region, on February 21, 2001, as amended by State Water Resources Control Board Order WQ 2001-15 adopted November 15, 2001.



John H. Robertus
Executive Officer

ATTACHMENT A

BASIN PLAN PROHIBITIONS

California Water Code Section 13243 provides that a Regional Board, in a water quality control plan, may specify certain conditions or areas where the discharge of waste, or certain types of waste is not permitted. The following discharge prohibitions are applicable to any person, as defined by Section 13050(c) of the California Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the state within the boundaries of the San Diego Region.

1. The discharge of waste to waters of the state in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in California Water Code Section 13050, is prohibited.

2. The discharge of waste to land, except as authorized by waste discharge requirements or the terms described in California Water Code Section 13264 is prohibited.

3. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by an NPDES permit or a dredged or fill material permit (subject to the exemption described in California Water Code §13376) is prohibited.

4. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this Regional Board issues a NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Department of Health Services and the operating agency of the impacted reservoir; and the discharger has an approved fail-safe long-term disposal alternative.

5. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the Regional Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

6. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the Regional Board.

7. The dumping, deposition, or discharge of waste directly into waters of the state, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the Regional Board.

8. Any discharge to a storm water conveyance system that is not composed entirely of "*storm water*" is prohibited unless authorized by the Regional Board. [The federal regulations, 40 CFR 122.26 (b) (13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26 (b) (2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a NPDES permit and discharges resulting from fire fighting activities. [§122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

9. The unauthorized discharge of treated or untreated sewage to waters of the state or to a storm water conveyance system is prohibited.

10. The discharge of industrial wastes to conventional septic tank/subsurface disposal systems, except as authorized by the terms described in California Water Code Section 13264, is prohibited.

11. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the state is prohibited.

12. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited.

13. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the Regional Board.

14. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the state or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

15. The discharge of treated or untreated sewage from vessels to Mission Bay, Oceanside Harbor, Dana Point Harbor, or other small boat harbors is prohibited.

16. The discharge of untreated sewage from vessels to San Diego Bay is prohibited.

17. The discharge of treated sewage from vessels to portions of San Diego Bay that are less than 30 feet deep at mean lower low water (MLLW) is prohibited.

18. The discharge of treated sewage from vessels, which do not have a properly functioning US Coast Guard certified Type I or Type II marine sanitation device, to portions of San Diego Bay that are greater than 30 feet deep at mean lower low water (MLLW) is prohibited.

ATTACHMENT B

RECEIVING WATERS MONITORING AND REPORTING PROGRAM FOR ORDER NO. 2001-01

Countywide to Watershed Based Monitoring and Reporting Program
The primary objectives of the Receiving Waters Monitoring and Reporting Program include, but are not limited to: 1) assessing compliance with Order No. 2001-01; 2) measuring the effectiveness of Urban Runoff Management Plans; 3) assessing the chemical, physical, and biological impacts to receiving waters resulting from urban runoff; and 4) assessing the overall health and evaluating long-term trends in receiving water quality.

Like Order No. 2001-01 in general, the monitoring requirements below are intended to transition during the five-year permit period from a countywide approach to a watershed based approach. During the first two reporting periods[1] of this Order, this monitoring program shall be conducted and reported on the same countywide basis as previously conducted under Order No. 90-42. Specifically, all monitoring shall be conducted jointly by all Copermittees under a single contractor with countywide coordination.

Beginning with the third monitoring period of this Order (unless otherwise directed by the SDRWQCB Executive Officer) the design of the monitoring program will shift to a watershed based approach. The monitoring program design, implementation, analysis, assessment, and reporting shall be conducted on a watershed basis for each of the nine hydrologic units. Monitoring results shall be assessed and reported on a watershed basis as a single report by the Copermittees consisting of one common section and nine watershed sections. Monitoring, analysis, assessment, and reporting shall satisfy the requirements of specified below for each watershed as applicable.

Order No. 2001-01 may be modified by the SDRWQCB Executive Officer without further public notice to direct the Copermittees to participate in comprehensive regional monitoring activities in the Southern California Bight in lieu of specific Order 2001-01 receiving waters monitoring requirements during the term of this Order.

I. Previous Monitoring and Future Recommendations Report

The Copermittees shall collaborate to develop a "Previous Monitoring and Future Recommendations Report" that summarizes all previous wet weather monitoring results and recommends future monitoring activities including the possibility of participating in coordinated comprehensive regional monitoring in the Southern California Bight. The Principal Permittee shall be responsible for the writing of the report and submittal to the SDRWQCB within **180 days** of adoption of this Order. At a minimum, the report shall:

A. Summarize the cumulative findings of all previous wet weather monitoring;
B. Identify detectable trends in water quality data and receiving water quality, based on the cumulative previous wet weather monitoring findings;
C. Interpret the cumulative previous wet weather monitoring findings;
D. Draw conclusions regarding the cumulative previous wet weather monitoring findings;
E. Provide recommendations for future monitoring activities; and
F. Include an executive summary, introduction, conclusion, and summary of recommendations.

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[1] A reporting period is defined as October 1st to September 30th of any year. The first reporting period under this Order is October 1, 2001 to September 30, 2002.

II. Receiving Waters Monitoring Program - - Year Round

Utilizing the findings of the "Previous Monitoring and Future Recommendations Report" discussed above, the Copermittees shall collaborate to develop, submit, conduct, and report on a year round countywide or watershed based Receiving Waters Monitoring Program[2]. The goals of both the countywide and watershed based Receiving Waters Monitoring Program shall be clearly stated. The Receiving Waters Monitoring Program goals shall focus on assessing compliance with this Order, achieving water quality objectives, protecting beneficial uses, and assessing the overall health and long-term water quality trends of receiving waters. For purposes of conducting the countywide or watershed based Receiving Waters Monitoring Program, the Copermittees are encouraged to collaborate with other agencies conducting similar monitoring, such as the Southern California Coastal Water Research Project (SCCWRP), the California Department of Fish and Game, or other municipalities in Southern California. Implementation of the countywide or watershed based Receiving Waters Monitoring Program shall begin within **180 days** of adoption of this Order. The countywide or watershed based Receiving Waters Monitoring Program shall include, at a minimum, the following components:

A. Urban Stream Bioassessment Monitoring
B. Long-term Mass Loading Monitoring
C. Coastal Storm Drain Outfall Monitoring
D. Ambient Bay, Lagoon, and Coastal Receiving Water Monitoring
E. Toxic Hot Spots Monitoring in San Diego Bay

A. <u>Urban Stream Bioassessment Monitoring</u>

1. The Copermittees shall collaborate to develop and implement an urban stream bioassessment monitoring program. At a minimum, the program shall consist of station identification, sampling, monitoring, and analysis of data for 20 bioassessment stations in order to determine the biological and physical integrity of urban streams within the County of San Diego. In addition to the urban stream bioassessment stations, three reference bioassessment stations shall be identified, sampled, monitored, and analyzed. The selection, sampling, monitoring, and analysis of bioassessment stations shall meet the following requirements:

   a. Each urban stream bioassessment station shall be selected using the following criteria. Each urban stream bioassessment station shall:
      (1) be located within the jurisdiction of a Copermittee; or
      (2) be located within one of the nine watersheds specified in Section J, Table 4 of this Order; and
      (3) be representative of urban stream conditions within one of the nine watersheds specified in Section J, Table 4 of this Order; and
      (4) meet the physical criteria of the California Stream Bioassessment Procedure[3]; and
      (5) to the extent feasible, coincide with the location of an already existing monitoring station used by the California Department of Fish and Game in the conduct of the SDRWQCB's Ambient Bioassessment Program.

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[2] During the first two years, monitoring and reporting will be conducted and reported on a countywide basis. Beginning in the third monitoring period of Order 2001-01, the monitoring and reporting program will shift to a watershed based approach.

[3] California Stream Bioassessment Procedure (Protocol Brief for Biological and Physical/Habitat Assessment in Wadeable Streams), California Department of Fish and Game – Aquatic Bioassessment Laboratory, May 1999.

b. Each bioassessment station shall be monitored twice annually, in May and October of each year, beginning in May 2001. A minimum of three replicate samples shall be collected at each station during each sampling event.

c. Sampling, laboratory, quality assurance, and analysis procedures shall follow the standardized procedures set forth in the California Department of Fish and Game's California Stream Bioassessment Procedure (CSBP). Analysis procedures shall include comparison between station mean values for various biological metrics. Sampling, laboratory, quality assurance, and analytical procedures shall follow the standardized "Non-Point Source Bioassessment Sampling Procedures" for professional bioassessment set forth in the CSBP. In the event that the CSBP "Point-Source Professional Bioassessment Procedure" is performed in place of the "Non Point Source Bioassessment Sampling Procedure," justification and documentation of the procedure shall be submitted with the report. Results of the Urban Stream Bioassessment Monitoring shall be reported annually as part of the overall Receiving Waters Monitoring and Reporting Program for Order No. 2001-01. Reporting of the bioassessment data shall follow the format of the San Diego Regional Water Quality Control Board 1999 Biological Assessment Annual Report[4]. The report shall include:

(1) All physical, chemical and biological data collected in the assessment;
(2) Photographic documentation of assessment and reference stations;
(3) Documentation of quality assurance and control procedures;
(4) Analysis that shall include calculation of the metrics used in both the CSBP and the 1999 Annual Report.
(5) The report shall provide interpretation for comparisons of mean biological and habitat assessment metric values between assessment and reference stations.
(6) Utilize a regional index of biological integrity as part of the analysis.
(7) Electronic data formatted to California Department of Fish and Game Aquatic Bioassessment Laboratory specifications for inclusion in the Statewide Access Bioassessment database.

d. A professional environmental laboratory shall perform all sampling, laboratory, quality assurance, and analytical procedures. While valuable, data collected by volunteer monitoring organizations shall not be submitted in place of professional assessments.

e. Reference stations shall be selected following the recommendations in the 1999 Annual Report, Hughes (1995)[5] and Barbour et. al. (1999)[6]. Reference stations shall be evaluated annually by the Copermittees for suitability and the results included in the annual report. New reference stations will be selected as needed by the Copermittees.

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4 San Diego Regional Water Quality Control Board ,1999 Biological Assessment Annual Report. A Water Quality Inventory Series: Biological and Physical/Habitat Assessment of California Water Bodies. California Department of Fish and Game Office of Spill Prevention and Response, Water Pollution Control Laboratory. December 1999.

5 Hughes, R. M. (1995) Defining Acceptable Biological Status by Comparing with Reference Conditions in Biological Assessment and Criteria: Tools for Water Resource Planning and Decision Making, Wayne S. Davis and Thomas P. Simon eds. Lewis Publishers, Boca Raton, LA.

6 Barbour, M.T. , J Gerritsen, B.D. Synder, and J.B. Stribling (1999) Rapid Bioassessment Protocols For Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates, and Fish. Second Edition. EPA 841-B-99-002.

2. The Copermittees shall design and implement a program to conduct standardized toxicity testing at urban stream bioassessment stations where the bioassessment data indicates significant impairment. When findings indicate the presence of toxicity, a Toxicity Identification Evaluation (TIE) shall be conducted to determine the cause(s) of the toxicity.

B. Long-term Mass Loading Monitoring

For purposes of evaluating long-term trends, the Copermittees shall continue to monitor the five existing long-term mass loading stations as specified in Monitoring and Reporting Program No. 95-76 and amended by Technical Change Order Nos. 1-4. When findings indicate the presence of toxicity, a Toxicity Identification Evaluation (TIE) shall be conducted to determine the cause(s) of the toxicity.

C. Coastal Storm Drain Outfall Monitoring

The Copermittees shall collaborate to develop and implement a monitoring program for discharges of urban runoff from coastal storm drain outfalls. The program shall meet the following requirements:

1. The program shall include rationale and criteria for selection of storm drain outfalls to be monitored.

2. The program shall include collection of samples for analysis of total coliform, fecal coliform, and enterococci, in addition to any other indicators or pathogens identified by the Copermittees.

3. Samples shall be collected at both the storm drain outfall and in the surf zone (at ankle to knee water depths) directly in front of the outfall.

4. Samples shall be collected during both dry and wet weather periods.

5. Exceedances of public health standards for bacteria must be reported to the County Department of Public Health as soon as possible by the Copermittees.

D. Ambient Bay, Lagoon, and Coastal Receiving Water Monitoring

The Copermittees shall collaborate to develop and implement a program to assess the overall health of the receiving water and monitor the impact of urban runoff on ambient receiving water quality. This monitoring shall including San Diego Bay, Mission Bay, Oceanside Harbor, the Pacific Ocean coastline, coastal lagoons and estuaries, and all Clean Water Act section 303(d) water bodies or other environmentally sensitive areas as defined in F.1.b(2)(a)vii of this Order .

E. Toxic Hot Spots Monitoring in San Diego Bay

The Copermittees shall collaborate to develop and implement a program to assess the relative contribution of urban runoff on Toxic Hot Spots in San Diego Bay.

III. Submittal of Receiving Waters Monitoring Program Document

The Principal Permittee shall submit to the SDRWQCB the countywide or watershed based Receiving Waters Monitoring Program within **180 days** of adoption of this Order. The regional or watershed based Receiving Waters Monitoring Program shall describe how the Copermittees will meet the requirements of the components outlined in Section II of this Attachment.

IV. Submittal of Receiving Waters Monitoring Annual Reports

The Principal Permittee shall submit the Receiving Waters Monitoring Annual Report to the SDRWQCB on January 31 of each year, beginning on January 31, 2003.

V. Monitoring Annual Report Requirements

A. Monitoring reports shall provide the data/results, methods of evaluating the data, graphical summaries of the data, and an explanation/discussion of the data for each monitoring program component listed above.

B. Monitoring reports shall include an analysis of the findings of each monitoring program component listed above. The analysis shall identify and prioritize water quality problems. Based on the identification and prioritization of water quality problems, the analysis shall identify potential sources of the problems, and recommend future monitoring and BMP implementation measures for identifying and addressing the sources. The analysis shall also include an evaluation of the effectiveness of existing control measures.

C. Monitoring reports shall include identification and analysis of any long-term trends in storm water or receiving water quality.

D. Monitoring reports shall provide an estimation of total pollutant loads (wet weather loads plus dry weather loads) due to urban runoff for each of the watersheds specified in Section J, Table 4 of Order No. 2001-01.

E. Monitoring reports shall for each monitoring program component listed above, include an assessment of compliance with applicable water quality standards.

F. All monitoring reports shall use a standard report format and shall include the following:

1. A stand alone comprehensive executive summary addressing all sections of the monitoring report;
2. Comprehensive interpretations and conclusions; and
3. Recommendations for future actions.

G. All monitoring reports submitted to the Principal Permittee or the SDRWQCB shall contain the certified perjury statement described in Standard Reporting Requirements in Attachment C section B.10.d.

H. All monitoring reports shall be reviewed prior to submittal to the SDRWQCB by a committee (consisting of no less than three members). All review comments shall also be submitted to the SDRWQCB.

I. All monitoring reports shall be submitted in both electronic and paper formats.

J. All monitoring reports shall describe monitoring station locations by latitude and longitude coordinates, frequency of sampling, quality assurance/quality control procedures and sampling and analysis protocols.

K. Monitoring programs and reports shall comply with Section VI of Attachment B, as well as Attachment C.

VI. Standard Monitoring Requirements

A. All monitoring activities shall meet the following requirements:

1. Monitoring and Records [40 CFR 122.41(j)(1)]

Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity.

2. Monitoring and Records [40 CFR 122.41(j)(2)] [California Water Code § 13383(a)]

The discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this permit, for a period of at least three years from the date of the sample, measurement, report or application. This period may be extended by request of the SDRWQCB at any time.

3. Monitoring and Records [40 CFR 122.21(j)(3)]

Records of monitoring information shall include the information requested in Attachment B and the following:

a. The date, exact place, and time of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

4. Monitoring and Records [40 CFR 122.21(j)(4)]

Monitoring results must be conducted according to test procedures approved under 40 CFR part 136 unless other test procedures have been specified in this Order.

5. Monitoring and Records [40 CFR 122.21(j)(5)]

The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this Order shall, upon conviction, be punished by a fine of not more than $10,000, or by imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person under this paragraph, punishment is a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both.

6. Monitoring and Records [40 CFR 122.41(k)(2)]

The Clean Water Act provides that any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a fine of not more than $10,000 per violation, or by imprisonment for not more than six months per violation, or by both.

7. Monitoring Reports [40 CFR 122.41(l)(4)

Monitoring results shall be reported at the intervals specified elsewhere in this Order.

8. Monitoring Reports [40 CFR 122.41(l)(4)(ii)]

If the discharger monitors any pollutant more frequently than required by the permit using test procedures approved under 40 CFR part 136, unless otherwise specified in the Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the reports requested by the SDRWQCB.

9. Monitoring Reports [40 CFR 122.41(l)(4)(iii)]

Calculations for all limitations which require averaging of measurements shall utilize an arithmetic mean unless otherwise specified by the SDRWQCB in the Order.

ATTACHMENT C

STANDARD PROVISIONS REPORTING REQUIREMENTS, AND NOTIFICATIONS

A. STANDARD PROVISIONS

1. Duty To Comply [40 CFR 122.41(a)(1)]
   The discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the Clean Water Act for toxic pollutants and with standards for sewage sludge use or disposal established under Section 405(d) of the Clean Water Act within the time provided in the regulations that establish these standards or prohibitions or standards for sewage sludge use or disposal, even if this Order has not yet been modified to incorporate the requirement.

2. Need to Halt or Reduce Activity Not a Defense [40 CFR 122.41(c)]
   It shall not be a defense for the discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. Upon reduction, loss, or failure of a treatment facility, the discharger shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of a treatment facility fails, is reduced, or is lost.

3. Duty to Mitigate [40 CFR 122.41(d)]
   The discharger shall take all reasonable steps to minimize or prevent any discharge or prevent any discharge or sludge use or disposal in violation of this Order which has a reasonable likelihood of adversely affecting human health or the environment.

4. Proper Operation and Maintenance [40 CFR 122.41(e)]
   The discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems which are installed by the discharger only when the operation is necessary to achieve compliance with the conditions of this Order.

5. Permit Actions [40 CFR 122.41(f)] [California Water Code § 13381]
   This Order may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

   a. Violation of any terms or conditions of this Order;
   b. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts;
   c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; or
   d. A determination that the permitted activity endangers human health or the environment and can only be regulated to acceptable levels by permit modification or termination.

   The filing of a request by the discharger for modification, revocation and reissuance, or termination of this Order, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

6. Property Rights [40 CFR 122.41(g)] [California Water Code §13263(g)]
This Order does not convey any property rights of any sort or any exclusive privilege. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from liabilities under federal, state, or local laws, nor create a vested right for the discharger to continue the waste discharge.

7. Inspection and Entry [40 CFR 122.41(i)] [California Water Code § 13267(c)]
The discharger shall allow the SDRWQCB, or an authorized SDRWQCB representative, or an authorized representative of the USEPA (including an authorized contractor acting as a representative of the SDRWQCB or USEPA), upon presentation of credentials and other documents as may be required by law, to:

   a. Enter upon the discharger's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this Order;
   b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order;
   c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
   d. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order or as otherwise authorized by the Clean Water Act or California Water Code, any substances or parameters at any location.

8. Bypass of Treatment Facilities [40 CFR 122.41(m)]

   a. Definitions

      (1) "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

      (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

   b. Bypass not Exceeding Limitations

      The discharger may allow any bypass to occur which does not cause effluent limitations of this Order or the concentrations of pollutants set forth in Ocean Plan Table A or Table B to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of paragraphs c. and d. of this provision.

   c. Notice

      (1) Anticipated bypass. If the discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible, at least ten days before the date of the bypass.
      (2) Unanticipated bypass. The discharger shall submit notice of an unanticipated bypass as required in section B.7 of Attachment C.

d. Prohibition of Bypass

Bypass is prohibited, and the SDRWQCB may take enforcement action against the discharger for bypass, unless:

(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

(3) The discharger submitted notices as required under paragraph c. of this section. The SDRWQCB may approve an anticipated bypass, after considering its adverse effects, if the SDRWQCB determines that it will meet the three conditions listed above in paragraph d.(1) of this section.

9. Upset [40 CFR 122.41(n)]

a. Definition "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based effluent limitations because of factors beyond the reasonable control of the discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

b. Effect of an Upset An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of paragraph c. of this section are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

c. Conditions Necessary for a Demonstration of Upset A discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

(1) An upset occurred and that the discharger can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The discharger submitted notice of the upset as required in section B.7 of Attachment C of this Order; and
(4) The discharger complied with any remedial measures required under Provision A.5. of Attachment C of this Order.

d. Burden of Proof In any enforcement proceeding the discharger seeking to establish the occurrence of an upset has the burden of proof.

10. Other Effluent Limitations and Standards [40 CFR 122.44(b)(1)]
If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under Section 307(a) of the Clean Water Act for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the SDRWQCB may institute proceedings under these regulations to modify or revoke

and reissue the Order to conform to the toxic effluent standard or prohibition.

11. The discharger shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this Order, including such accelerated or additional monitoring as may be necessary to determine the nature and impact of the noncomplying discharge.

12. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this Order, shall not be affected thereby.

13. The discharger shall comply with any interim effluent limitations as established by addendum, enforcement action, or revised waste discharge requirements which have been, or may be, adopted by this SDRWQCB.

B. REPORTING REQUIREMENTS

1. Duty to Reapply [40 CFR 122.41(b)] This Order expires on **February 21, 2006**. If the discharger wishes to continue any activity regulated by this Order after the expiration date of this Order, the discharger must apply for and obtain new waste discharge requirements. The discharger must file a Report of Waste Discharge in accordance with Title 23, California Code of Regulations not later than **180 days** in advance of the expiration date of this Order as application for issuance of new waste discharge requirements.

2. Duty to Provide Information [40 CFR 122.41(h)] The discharger shall furnish to the SDRWQCB, SWRCB, or USEPA, within a reasonable time, any information which the SDRWQCB, SWRCB, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order, or to determine compliance with this Order. The discharger shall also furnish to the SDRWQCB, SWRCB, or USEPA, upon request, copies of records required to be kept by this Order.

3. Planned Changes [40 CFR 122.41(l)(1)] The discharger shall give notice to the SDRWQCB as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required only when:

   a. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR Part 122.29(b);

   b. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants which are subject neither to effluent limitations in this Order, nor to notification requirements under 40 CFR 122.42(a)(l); or

   c. The alteration or addition results in a significant change in the discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of conditions in this Order that are different from or absent in the existing Order, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.

4. Anticipated Non-Compliance [40 CFR 122.41(l)(2)] The discharger shall give advance notice to the SDRWQCB of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this Order.

5. Transfers [40 CFR 122.41(l)(3)] This Order is not transferable to any person except after notice to the SDRWQCB. The SDRWQCB may require modification or revocation and reissuance of this Order to change the name of the discharger and incorporate such other requirements as may be necessary under the Clean Water Act or the California Water Code in accordance with the following:

   a. Transfers by Modification [40 CFR 122.61(a)]
   Except as provided in paragraph b. of this reporting requirement, this Order may be transferred by the discharger to a new owner or operator only if this Order has been modified or revoked and reissued, or a minor modification made to identify the new discharger and incorporate such other requirements as may be necessary under the Clean Water Act or California Water Code.

   b. Automatic Transfers [40 CFR 122.61(b)]
   As an alternative to transfers under paragraph a. of this reporting requirement, any NPDES permit may be automatically transferred to a new discharger if:

      (1) The current discharger notifies the SDRWQCB at least 30 days in advance of the proposed transfer date in paragraph b.(2) of this reporting requirement;

      (2) The notice includes a written agreement between the existing and new dischargers containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

      (3) The SDRWQCB does not notify the existing discharger and the proposed new discharger of his or her intent to modify or revoke and reissue the Order. A modification under this subparagraph may also be a minor modification under 40 CFR Part 122.63. If this notice is not received, the transfer is effective on the date specified in the agreement mentioned in paragraph b.(2) of this reporting requirement.

6. Twenty-four Hour Reporting [40 CFR 122.41(l)(6)]
   Each Copermittee shall develop and submit criteria by which to evaluate events of non-compliance to determine whether they pose a threat to human or environmental health. These criteria shall be submitted in the Jurisdictional Urban Runoff Management Program Document and Annual Reports for SDRWQCB review. Using these criteria the discharger shall report any noncompliance with this Order or any noncompliance that may endanger human health or environmental health. Any information shall be provided orally to the SDRWQCB within **24 hours** from the time the discharger becomes aware of the circumstances. A written description of any noncompliance shall be submitted to the SDRWQCB within **five days** of such an occurrence and contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The following shall be included as information which must be reported within 24 hours under this reporting requirement:

   a. Any unanticipated bypass which exceeds any effluent limitation in this Order;

   b. Any discharge of treated or untreated wastewater, including reclaimed or recycled wastewater, resulting from pipeline breaks, obstruction, surcharge or any other circumstance;

   c. Any discharge or spill of raw or potable water not authorized by this order or resulting from pipeline breaks, obstruction, surcharge or any other circumstance;

d. Any upset which exceeds any effluent limitation in this Order;

e. Any spill or discharge of non-storm water not authorized by this Order. Non-storm water discharges not prohibited by the Copermittees pursuant to Section B of this Order need not be reported under this section; and

f. Any violation of this Order.

7. Other Non-Compliance [40 CFR 122.41(l)(7)]
The discharger shall report all instances of noncompliance not reported elsewhere under other sections of this Order at the time annual reports are submitted. The reports shall contain the information listed in part B.6 of Attachment C of this Order.

8. Other Information [40 CFR 122.41(l)(8)]
Where the discharger becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge, or submitted incorrect information in a Report of Waste Discharge, or in any report to the SDRWQCB, it shall promptly submit such facts or information.

9. Signatory Requirements [40 CFR 122.41(k)(1) and 40 CFR 122.22]
All applications, reports, or information submitted to the SDRWQCB shall be signed and certified.

a. All Reports of Waste Discharge shall be signed as follows:

(1) For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation; or (b) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

(2) For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

(3) For a municipality, State, Federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: (a) the chief executive officer of the agency; or (b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA).

b. All reports required by this Order, and other information requested by the SDRWQCB shall be signed by a person described in paragraph a. of this reporting requirement,

or by a duly authorized representative of that person. A person is a duly authorized representative only if:

(1) The authorization is made in writing by a person described in paragraph a. of this reporting requirement;

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of

plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.); and,

(3) The written authorization is submitted to the SDRWQCB.

c. If an authorization under paragraph b. of this reporting requirement is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of paragraph b. of this reporting requirement must be submitted to the SDRWQCB prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. Any person signing a document under paragraph a. or b. of this reporting requirement shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

10. Except for data determined to be confidential under 40 CFR Part 2, all reports prepared in accordance with the terms of this Order shall be available for public inspection at the offices of the SDRWQCB. As required by the Clean Water Act, Reports of Waste Discharge, this Order, and effluent data shall not be considered confidential.

11. The discharger shall submit reports and provide notifications as required by this Order to the following:

Phil Hammer
STORM WATER UNIT
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION
9771 CLAIREMONT MESA BLVD SUITE A
SAN DIEGO CA 92124-1324
Telephone: (858) 467-2952
Fax: (858) 571-6972

Eugene Bromley
US ENVIRONMENTAL PROTECTION AGENCY
REGION IX
PERMITS ISSUANCE SECTION (W-5-1)
75 HAWTHORNE STREET
SAN FRANCISCO CA 94105

12. Unless otherwise directed, the discharger shall submit three copies of each report required under this Order to the SDRWQCB and one copy to USEPA.

C. NOTIFICATIONS

1. California Water Code Section 13263(g)
   No discharge of waste into the waters of the state, whether or not such discharge is made pursuant to waste discharge requirements, shall create a vested right to continue such discharge. All discharges of waste into waters of the state are privileges, not rights.

2. The SDRWQCB has, in prior years, issued a limited number of individual NPDES permits for non-storm water discharges to municipal storm water conveyance systems. The SDRWQCB or SWRCB may in the future, upon prior notice to the Copermittee(s), issue an NPDES permit for any non-storm water discharge (or class of non-storm water discharges) to a municipal storm water conveyance system. Copermittees may prohibit any non-storm water discharge (or class of non-storm water discharges) to a municipal storm water conveyance system that is authorized under such separate NPDES permits.

3. Enforcement Provisions [40 CFR 122.41(a)(2)] [California Water Code §§ 13385 and 13387]
   The Clean Water Act provides that any person who violates section 301, 302, 306, 307, 308, 318 or 405 of the Act, or any condition or limitation of this Order, is subject to a civil penalty not to exceed $25,000 per day for each violation. The Clean Water Act provides that any person who negligently violates sections 301, 302, 306, 307, 308, 318, or 405 of the Act, or any condition or limitation of this Order, is subject to criminal penalties of $2,500 to $25,000 per day of violation, or imprisonment of not more than one year, or both. In the case of a second or subsequent conviction for a negligent violation, a person shall be subject to criminal penalties of not more than $50,000 per day of violation, or by imprisonment of not more than two years, or both. Any person who knowingly violates such sections, or such conditions or limitations is subject to criminal penalties of $5,000 to $50,000 per day of violation, or imprisonment for not more than three years, or both. In the case of a second or subsequent conviction for a knowing violation, a person shall be subject to criminal penalties of not more than $100,000 per day of violation, or imprisonment of not more than six years, or both. Any person who knowingly violates section 301, 302, 303, 306, 307, 308, 318 or 405 of the Act, or any condition or limitation of this Order, and who knows at that time that he or she thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000 or imprisonment of not more than 15 years, or both. In the case of a second or subsequent conviction for a knowing endangerment violation, a person shall be subject to a fine of not more than $500,000 or by imprisonment of not more than 30 years, or both. An organization, as defined in section 309(c)(3)(B)(iii) of the Clean Water Act, shall, upon conviction of violating the imminent danger provision, be subject to a fine of not more than $1,000,000 and can be fined up to $2,000,000 for second or subsequent convictions.

4. Except as provided in Standard Provisions A.10. and A.11. in Attachment C of this Order, nothing in this Order shall be construed to relieve the discharger from civil or criminal penalties for noncompliance.

5. Nothing in this Order shall be construed to preclude the institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties to which the discharger is or may be subject to under Section 311 of the Clean Water Act.

6. Nothing in this Order shall be construed to preclude institution of any legal action or relieve the discharger from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by Section 510 of the Clean Water Act.

7. This Order shall become effective on **February 21, 2001**, provided the USEPA Regional Administrator has no objection. If the Regional Administrator objects to its issuance, this Order shall not become effective until such objection is withdrawn.

8. This Order supersedes Order No. 90-42 upon the effective date of this Order.

ATTACHMENT D

GLOSSARY

Beneficial Uses - The uses of water necessary for the survival or well being of man, plants, and wildlife. These uses of water serve to promote the tangible and intangible economic, social, and environmental goals "Beneficial Uses" of the waters of the State that may be protected against include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves. Existing beneficial uses are uses that were attained in the surface or ground water on or after November 28, 1975; and potential beneficial uses are uses that would probably develop in future years through the implementation of various control measures. "Beneficial Uses" are equivalent to "Designated Uses" under federal law. [California Water Code Section 13050(f)].

Best Available Technology (BAT) – BAT is the acronym for best available technology economically achievable. BAT is the technology-based standard established by congress in CWA section 402(p)(3)(A) for industrial dischargers of storm water. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of treatment and best management practices, or BMPs. For example, secondary treatment (or the removal of 85% suspended solids and BOD) is the BAT for suspended solid and BOD removal from a sewage treatment plant. BAT generally emphasizes treatment methods first and pollution prevention and source control BMPs secondarily.

The best economically achievable technology that will result in reasonable further progress toward the national goal of eliminating the discharge of all pollutants, as determined in accordance with regulations issued by the Environmental Protection Agency Administrator. Factors relating to the assessment of best available technology shall take into account the age of equipment and facilities involved, the process employed, the engineering aspects of the application of various types of control techniques, process changes, the cost of achieving such effluent reduction, non-water quality environmental impact (including energy requirements), and such other factors as the permitting authority deems appropriate.

Best Conventional Technology (BCT) – BCT is an acronym for Best Conventional Technology. BCT is the treatment techniques, processes and procedure innovations, operating methods that eliminate amounts of chemical, physical, and biological characteristics of pollutant constituents to the degree of reduction attainable through the application of the best management practices to the maximum extent practicable.

Best Management Practices - Best Management Practices (BMPs) are defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.

Bioaccumulate - The progressive accumulation of contaminants in the tissues of organisms through any route including respiration, ingestion, or direct contact with contaminated water, sediment, pore water, or dredged material to a higher concentration than in the surrounding environment. Bioaccumulation occurs with exposure and is independent of the tropic level.

Bioassessment - The use of biological community information to evaluate the biological integrity of a water body and its watershed. With respect to aquatic ecosystems, bioassessment is the collection and analysis of samples of the benthic macroinvertebrate community together with

physical/habitat quality measurements associated with the sampling site and the watershed to evaluate the biological condition (i.e. biological integrity) of a water body.

Bioconcentration – A process by which there is a net accumulation of a chemical directly from water into aquatic organisms resulting from simultaneous uptake and elimination by gill or epithelial tissue. Bioconcentration differs from bioaccumulation in that bioaccumulation refers to the progressive concentration of contaminants in the tissues of organisms through multiple pathways.

Biocriteria - Under the Clean Water Act, numerical values or narrative expressions that define a desired biological condition for a water body that are legally enforceable. The U.S. EPA defines biocriteria as: "numerical values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters of a given designated aquatic life use…(that)…describe the characteristics of water body segments least impaired by human activities."

Biological Integrity - Defined in Karr J.R. and D.R. Dudley. 1981. Ecological perspective on water quality goals. Environmental Management 5:55-68 as: "A balanced, integrated, adaptive community of organisms having a species composition, diversity, and functional organization comparable to that of natural habitat of the region." Also referred to as ecosystem health.

Biomagnication – The transfer and progressive increase in tissue concentrations of a contaminant along the food chain. Because some pollutants can be transferred to higher trophic levels, carnivores at the top of the food chain, such as predatory fish, birds, and mammals (including humans), obtain most of their pollution burden from aquatic ecosystems by ingestion. Thus, although such pollutants may only be present in receiving waters in low concentrations, they can have a significant impact to the integrity of the ecosystem through biomagnification.

Clean Water Act Section 402(p) - [33 USC 1342(p)] is the federal statute requiring municipal and industrial dischargers to obtain NPDES permits for their discharges of storm water.

Clean Water Act Section 303(d) Water Body - is an impaired water body in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.

Contamination - As defined in the Porter-Cologne Water Quality Control Act, contamination is "an impairment of the quality of waters of the state by waste to a degree which creates a hazard to the public health through poisoning or through the spread of disease. 'Contamination' includes any equivalent effect resulting from the disposal of waste whether or not waters of the state are affected."

Designated Waste - Designated waste is defined as a "nonhazardous waste which consists of pollutants which, under ambient environmental conditions at the waste management unit, could be released at concentrations in excess of applicable water quality objectives, or which could cause degradation of waters of the state." [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20210; WC Section 13173]

Effluent Limitations - Limitations on the volume of each waste discharge, and the quantity and concentrations of pollutants in the discharge. The limitations are designed to ensure that the discharge does not cause water quality objectives to be exceeded in the receiving water and does not adversely affect beneficial uses.

Effluent limitations are limitations of the quantity and concentrations of pollutants in a discharge. The limitations are designed to ensure that the discharge does not cause water quality objectives

to be exceeded in the receiving water and does not adversely affect beneficial uses. In other words, an effluent limit is the maximum concentration of a pollutant that a discharge can contain. To meet effluent limitations, the effluent typically must undergo one or more forms of treatment to remove pollutants in order to lower the pollutant concentration below the limit. Effluent limits are typically numeric (e.g., 10 mg/l), but can also be narrative (e.g., no toxics in toxic amounts).

Erosion – When land is diminished or warn away due to wind, water, or glacial ice. Often the eroded debris (silt or sediment) becomes a pollutant via storm water runoff. Erosion occurs naturally but can be intensified by land clearing activities such as farming, development, road building, and timber harvesting.

Grading - The cutting and/or filling of the land surface to a desired slope or elevation.

Hazardous Waste - Hazardous waste is defined as "any waste which, under Section 600 of Title 22 of this code, is required to be managed according to Chapter 30 of Division 4.5 of Title 22 of this code." [CCR Title 22, Division 4.5, Chapter 11, Article 1]

Illicit Discharge - Any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges form the municipal separate storm sewer) and discharges resulting from fire fighting activities.

Inert Waste - Inert waste is defined as one that "does not contain hazardous waste or soluble pollutants at concentrations in excess of applicable water quality objectives, and does not contain significant quantities of decomposable waste." [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20230]

MEP – MEP is the acronym for Maximum Extent Practicable. MEP is the technology-based standard established by Congress in CWA section 402(p)(3)(B)(iii) that municipal dischargers of storm water (MS4s) must meet. Technology-based standards establish the level of pollutant reductions that dischargers must achieve, typically by treatment or by a combination of treatment and best management practices (BMPs). MEP generally emphasizes pollution prevention and source control BMPs primarily (as the first line of defense) in combination with treatment methods serving as a backup (additional line of defense). MEP considers economics and is generally, but not necessarily, less stringent than BAT. A definition for MEP is not provided either in the statute or in the regulations. Instead the definition of MEP is dynamic and will be defined by the following process over time: municipalities propose their definition of MEP by way of their Urban Runoff Management Plan. Their total collective and individual activities conducted pursuant to the Urban Runoff Management Plan becomes their proposal for MEP as it applies both to their overall effort, as well as to specific activities (e.g., MEP for street sweeping, or MEP for municipal separate storm sewer system maintenance). In the absence of a proposal acceptable to the SDRWQCB, the SDRWQCB defines MEP.

In a memo dated February 11, 1993, entitled "Definition of Maximum Extent Practicable," Elizabeth Jennings, Senior Staff Counsel, SWRCB addressed the achievement of the MEP standard as follows:

> "*To achieve the MEP standard, municipalities must employ whatever Best Management Practices (BMPs) are technically feasible (i.e., are likely to be effective) and are not cost prohibitive. The major emphasis is on technical feasibility. Reducing pollutants to the MEP means choosing effective BMPs, and rejecting applicable BMPs only where other effective BMPs will serve the same purpose, or the BMPs would not be technically feasible, or the cost would be prohibitive. In selecting BMPs to achieve the MEP standard, the following factors may be useful to consider:*

a. *Effectiveness: Will the BMPs address a pollutant (or pollutant source) of concern?*
b. *Regulatory Compliance: Is the BMP in compliance with storm water regulations as well as other environmental regulations?*
c. *Public Acceptance: Does the BMP have public support?*
d. *Cost: Will the cost of implementing the BMP have a reasonable relationship to the pollution control benefits to be achieved?*
e. *Technical Feasibility: Is the BMP technically feasible considering soils, geography, water resources, etc?*

The final determination regarding whether a municipality has reduced pollutants to the maximum extent practicable can only be made by the Regional or State Water Boards, and not by the municipal discharger. If a municipality reviews a lengthy menu of BMPs and chooses to select only a few of the least expensive, it is likely that MEP has not been met. On the other hand, if a municipal discharger employs all applicable BMPs except those where it can show that they are not technically feasible in the locality, or whose cost would exceed any benefit derived, it would have met the standard. Where a choice may be made between two BMPs that should provide generally comparable effectiveness, the discharger may choose the least expensive alternative and exclude the more expensive BMP. However, it would not be acceptable either to reject all BMPs that would address a pollutant source, or to pick a BMP base solely on cost, which would be clearly less effective. In selecting BMPs the municipality must make a serious attempt to comply and practical solutions may not be lightly rejected. In any case, the burden would be on the municipal discharger to show compliance with its permit. After selecting a menu of BMPs, it is the responsibility of the discharger to ensure that all BMPs are implemented."

Municipal Storm Water Conveyance System – (See Municipal Separate Storm Sewer System or MS4).

Municipal Separate Storm Sewer System (MS4) – MS4 is an acronym for Municipal Separate Storm Sewer System. A Municipal Separate Storm Sewer System is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, natural drainage features or channels, modified natural channels, man-made channels, or storm drains): (i) Owned or operated by a State, city town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting of conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Historic and current development make use of natural drainage patterns and features as conveyances for urban runoff. Urban streams used in this manner are part of the municipalities MS4 regardless of whether they are natural, man-made, or partially modified features. In these cases, the urban stream is both an MS4 and a receiving water.

National Pollution Discharge Elimination System (NPDES) - These permits pertain to the discharge of waste to surface waters only. All State and Federal NPDES permits are also WDRs.

Non-hazardous Solid Waste - Non-hazardous solid waste means all putrescible and nonputrescible solid, semi-sold, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and

semi-sold wastes and other discarded solid or semi-solid waste; provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentration which exceed applicable water quality objectives or could cause degradation of wasters of the state." [CCR Title 27, Chapter 3, Subchapter 2, Article 2, Section 20220]

Non Point Source (NPS) – Non point source refers to diffuse, widespread sources of pollution. These sources may be large or small, but are generally numerous throughout a watershed. Non Point Sources include but are not limited to urban, agricultural, or industrial areas, roads, highways, construction sites, communities served by septic systems, recreational boating activities, timber harvesting, mining, livestock grazing, as well as physical changes to stream channels, and habitat degradation. NPS pollution can occur year round any time rainfall, snowmelt, irrigation, or any other source of water runs over land or through the ground, picks up pollutants from these numerous, diffuse sources and deposits them into rivers, lakes, and coastal waters or introduces them into ground water.

Non-Storm Water - Non-storm water consists of all discharges to and from a storm water conveyance system that do not originate from precipitation events (i.e., all discharges from a conveyance system other than storm water). Non-storm water includes illicit discharges, non-prohibited discharges, and NPDES permitted discharges. An illicit discharge is defined at 40 CFR 122.26(b)(2) as any discharge to a municipal storm water conveyance system that is not composed entirely of storm water except discharges pursuant to a separate NPDES permit and discharges resulting from emergency fire fighting activities.

Nuisance - As defined in the Porter-Cologne Water Quality Control Act a nuisance is "anything which meets all of the following requirements: 1) Is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property. 2) Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal. 3) Occurs during, or as a result of, the treatment or disposal of wastes."

Numeric effluent limitations - The typical method by which effluent limits are prescribed for pollutants in waste discharge requirements implementing the federal NPDES regulations. When numeric effluent limits are met at the "end-of-pipe", the effluent discharge generally will not cause water quality standards to be exceeded in the receiving waters (i.e., water quality standards will also be met).

Person - A person is defined as an individual, association, partnership, corporation, municipality, State or Federal agency, or an agent or employee thereof. [40 CFR 122.2].

Point Source - Any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operations, landfill leachate collection systems, vessel, or other floating craft from which pollutants are or may be discharged.

Pollution - As defined in the Porter-Cologne Water Quality Control Act, pollution is "the alteration of the quality of the waters of the State by waste, to a degree that unreasonably affects the either of the following: A) The waters for beneficial uses; or 2) Facilities that serve these beneficial uses." Pollution may include contamination.

Pollutant - A pollutant is broadly defined as any agent that may cause or contribute to the degradation of water quality such that a condition of pollution or contamination is created or aggravated.

Pollution Prevention - Pollution prevention is defined as practices and processes that reduce or eliminate the generation of pollutants, in contrast to source control, treatment, or disposal.

Post-Construction BMPs - A subset of BMPs including structural and non-structural controls which detain, retain, filter, or educate to prevent the release of pollutants to surface waters during the final functional life of development.

Pre-Development Runoff Conditions - The runoff conditions that exist onsite immediately before the planned development activities occur. This definition is not intended to be interpreted as that period before any human-induces land activities occurred. This definition pertains to redevelopment as well as initial development.

Receiving Water Limitations - Waste discharge requirements issued by the SDRWQCB typically include both: (1) "Effluent Limitations" (or "Discharge Limitations") that specify the technology-based or water-quality-based effluent limitations; and (2) "Receiving Water Limitations" that specify the water quality objectives in the Basin Plan as well as any other limitations necessary to attain those objectives. In summary, the "Receiving Water Limitations" provision is the provision used to implement the requirement of CWA section 301(b)(1)(C) that NPDES permits must include any more stringent limitations necessary to meet water quality standards.

Sediment - Soil, sand, and minerals washed from land into water. Sediment resulting from anthropogenic sources (i.e. human induced land disturbance activities) is considered a pollutant. This Order regulates only the discharges of sediment from anthropogenic sources and does not regulate naturally occurring sources of sediment. Sediment can destroy fish-nesting areas, clog animal habitats, and cloud waters so that sunlight does not reach aquatic plants.

Storm Water - "Storm water" is as defined urban runoff and snowmelt runoff consisting only of those discharges which originate from precipitation events. Storm water is that portion of precipitation that flows across a surface to the storm drain system or receiving waters. Examples of this phenomenon include: the water that flows off a building's roof when it rains (runoff from an impervious surface); the water that flows into streams when snow on the ground begins to melt (runoff from a semi-pervious surface); and the water that flows from a vegetated surface when rainfall is in excess of the rate at which it can infiltrate into the underlying soil (runoff from a pervious surface). When all factors are equal, runoff increases as the perviousness of a surface decreases. During precipitation events in urban areas, rain water picks up and transports pollutants through storm water conveyance systems, and ultimately to waters of the United States.

Toxicity - Adverse responses of organisms to chemicals or physical agents ranging from mortality to physiological responses such as impaired reproduction or growth anomalies). The water quality objectives for toxicity provided in the Water Quality Control Plan, San Diego Basin, Region 9, (Basin Plan), state in part...*"All waters shall be free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life....The survival of aquatic life in surface waters subjected to a waste discharge or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge"....* Urban runoff discharges from MS4s are considered toxic when (1) the toxic effect observed in an acute toxicity test exceeds zero Toxic Units Acute (Tua=0); or (2) the toxic effect observed in a chronic toxicity test exceeds one Toxic Unit Chronic (Tuc=1). Urban runoff discharges from MS4s often contain pollutants that cause toxicity.

Total Maximum Daily Load (TMDL) - The TMDL is the maximum amount of a pollutant that can be discharged into a water body from all sources (point and non-point) and still maintain water quality standards. Under Clean Water Act section 303(d), TMDLs must be developed for all

water bodies that do not meet water quality standards after application of technology-based controls.

Urban Runoff - Urban runoff is defined as all flows in a storm water conveyance system and consists of the following components: (1) storm water (wet weather flows) and (2) non-storm water illicit discharges (dry weather flows).

Waste - As defined in California Water Code Section 13050(d), "waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal."

Article 2 of CCR Title 23, Chapter 15 (Chapter 15) contains a waste classification system which applies to solid and semi-solid waste which cannot be discharged directly or indirectly to water of the state and which therefore must be discharged to land for treatment, storage, or disposal in accordance with Chapter 15. There are four classifications of waste (listed in order of highest to lowest threat to water quality): hazardous waste, designated waste, nonhazardous solid waste, and inert waste.

Water Quality Objective - Numerical or narrative limits on constituents or characteristics of water designated to protect designated beneficial uses of the water. [California Water Code Section 13050 (h)]. California's water quality objectives are established by the State and Regional Water Boards in the Water Quality Control Plans.

As stated in the Porter-Cologne Requirements for discharge (CWC 13263): "(Waste discharge) requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of Section 13241."

A more comprehensive list of legal authority containing water quality objectives applicable to this Order can be found in Finding 37 and in Section VII Directives Discussion Underlying Broad Legal Authority for Order 2001-01 pp. 61-63.

Numeric or narrative limits for pollutants or characteristics of water designed to protect the beneficial uses of the water. In other words, a water quality objective is the maximum concentration of a pollutant that can exist in a receiving water and still generally ensure that the beneficial uses of the receiving water remain protected (i.e., not impaired). Since water quality objectives are designed specifically to protect the beneficial uses, when the objectives are violated the beneficial uses are, by definition, no longer protected and become impaired. This is a fundamental concept under the Porter Cologne Act. Equally fundamental is Porter Cologne's definition of pollution. A condition of <u>pollution</u> exists when the water quality needed to support designated beneficial uses has become unreasonably affected or impaired; in other words, when the water quality objectives have been violated. These underlying definitions (regarding beneficial use protection) are the reason why all waste discharge requirements implementing the federal NPDES regulations require compliance with water quality objectives. (Water quality objectives are also called water quality criteria in the Clean Water Act.)

Water Quality Standards - are defined as the beneficial uses (e.g., swimming, fishing, municipal drinking water supply, etc.,) of water and the water quality objectives necessary to protect those uses.

Waters of the State - Any water, surface or underground, including saline waters within the boundaries of the State [California Water Code Section 13050 (e)]. The definition of the Waters of the State is broader than that for the Waters of the United States in that all water in the State is

considered to be a Waters of the State regardless of circumstances or condition. Under this definition, a Municipal Separate Storm Sewer System (MS4) is always considered to be a Waters of the State.

Waters of the United States - Waters of the United States can be broadly defined as navigable surface waters and all tributary surface waters to navigable surface waters. Groundwater is not considered to be a Waters of the United States. Under this definition (see below), a Municipal Separate Storm Sewer System (MS4) is always considered a Waters of the United States.

As defined in the 40 CFR 122.2, the Waters of the U.S. are defined as: **"(a) All waters, which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;** (b) All interstate waters, including interstate "wetlands;" (c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation or destruction of which would affect or could affect interstate or foreign commerce including any such waters: (1) Which are or could be used by interstate or foreign travelers for recreational or other purposes; (2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or (3) Which are used or could be used for industrial purposes by industries in interstate commerce; (d) All impoundments of waters otherwise defined as waters of the United States under this definition**: (e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;** (f) The territorial seas; and (g) "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with the EPA."

Watershed - That geographical area which drains to a specified point on a water course, usually a confluence of streams or rivers (also known as drainage area, catchment, or river basin).

ATTACHMENT E

DRY WEATHER ANALYTICAL AND FIELD SCREENING MONITORING SPECIFICATIONS - URBAN RUNOFF

Dry weather analytical and field screening monitoring consists of (1) field observations; (2) field screening monitoring; and (3) analytical monitoring at selected stations. Pursuant to section F.5 of this Order, the purpose of dry weather analytical and field screening monitoring is to detect and eliminate illicit connections and illegal discharges to the MS4 using frequent, geographically widespread dry weather discharge monitoring and follow-up investigations. Each Copermittee shall conduct the following dry weather analytical and field screening monitoring tasks:

1. Develop MS4 Map

   Each Copermittee shall develop or obtain an up-to-date labeled map of its entire municipal separate storm sewer system (MS4) and the corresponding drainage watersheds within its jurisdiction. The use of a Geographic Information System (GIS) is highly recommended, but not required. The accuracy of the MS4 map shall be confirmed during monitoring activities (See Task 6).

2. Select Dry Weather Analytical Monitoring Stations

   Based upon a review of its past Dry Weather Monitoring Programs, each Copermittee shall select dry weather analytical monitoring stations within its jurisdiction. Stations shall be either major outfalls or other outfall points (or any other point of access such as manholes) randomly located throughout the MS4 by placing a grid over a drainage system map and identifying those cells of the grid which contain a segment of the MS4 or major outfall; **or**, stations may be selected non-randomly provided adequate coverage of the entire MS4 system is ensured and that the selection of stations meets or exceeds the requirements given below. The dry weather analytical and field screening monitoring stations shall be established using the following guidelines and criteria:

   a. A grid system consisting of perpendicular north-south and east-west lines spaced ¼ mile apart shall be overlayed on a map of the MS4, creating a series of cells;
   b. All cells that contain a segment of the MS4 shall be identified and one dry weather analytical monitoring station shall be selected in each cell;
   c. Stations should be located downstream of any sources of suspected illegal or illicit activity;
   d. Stations shall be located to the degree practicable at the farthest manhole or other accessible location downstream in the system within each cell;
   e. Hydrological conditions, total drainage area of the site, traffic density, age of the structures or buildings in the area, history of the area, and land use types shall be considered in locating stations;
   f. Determining Number of Stations: Based upon review of previous Dry Weather Monitoring Programs, each Copermittee shall determine a minimum number of stations to be sampled each year with provisions for alternate stations to be sampled in place of selected stations that do not have flow.

3. Complete MS4 Map

   Each Copermittee shall clearly identify each dry weather analytical monitoring station on its MS4 Map as either a separate GIS layer or a map overlay hereafter referred to as a Dry Weather Analytical Stations Map. Each Copermittee shall confirm that each drainage area within its jurisdiction contains at least one station.

4. Develop Dry Weather Analytical Monitoring Procedures

Each Copermittee shall develop written procedures for dry weather analytical and field screening monitoring (consistent with 40 CFR part 136), including field observations, monitoring, and analyses to be conducted at a minimum between May 1st and September 30th of each year. The dry weather analytical and field screening monitoring program shall be designed to emphasize frequent, geographically widespread monitoring to detect illicit discharges and illegal connections. At a minimum, the procedures must be based on the following guidelines and criteria:

a. Determining Sampling Frequency: Dry weather analytical and field screening monitoring shall be conducted at each identified station at least once between May 1st and September 30th of each year or as often as the Copermittee determines is necessary to comply with the requirements of Section F.5 of the Order.

b. If flow or ponded runoff is observed at a dry weather analytical monitoring station and there has been at least seventy-two (72) hours of dry weather, make observations and collect at least one (1) grab sample. Record general information such as time since last rain, quantity of last rain, site descriptions (i.e., conveyance type, dominant watershed land uses), flow estimation (i.e., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (i.e., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).

c. At a minimum, collect samples for analytical laboratory analysis of the following constituents:

(1) Total Hardness
(2) Surfactants (MBAS)
(3) Oil and Grease
(4) Diazinon and Chlorpyrifos
(5) Cadmium (Dissolved)
(6) Copper (Dissolved)
(7) Lead (Dissolved)
(8) Zinc (Dissolved)
(9) Enterococcus bacteria
(10) Total Coliform bacteria
(11) Fecal Coliform bacteria

d. At a minimum, conduct field screening analysis of the following constituents:

(1) Specific conductance (calculate estimated Total Dissolved Solids).
(2) Turbidity
(3) pH
(4) Reactive Phosphorous
(5) Nitrate Nitrogen
(6) Ammonia Nitrogen

e. If the station is dry (no flowing or ponded runoff), make and record all applicable observations and select another station from the list of alternate stations for monitoring.

f. Develop criteria for dry weather analytical and field screening monitoring results whereby exceedance of the criteria will require follow-up investigations to be conducted to identify the source causing the exceedance of the criteria.

g. Dry weather analytical and field screening monitoring stations identified to exceed dry weather analytical monitoring criteria for any constituents shall continue to be screened in

subsequent years.

h. Develop procedures for source identification follow up investigations in the event of exceedance of dry weather analytical and field screening monitoring result criteria. These procedures shall be consistent with procedures required in section F.5.c. of this Order.

i. Develop procedures to eliminate detected illicit discharges and connections. These procedures shall be consistent with each Copermittees Illicit Discharge and Elimination component of its Jurisdictional Urban Runoff Management Plan as discussed in section F.5 of this Order.

5. Submit Dry Weather Analytical Monitoring Map and Procedures

Each Copermittee shall submit its dry weather analytical and field screening monitoring map (including the MS4, drainage watersheds, and station locations) and dry weather analytical monitoring procedures to the Principal Permittee as part of its Jurisdictional Urban Runoff Management Program Document on the date prescribed by the Principal Permittee. The procedures shall, at a minimum, address all issues included in sections 1-4 of this Attachment. The Principal Permittee shall collectively submit the dry weather monitoring analytical maps and procedures to the SDRWQCB within **365 days** of adoption of this Order. Implementation of dry weather analytical monitoring under the requirements of this Order shall commence by May 1, 2002.

6. Conduct Dry Weather Analytical Monitoring

Until the Dry Weather Analytical and Field Screening Monitoring Program is implemented under the requirements of this Order, each Copermittee shall continue to implement the Dry Weather Monitoring Program most recently implemented pursuant to Order No. 90-42. Starting May 1, 2002, each Copermittee shall conduct dry weather analytical and field screening monitoring in accordance with its storm water conveyance system map and dry weather analytical and field screening monitoring procedures as described in Tasks 1 – 4 above. If monitoring indicates an illicit connection or illegal discharge, conduct the follow-up investigation and elimination activities as described in submitted dry weather analytical and field screening monitoring procedures and sections F.5.c. and F.5.d. of this Order.

During monitoring, the accuracy of its MS4 map and shall be confirmed. Correct any inaccuracies in the either the MS4 map or the Dry Weather Analytical Stations Map and resubmit the corrected maps in the next annual report.

7. Summarize and Report Dry Weather Analytical Monitoring Results

As part of its individual Jurisdictional URMP Annual Report, each Copermittee shall summarize and report on its dry weather analytical monitoring results. The data shall be presented in tabular and graphical form. The reporting shall include analytical monitoring results, as well as follow up and elimination activities for potential illicit discharges and connections. Dry weather analytical monitoring reports shall comply with all monitoring and standard reporting requirements in Attachments B and C of Order 2001-01. The Principal Permittee shall submit to the SDRWQCB the individual dry weather analytical monitoring reports as part of the unified Jurisdictional URMP Annual Report on January 31, 2003, and every year thereafter.

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

May 14, 2009

James Smith
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County (NPDES Permit No. CAS0108740)

Dear Mr. Smith:

Following below are EPA Region 9's comments on the March 13, 2009 Tentative Draft Permit for the South Orange County Municipal Separate Storm Sewer System (MS4) within the jurisdiction of the San Diego Regional Board (NPDES permit No. CAS0108740).

EPA appreciates the efforts made by Regional Board staff to respond to our comments of January 2008 on the previous draft permit. Our comments on the latest draft mainly concern one aspect of the permit, namely the Low Impact Development (LID) requirements. Regarding LID, we still believe the permit needs certain improvements to ensure it contains clear, measurable, and enforceable requirements in this area.

With regards to other issues, we believe a number of clarifications are needed regarding the applicability of TMDLs to the permit. And in response to your request, we are providing comments on two other issues which are the removal of the term "urban runoff" and the use of numeric effluent limits for non-stormwater discharges.

A. Implementation of LID Requirements

First of all, we understand that the Orange County permittees desire consistency between the LID requirements adopted by the Santa Ana and San Diego Regional Boards. As noted in our letter to the Santa Ana Regional Board dated May 8, 2009 (which we provided to you earlier), with a few relatively minor clarifications, we would be comfortable with the requirements of the Santa Ana Regional Board's permit for North Orange County (May 1, 2009 version). As discussed below, however, we have certain concerns with the LID requirements of the March 13, 2009 draft permit proposed by the San Diego Regional Board as well as the tentative update of April 29, 2009. If the adopted Santa Ana Regional Board North Orange County permit satisfactorily addresses EPA's May 8 comments, we would support direct incorporation of the North Orange

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County permit's LID provisions into your South Orange County permit. We will continue to consult with you regarding the status of the North Orange County permit.

1) Concerns with the South Orange County draft permit of March 13, 2009

Our concerns with the South Orange County draft permit of March 13, 2009 include the following:

a) We believe the draft permit should be revised to more clearly incorporate numeric criteria for LID implementation. This has been a priority of ours in our review of draft MS4 permits across the State including the recently-reissued permit for Ventura County and for the North Orange County permit.

In the South Orange County permit, numeric LID criteria should be included in section F.1.d.4 of the permit, entitled "Low Impact Development Site Design BMP Requirements." This section of the draft permit describes LID BMPs, but does not include numeric performance criteria. We recognize that in a subsequent section of the permit, section F.1.h which addresses hydromodification, there is a section entitled "Interim Requirements for Large Projects" (section F.1.h.6) which calls for the reduction of Effective Impervious Area (EIA) to less than 5%. While we support including an interim hydromodification requirement, to avoid confusion over the permit's expectations for LID, we believe the permit would be improved by including numeric criteria in the LID section F.1.d.4.

An example of this recommended approach is the permit adopted by the Los Angeles Regional Board for Ventura County on May 7, 2009. This permit includes numeric criteria in the LID sections of the permits, and also contains appropriate, separate criteria for hydromodification.

b) We would also point out that the South Orange County permit lacks storm sizing criteria to use in conjunction with the EIA requirement. The absence of such criteria resulted in criticism of an early version of the draft Ventura County permit.

Additionally, we would note that the latest draft North Orange County permit no longer contains the 5% EIA requirement, but instead establishes numeric LID performance criteria in terms of a design storm volume. We are supportive of both the design storm volume approach proposed by the Santa Ana Regional Board and the 5% EIA approach used by the Los Angeles Regional Board for the Ventura County permit.

c) We believe the South Orange County permit should include specific requirements for alternative programs when permittees conclude that implementation of LID is infeasible. However, the existing provisions in the permit related to waivers (sections F.1.d.7 and F.1.d.8) do not address this concern. Section F.1.d.7 is entitled "Waiver Provision for Numeric Sizing of Treatment Control BMP Requirements" and provides waivers for treatment requirements rather than LID. Further, section F.1.d.8, entitled "LID Site Design BMP Substitution Program" is written to substitute for "some

or all treatment control BMPs." Our concern is with the draft permit's LID section (section F.1.d.4.a.i) which refers to a "finding of infeasibility" that permittees may make if LID implementation is not practical for a given project; additional clarification is needed concerning the circumstances when LID would be considered "infeasible."

2) Concerns with the tentative revisions to the South Orange County permit of April 29, 2009

Our concerns with the tentative revisions to the South Orange County permit of April 29, 2009 include the following:

a) New language would be added in section F.1.d.(4)(a)(i) which would require LID practices or participation in the LID substitution program of F.1.d.(8)(d). However, the permit still does not clarify the circumstances when LID would be considered infeasible (see comment 1.c above) or require the permittees to develop such criteria for submittal to and approval by the Regional Board (as does the current draft of the Santa Ana Regional Board's permit). Further, the revised section F.1.d.(8)(d) seems misplaced (and is confusing) in that it is located within section F.1.d.(8) which sets forth an optional program to substitute LID for treatment controls.

b) A new section F.1.d.(4)(c) would be added to the permit which would require capture of a design storm. However, the permit also provides a rather open-ended list of acceptable LID BMPs. We would recommend that acceptable LID measures be limited as suggested in the first comment in our May 8 letter to the Santa Ana Regional Board on the proposed North Orange County permit, in which LID is defined in terms of the way the BMP performs. The concern in our May 8 letter is that certain BMPs (even biofiltration which is listed in the North Orange County permit) may not necessarily perform consistent with LID principles, unless additional operational requirements are specified. Such concerns would also apply to certain BMPs on the list in your permit such as detention ponds and constructed wetlands.

B. Total Maximum Daily Loads (TMDLs)

We believe that additional clarification is needed concerning the consistency of the draft permit with approved TMDLs. Finding E.12 for the permit indicates the permit includes applicable wasteload allocations (WLAs) that have been adopted by the Regional Board and approved by the State Board, Office of Administration Law and EPA. However, we are not aware of any such WLAs for the MS4s subject to the permit. Table 1 in the fact sheet for the permit notes that certain TMDLs have been adopted by the Regional Board, but have not yet been approved by EPA. There is also a reference in the fact sheet to dry weather TMDLs included in section C of the draft permit, which apparently have received all the necessary approvals. Again, however, we are not aware of these TMDLs and the fact sheet should provide full and clear information concerning the approval status of TMDLs with WLAs applicable to the MS4s.

Even if no applicable WLAs have been approved by EPA, it is helpful for the fact sheet to clarify this matter. Further, if applicable WLAs are approved by EPA prior to Regional Board adoption of the permit, they should be included in the permit. We are also pleased by the apparent intent of the Regional Board as indicated in Finding E.12 and Section I of the draft permit to express permit effluent limits, when necessary to ensure consistency with applicable WLAs, as numeric effluent limits. Numeric limits provide greater assurance of consistency with WLAs than the alternative of BMPs which are sometimes used, given the uncertainty in the performance of many of the BMPs commonly used for stormwater pollution control.

C. Removal of the Term "Urban Runoff"

You had asked for our views on the proposed replacement of the term "urban runoff", which was commonly used in the previous permit, with the terms "stormwater" and "non-stormwater" as the discharges regulated in the new permit. We would support this revision since it is actually more consistent with the terminology used in the EPA stormwater regulations at 40 CFR 122.26. However, we would point out that the new Finding C.14 and the discussion in the fact sheet incorrectly indicate that industrial stormwater discharges are subject to the maximum extent practicable (MEP) discharge standard in the Clean Water Act (CWA). Section 402(p)(3)(B) of the CWA provides that only municipal stormwater discharges are subject to the MEP standard; section 402(p)(3)(A) provides that industrial runoff is subject to all applicable requirements of sections 402(p) of the CWA, and section 301 of the CWA which includes BAT/BCT effluent limits and water quality standards compliance.

D. Numeric Effluent Limits for Non-Stormwater Discharges

You also asked for our views on whether numeric effluent limits would be appropriate for non-stormwater discharges. As noted above in our comments on LID and TMDLs, we are seeking to ensure that permits include clear, measurable and enforceable requirements. We believe that the use of numeric effluent limits for non-stormwater discharges would be a significant step in the right direction and we support the proposed limits. In previous MS4 permits, the non-stormwater discharges addressed in the permits have typically been regulated through best management practices (BMPs) pursuant to 40 CFR 122.44(k) for the same reason that stormwater discharges themselves are often regulated by BMPs, which is the lack of good information about the discharges and the difficulty in deriving appropriate numeric effluent limits. This issue was recognized in a 1996 EPA guidance on water quality-based effluent limits for stormwater discharges which is cited by the fact sheet. However, the guidance also indicates that as additional information becomes available, more specific limits should be considered. As noted in the fact sheet, additional information has become available to the Board about the discharges over the years, and we agree that the numeric effluent limits are now appropriate.

We appreciate the opportunity to provide input on this draft permit. If you would like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at 415-972-3510.

Sincerely,

Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

June 18, 2009

Mr. Ben Neill
Northern Watershed Protection Unit
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County

Dear Mr. Neill:

The following are EPA Region 9's comments on the March 13, 2009 Tentative Draft Permit for the South Orange County Municipal Separate Storm Sewer System (MS4), as amended by the "Draft Updates to LID Language" dated June 8, 2009. EPA most recently commented on the March 13 draft permit in a letter to James Smith dated May 14, 2009. These comments are intended to supplement our May 14 comments.

First, we would like to express our support for one aspect of the March 13, 2009 Tentative Draft Permit which was not covered by our May 14 letter. We recognize that section B, regarding Non-Stormwater Discharges removes "landscape irrigation, irrigation water, and lawn watering" from the listed categories of non-prohibited non-stormwater discharges. We note that the draft Fact Sheet identifies discharges from these categories to be substantial sources of pollutants. We agree that it is valid for the Regional Board to remove these sources from the list of non-prohibited non-stormwater discharges.

We are encouraged by the revisions made to the draft permit's Low Impact Development (LID) provisions in the June 8 update. We have been supportive of the Santa Ana Regional Board's Orange County MS4 permit, which was adopted on May 24, 2009. The LID provisions included in the June 8 update are generally consistent with the Santa Ana Regional Board's permit. We also appreciate that the June 8 update addresses the comments pertaining to LID in our May 14 letter.

We have the following specific comments on the June 8 update.

Section F.1.d requires the submittal of an updated model SUSMP within two years of permit adoption. We note that in other permits, including the May 24, 2009 Santa Ana Regional Board permit for Orange County, similar plans must be submitted within one year of permit issuance.

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Section F.1.d.4.c.ii – The updated LID language includes the term "biofiltration." Although this term is commonly used, as a general matter, its exact meaning is unclear. For example, in some circumstances, distinctions have not been made between infiltration and biofiltration. Conceptually, we believe that a well designed and operated biofiltration system can be consistent with LID principles by reducing flow volumes and protecting water quality. However, without a clear definition of biofiltration, there is the potential for the use of approaches that are contrary to LID. This section of the draft permit takes a step in the right direction by providing a total volume requirement for an acceptable biofilter. We would be interested in conferring further with you to improve the permit's definition of biofiltration.

Lastly, we'd like to refer to our May 14 comment letter's mention of the permit's provisions regarding the incorporation of Total Maximum Daily Loads (TMDLs). We continue to believe that the draft permit's TMDL provisions should be clarified, and would be glad to consult with you on this issue.

Thank you for the productive work you've done to improve this permit. If you'd like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at (415) 972-3510.

Sincerely,

Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

FAX TRANSMITTAL

Date: 9/28	# of Pages (including cover sheet): 5
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R.J. Stewart Time: 449

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

September 28, 2009

James Smith
San Diego Regional Water Quality Control Board
9174 Sky Park Court, Suite 100
San Diego, CA 92123

Re: Draft MS4 Permit for South Orange County (NPDES Permit No. CAS0108740)

Dear Mr. Smith:

The following are EPA Region 9's comments on the August 12, 2009 draft permit for discharges from the South Orange County Municipal Separate Storm Sewer System (MS4) within the jurisdiction of the San Diego Regional Board (SDRB) (NPDES permit No. CAS0108740).

Region 9 submitted comments on the previous draft permit of March 2009 in letters to the SDRB dated May 14, 2009 and June 18, 2009. We believe significant progress has been made in the August 2009 draft permit in addressing our comments on the previous draft. Region 9 supports adoption of the latest draft permit, with a few relatively minor revisions and clarifications as described below.

A. Low Impact Development (LID) Requirements

As we pointed out in our previous letters, Region 9 is seeking clear, measurable, and enforceable LID requirements in MS4 permits. The LID requirements of the latest draft are quite similar to the requirements in the North Orange County MS4 permit adopted in May 2009, with Region 9's support, by the Santa Ana Regional Board (SARB). We believe the SDRB's draft permit would be consistent with our objectives for LID implementation with a few minor revisions discussed below:

1) Page 8 (Finding D.2.c) – We recommend either removing the word "filtration" or replacing it with "retention." This would be consistent with the draft permit's Part F.1.d.(4)(d) which requires LID BMPs to be sized and designed to ensure onsite retention of the design storm event. We believe this would also better mirror the intent of mimicking natural hydrology via infiltration, harvesting and reuse, or evapotranspiration of stormwater, as opposed to the use of filtration systems which result in stormwater flows into the MS4 via underdrains.

2) Page 31 (Part F.1.c.8) – The inclusion of "LID biofiltration" in this section pertaining to large development projects is inconsistent with both section F.1.d.(4)(d) of the draft permit (described above) and with the SARB MS4 permit for Orange County (Part XII.C.2), where "bio-treatment" is only considered to meet that permit's LID provisions if infiltration, harvesting and reuse, or evapotranspiration are not feasible. This section should be revised to clarify that retention BMPs are preferred, and that the use of biofiltration will comply with this provision only if retention BMPs are not feasible.

3) Page 31 (Part F.1.c.8) - At the first mention of the feasibility of onsite retention or "LID biofiltration" there should be a reference to the requirement that feasibility criteria will be proposed by the co-permittees and approved by the Executive Officer (EO). Based on the mention of a "technical feasibility analysis" in section F.1.d.7., it's our understanding that it's the intent of the permit that this analysis must be submitted for the approval of the EO as part of the standard stormwater mitigation plans (SSMPs), and will be subject to public review and comment. The permit should be clarified to explicitly state the expectations for the timing of the submittal of this analysis and the review and approval process. These expectations should be included initially in this section, which is the first instance in the permit where this analysis would apply.

4) Page 34 (Part F.1.d.4.(a)(iv)) – We recommend deletion of the words "filter" and "detain" since they are not consistent with the intent of onsite retention as noted above.

5) Page 36 (Part F.1.d.4.(d)(ii)) - Given the mention of technical infeasibility in this section, it should be noted here that the conclusions on feasibility will be made based on the approved feasibility analysis.

6) Page 36 (Part F.1.d.4.(d)(iii)) – We recommend the word "may" be changed to "must" to ensure conventional treatment is required when LID is determined to be infeasible.

7) Page 39 (Part F.1.d.7) – As noted above, mention of the technical feasibility analysis should clarify expectations for the submittal of this analysis along with the fact that there will be an opportunity for public review and comments, and ultimate approval by the EO.

B. Total Maximum Daily Loads (TMDLs)

As you know, the Baby Beach TMDL has not yet been approved by the State Office of Administrative Law (OAL) or EPA. Accordingly, Finding E.11 is not currently accurate in stating that the permit includes wasteload allocations (WLAs) from fully approved TMDLs. However, we anticipate the Baby Beach TMDL will be approved by OAL and EPA prior to permit adoption, and we suggest you proceed under this assumption.

We also suggest the following clarifications and revisions related to the proposed TMDL requirements of the permit:

1) Page 79 (Part I) – The reference to Finding E.12 appears to be an error, and should be corrected.

2) Page 79 (Part I.1.a) - Although Finding E.11 identifies the particular co-permittees which are affected by the TMDL requirements, it would be helpful for additional clarification to include the names of these co-permittees in Part I.1.a of the permit as well.

3) Page 79 (Part I.1.b) - The permit should contain clear expectations for monitoring to ensure achievement of TMDL WLAs. Given that the referenced TMDL does not include a clear monitoring plan, the permit should require submittal of a monitoring plan, and specify the date by which this plan must be submitted.

4) Page 79 (Part I.1.c.) - Since the date for compliance with the dry weather WLA is five years after permit adoption, it appears erroneous to require both the wet weather and dry weather WLAs to be met by 2019, ten years after permit adoption. It should be noted that dry weather WLAs must be met by the end of 2014.

C. Numeric Effluent Limits for Non-Stormwater Discharges

In our previous letter of May 14, 2009, we supported the inclusion of numeric effluent limits for non-stormwater discharges, and we continue to do so. Establishing these limits is consistent with section 402(p)(3)(B)(ii) of the Clean Water Act, which states that permits for municipal stormwater must effectively prohibit non-stormwater discharges into the storm sewers.

1) Page 22 (Part C.4) - We recommend clarification regarding the "representative percentage" of the major outfalls/stations which will monitored. The permit should provide expectations for the magnitude of required monitoring pursuant to this section.

2) Page 23 (Table 4.a.2) – It appears that the numeric values in the columns for the saltwater AMELs and MDELs should be reversed, i.e., the MDELs should be the larger numbers.

D. Stormwater Action Levels

We fully support the inclusion of stormwater action levels (SALs) in the permit. These requirements help to clarify MEP. We recommend the fact sheet include additional information describing how the particular values for the SALs were derived.

1) Page 25 (Part D.2.) - Again, the permit requires sampling of a "representative percent of the outfalls." Both here and in Part C.4, the permit should provide some degree of specificity so that the permittees and the public have an idea of the expectations for the number of outfalls to be monitored.

E. Retrofitting Existing Development

We fully support the proposed requirements in the permit for retrofitting existing development with additional controls such as LID. The benefits of adding LID measures in particular in new developments have been documented in numerous reports of which the Board is well aware. Such benefits would also accrue from adding LID to existing developments. In addition to the support provided by the fact sheet, we would note that such requirements are encouraged by the State's 2005 report entitled "NPDES Stormwater Cost Survey" which also investigated alternative approaches to stormwater control.

F. Hydromodification

We are pleased to see the draft permit continues to include requirements related to hydromodification, and that clear, measurable requirements are included to address the issue. We believe the requirements are fully supported in the fact sheet and are consistent with the requirements of other recent MS4 permits in California.

We appreciate the opportunity to provide input on the draft permit. If you would like to discuss these comments, please contact John Tinger at (415) 972-3518, or Eugene Bromley at 415-972-3510.

Sincerely,

Douglas E. Eberhardt, Chief
NPDES Permits Office

ATTACHMENT
43

PERMIT FOR THE DISTRICT OF COLUMBIA
MUNICIPAL SEPARATE STORM SEWER SYSTEM

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9. PERMIT DEFINITIONS

1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

1.1 Permit Area

This permit covers all areas within the jurisdictional boundary of the District of Columbia served by, or otherwise contributing to discharges from, the Municipal Separate Storm Sewer System (MS4) owned or operated by the District of Columbia. This permit also covers all areas served by or contributing to discharges from MS4s owned or operated by other entities within the jurisdictional boundaries of the District of Columbia unless those areas have separate NPDES MS4 permit coverage or are specifically excluded herein from authorization under the District's stormwater program. Hereinafter these areas collectively are referred to as "MS4 Permit Area".

1.2 Authorized Discharges

This permit authorizes all stormwater point source discharges to waters of the United States from the District of Columbia's MS4 that comply with the requirements of this permit. This permit also authorizes the discharge of stormwater commingled with flows contributed by process wastewater, non-process wastewater, or stormwater associated with industrial activity provided such discharges are authorized under separate NPDES permits.

This permit authorizes the following non-stormwater discharges to the MS4 when appropriate stormwater activities and controls required through this permit have been applied and which are: (1) discharges resulting from clear water flows, roof drainage, dechlorinated water line flushing, landscape irrigation, ornamental fountains, diverted stream flows, rising ground waters, uncontaminated ground water infiltration to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation waters, springs, footing drains, lawn watering, individual resident car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, wash water, fire fighting activities, and similar types of activities; and (2) which are managed so that water quality is not further impaired and that the requirements of the federal Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, and EPA regulations are met.

1.3 Limitations to Coverage

1.3.1 Non-stormwater Discharges

The permittee, as defined herein, shall effectively prohibit non-stormwater discharges into the MS4, except to the extent such discharges are regulated with an NPDES permit.

1.3.2 Waivers and Exemptions

This permit does not authorize the discharge of any pollutant from the MS4 which arises from or is based on any existing waivers and exemptions that may otherwise apply and are not consistent with the Federal Clean Water Act and other pertinent guidance, policies, and regulations. This narrative prohibition on the applicability of such waivers and exemptions extends to any activity that would otherwise be authorized under District law, regulations or

ordinance but which impedes the reduction or control of pollutants through the use of stormwater control measures and/or prevents compliance with the narrative /numeric effluent limits of this permit. Any such discharge not otherwise authorized may constitute a violation of this permit.

1.4 Discharge Limitations

The permittee must manage, implement and enforce a stormwater management program (SWMP) in accordance with the Clean Water Act and corresponding stormwater NPDES regulations, 40 C.F.R. Part 122, to meet the following requirements:

1.4.1. Effectively prohibit pollutants in stormwater discharges or other unauthorized discharges into the MS4 as necessary to comply with existing District of Columbia Water Quality Standards (DCWQS);

1.4.2. Attain applicable wasteload allocations (WLAs) for each established or approved Total Maximum Daily Load (TMDL) for each receiving water body, consistent with 33 U.S.C. § 1342(p)(3)(B)(iii); 40 C.F.R. § 122.44(k)(2) and (3); and

1.4.3. Comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit.

Compliance with the provisions contained in Parts 2 through 8 of this permit, including milestones and final dates for attainment of applicable WLAs, shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term.

2. LEGAL AUTHORITY, RESOURCES AND STORMWATER PROGRAM ADMINSTRATION

2.1 Legal Authority

2.1.1 The permittee shall use its existing legal authority to control discharges to and from the Municipal Separate Storm Sewer System in order to prevent or reduce the discharge of pollutants to achieve water quality objectives, including but not limited to applicable water quality standards. To the extent deficiencies can be addressed through regulation or other Executive Branch action, the permittee shall remedy such deficiencies within 120 days. Deficiencies that can only be addressed through legislative action shall be remedied within 2 years of the effective date of this permit, except where otherwise stipulated, in accordance with the District's legislative process. Any changes to or deficiencies in the legal authority shall be explained in each Annual Report.

2.1.2 No later than 18 months following the effective date of this permit, the permittee shall update and implement Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution) ("updated DC Stormwater Regulations"), to address the control of stormwater throughout the MS4 Permit Area. Such regulations shall be consistent with this

permit, and shall be at least as protective of water quality as the federal Clean Water Act and its implementing regulations require.

2.1.3 The permittee shall ensure that the above legal authority in no way restricts its ability to enter into inter-jurisdictional agreements with other District agencies and/or other jurisdictions affected through this permit.

2.1.4 Review and revise, where applicable, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the following standards: (1) standards resulting from issuance of District stormwater regulations required by Section 2.1, paragraph 1 herein; and (2) performance standards required by this permit.

2.2 Fiscal Resources

The permittee, including all agencies and departments of the District as specified in section 2.3 below, shall provide adequate finances, staff, equipment and support capabilities to implement the existing Stormwater Management Program (SWMP) and the provisions of this permit. For the core program the permittee shall provide a dedicated funding source. Each annual report under Part 6 of this permit shall include a demonstration of adequate fiscal capacity to meet the requirements of this permit.

2.3 Stormwater Management Program Administration/Permittee Responsibilities

2.3.1 The Government of the District of Columbia is the permittee, and all activities of all agencies, departments, offices and authorities of the District must comply with the requirements of this permit. The permittee has designated the District Department of the Environment (DDOE) as the agency responsible for managing the MS4 Stormwater Management Program and all activities necessary to comply with the requirements of this permit and the Comprehensive Stormwater Management Enhancement Amendment Act of 2008 by coordinating and facilitating a collaborative effort among other city agencies and departments including but not limited to departments designated as "Stormwater Agencies" by the Comprehensive Stormwater Management Enhancement Amendment Act of 2008:

District Department of Transportation (DDOT);
Department of Public Works (DPW);
Office of Planning (OP);
Office of Public Education Facilities Modernization (OPEFM);
Department of Real Estate Services (DRES);
Department of Parks and Recreation; and
DC Water and Sewer Authority (also known as and hereinafter referred to as DC Water).

Each named entity is responsible for complying with those elements of the permit within its jurisdictional scope and authorities.

2.3.2 DDOE shall coordinate, and all agencies, offices, departments and authorities shall implement provisions of the existing MS4 Task Force Memorandum of Understanding (MOU) dated 2000, updated matrix of responsibilities (January 2008), and any subsequent updates; the MOU between DDOE and DC Water (2012) and any subsequent updates; and other institutional agreements to coordinate compliance activities among agency partners to implement the provisions of this permit. DDOE's major responsibilities under these MOUs and institutional agreements shall include:

1. Convening regular meetings and communication with MS4 Task Force agencies and other committees established to implement this permit to budget, assign and implement projects, and monitor, inspect and enforce all activities required by the MS4 permit.

2. Providing technical and administrative support for the MS4 Task Force and other committees established to implement this permit

3. Evaluating, assessing, and synthesizing results of the monitoring and assessment programs and the effectiveness of the implementation of management practices and coordinating necessary adjustments to the stormwater management program in order to ensure compliance.

4. Coordinating the completion and submission of all deliverables required by the MS4 Permit.

5. Projecting revenue needs to meet MS4 Permit requirements, overseeing the District's stormwater fees to fulfill revenue needs, and coordinating with DC Water to ensure the District's stormwater fee is collected.

6. Making available to the public and other interested and affected parties, the opportunity to comment on the MS4 stormwater management program.

2.3.3 Within 180 days of permit issuance, the permittee shall complete an assessment of additional governmental agencies and departments, non-governmental organizations, watershed groups or other community organizations in the District and adjacent states to partner with to administer required elements of the permit. Intra- and inter-agency agreements between relevant governmental and nongovernmental organizations shall be established to ensure successful coordination and implementation of stormwater management activities in accordance with the requirements of this permit. Additional government and nongovernmental organizations and programs to consider include; land use planning, brownfields redevelopment, fire department, building and safety, public health, parks and recreation, and federal departments and agencies, including but not limited to, the National Park Service, Department of Agriculture, Department of Defense, and General Services Administration, responsible for facilities in the District.

3. STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

The permittee shall continue to implement, assess and upgrade all of the controls,

procedures and management practices, described in this permit, and in the SWMP dated February 19, 2009, and any subsequent updates. This Program has been determined to reduce the discharge of pollutants to the maximum extent practicable. The Stormwater Management Program is comprised of all requirements in this permit. All existing and new strategies, elements, initiatives, schedules or programs required by this permit must be documented in the SWMP Plan, which shall be the consolidated document of all stormwater program elements. Updates to the plan shall be consistent with all compliance deadlines in this permit. A current plan shall be posted on the permittee's website at an easily accessible location at all times.

New Stormwater Management Program strategies, elements, initiatives and plans required to be submitted to EPA for review and approval are included in Table 1.

TABLE 1
Elements Requiring EPA Review and/or Approval

Element	**Submittal Date (from effective date of this permit)**
Anacostia River Watershed Trash Reduction Calculation Methodology (4.10)	1 year
Catch Basin Operation and Maintenance Plan (4.3.5.1)	18 months
Outfall Repair Schedule (4.3.5.3)	18 months
Off-site Mitigation/Payment-in-Lieu Program (4.1.3)	18 months
Retrofit Program (4.1.5)	2 years
Consolidated TMDL Implementation Plan (4.10.3)	2 years
Revised Monitoring Program (5.1)	2 years
Revised Stormwater Management Program Plan (3)	4 years

No later than 3 years from the issuance date of this permit the permittee shall public notice a fully updated Plan including all of the elements required in this permit. No later than 4 years from the issuance date of this permit the permittee shall submit to EPA the fully updated plan for review and approval, as part of the application for permit renewal.

The measures required herein are terms of this permit. These permit requirements do not prohibit the use of 319(h) funds for other related activities that go beyond the requirements of this permit, nor do they prohibit other sources of funding and/or other programs where legal or contractual requirements preclude direct use for stormwater permitting activities.

TABLE 2
Legal Authority for Selected Required Program Stormwater Elements

Required Program Application Element	**Regulatory References**
Adequate Legal Authority	40 C.F.R. § 122.26(d)(2)(I)(C)-(F)

Green technology stormwater management practices, which incorporate technologies and practices across District activities.	Chapter 5 of Title 21 of District of Columbia Municipal Regulations (Water Quality and Pollution)
Existing Structural and Source Controls	40 C.F.R. § 122.26(d)(2)(iv)(A)(1)
Roadways	40 C.F.R. § 122.26(d)(2)(iv)(A)(3)
Pesticides, Herbicides, and Fertilizers Application	40 C.F.R. § 122.26(d)(2)(iv)(A)(6)
Municipal Waste Sites	40 C.F.R. § 122.26(d)(2)(iv)(A)(5)
Spill Prevention and Response	40 C.F.R. § 122.26(d)(2)(iv)(B)(4)
Infiltration of Seepage	40 C.F.R. § 122.26(d)(2)(iv)(B)(7)
Stormwater Management Program for Commercial and Residential Areas	40 C.F.R. § 122.26(d)(2)(iv)(A)
Manage Critical Source Areas	40 C.F.R. § 122.26(d)(iii)(B)(6)
Stormwater Management for Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)
Industrial and High Risk Runoff	40 C.F.R. § 122.26(d)(2)(iv)(C), (iv)(A)(5)
Identify Priority Industrial Facilities	40 C.F.R. § 122.26(d)(2)(iv)(C)(1)
Illicit Discharges and Improper Disposal	40 C.F.R. § 122.26(d)(2)(iv)(B)(1)-(5), (iv)(B)(7)
Flood Control Projects	40 C.F.R. § 122.26(d)(2)(iv)(A)(4)
Public Education and Participation	40 C.F.R. § 122.26(d)(2)(iv)(A)(6), (iv)(B)(5), (iv)(B)(6)

Monitoring and Assessment and Reporting	40 C.F.R. § 122.26(d)(2)(iv)(D)(v)
Monitoring Program	40 C.F.R. § 122.26(d)(2)(iv)(B)(2), (iii), iv(A), (iv)(C)(2)
Characterization Data	40 C.F.R. § 122.26(d)(2)(iii)(B)-(D), 40 C.F.R. § 122.21(g)(7)
Reporting	40 C.F.R. § 122.41(l)

4. IMPLEMENTATION OF STORMWATER CONTROL MEASURES

4.1 Standard for Long-Term Stormwater Management

The permittee shall continue to develop, implement, and enforce a program in accordance with this permit and the permittee's updated SWMP Plan that integrates stormwater management practices at the site, neighborhood and watershed levels that shall be designed to mimic pre-development site hydrology through the use of on-site stormwater retention measures (e.g., harvest and use, infiltration and evapotranspiration), through policies, regulations, ordinances and incentive programs

4.1.1 Standard for Stormwater Discharges from Development

No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement one or more enforceable mechanism(s) that will adopt and implement the following performance standard for all projects undertaking development that disturbs land greater than or equal to 5,000 square feet:

Require the design, construction and maintenance of stormwater controls to achieve on-site retention of 1.2" of stormwater from a 24-hour storm with a 72-hour antecedent dry period through evapotranspiration, infiltration and/or stormwater harvesting and use for all development greater than or equal to 5,000 square feet.

The permittee may allow a portion of the 1.2" volume to be compensated for in a program consistent with the terms and requirements of Part 4.1.3.

4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking

By the end of this permit term the permittee must review and revise, as applicable, stormwater, building, health, road and transportation, and other codes and regulations to remove barriers to, and facilitate the implementation of the retention performance standard required in

Section 4.1.1. The permittee must also establish/update and maintain a formal process for site plan reviews and a post-construction verification process (e.g., inspections, submittal of as-builts) to ensure that standards are appropriately implemented. The permittee must also track the on-site retention performance of each project subject to this regulatory requirement.

4.1.3 Off-Site Mitigation and/or Fee-in Lieu for all Facilities

Within 18 months of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and comment an off-site mitigation and/or fee-in-lieu program to be utilized when projects will not meet stormwater management performance standard as defined in Section 4.1.1. The permittee has the option of implementing an off-site mitigation program, a fee-in-lieu program, or both. Any allowance for adjustments to the retention standard shall be defined in the permittee's regulations. The program shall include at a minimum:

1. Establishment of baseline requirements for on-site retention and for mitigation projects. On-site volume plus off-site volume (or fee-in-lieu equivalent or other relevant credits) must equal no less than the relevant volume in Section 4.1.1;
2. Specific criteria for determining when compliance with the performance standard requirement for on-site retention cannot technically be met based on physical site constraints, or a rationale for why this is not necessary;
3. For a fee-in-lieu program, establishment of a system or process to assign monetary values at least equivalent to the cost of implementation of controls to account for the difference in the performance standard, and the alternative reduced value calculated; and
4. The necessary tracking and accounting systems to implement this section, including policies and mechanisms to ensure and verify that the required stormwater practices on the original site and appropriate required off-site practices stay in place and are adequately maintained.

The program may also include incentives for achieving other important environmental objectives such as ongoing measurable carbon sequestration, energy savings, air quality reductions in green house gases, or other environmental benefits for which the program can develop methods for quantifying and documenting those outcomes. Controls implemented to achieve those outcomes are subject to the same level of site plan review, inspection, and operation and maintenance requirements as stormwater controls.

District-owned transportation right-of-way projects are subject to a similarly stringent process for determining an alternate performance volume, but for the duration of this permit term need not conduct off-site mitigation or pay into a fee-in-lieu program to compensate for the difference.

4.1.4 Green Landscaping Incentives Program

No later than one year following permit issuance, the permittee shall develop an incentive program to increase the quantity and quality of planted areas in the District while allowing flexibility for developers and designers to meet development standards. The Incentive Program

shall use such methods as a scoring system to encourage green technology practices such as larger plants, permeable paving, green roofs, vegetated walls, preservation of existing trees, and layering of vegetation along streets and other areas visible to the public.

4.1.5 Retrofit Program for Existing Discharges

4.1.5.1 Within two years of the effective date of this permit the permittee shall develop, public notice, and submit to EPA for review and approval a program that establishes performance metrics for retrofit projects. The permittee shall fully implement the program upon EPA approval. The starting point for the performance metrics shall be the standard in Section 4.1.1. Performance metrics may be established generally for all retrofit projects, or for categories of projects, e.g., roads, sidewalks, parking lots, campuses. Specific site conditions may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1, and a similar calculator or algorithm process may be used in conjunction with a specific site analysis.

4.1.5.2 The permittee, with facilitation assistance from EPA Region III, will also work with major Federal landholders, such as the General Services Administration and the Department of Defense, with the objective of identifying retrofit opportunities, documenting federal commitments, and tracking pollutant reductions from relevant federal actions.

4.1.5.3 For each retrofit project estimate the potential pollutant load and volume reductions achieved through the DC Retrofit program by major waterbody (Rock Creek, Potomac, Anacostia) for the following pollutants: Bacteria (E. coli), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash. These estimates shall be included in the annual report following implementation of the project.

4.1.5.4 The DC Retrofit Program shall implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way.

4.1.5.5 No later than 18 months following issuance of this permit, the permittee shall, through its Updated DC Stormwater Regulations or other permitting or regulatory mechanisms, implement an enforceable mechanism that will adopt and implement stormwater retention requirements for properties where less than 5,000 square feet of soil is being disturbed but where the buildings or structures have a footprint that is greater than or equal to 5,000 square feet and are undergoing substantial improvement. Substantial improvement, as consistent with District regulations at 12J DCMR § 202, is any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. The characteristics of these types of projects may constitute justifications for setting a performance standard at something less than the standard in Section 4.1.1.

4.1.5.6 The permittee shall ensure that every major renovation/rehabilitation project for District-owned properties within the inventory of DRES and OPEFM (e.g., schools and school administration buildings) includes on-site stormwater retention measures, including but not

limited to green roofs, stormwater harvest/reuse, and/or other practices that can achieve the retention performance standard.

4.1.6 Tree Canopy

4.1.6.1 No later than one year following issuance of this permit, the permittee shall develop and public notice a strategy to reduce the discharge of stormwater pollutants by expanding tree canopy throughout the city. The strategy shall identify locations throughout the District where tree plantings and expanded tree boxes are technically feasible and commit to specific schedules for implementation at locations throughout the District, with highest priority given to projects that offer the greatest stormwater retention potential. The strategy shall also include the necessary elements to achieve the requirements of Section 4.1.6.2.

4.1.6.2 The permittee shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40% by 2035. The annual total tree planting shall be calculated as a net increase, such that annual mortality is also included in the estimate. The permittee shall ensure that trees are planted and maintained, including requirements for adequately designed and sized tree boxes, to achieve optimal stormwater retention and tree survival rate. Trees shall be planted in accordance with the Planting Specifications issued by the International Society of Arboriculture as appropriate to the site conditions.

4.1.6.3 The permittee shall annually document the total trees planted and make an annual estimate of the volume of stormwater that is being removed from the MS4 (and combined system, as relevant) in a typical year of rainfall as a result of the maturing tree canopy over the life of the MS4 permit. Also report annually on the status of achieving 40% canopy District-wide.

4.1.7 Green Roof Projects

4.1.7.1 Complete a structural assessment of all District properties maintained by DRES and slated for redevelopment to determine current roof conditions and the feasibility for green roof installation. These assessments shall be performed on an ongoing basis for all properties as they are considered for redevelopment. Based on the structural assessment and other factors, identify all District-owned properties where green roof projects are technically feasible and commit to specific schedules for implementing these projects. Highest priority shall be given to projects that offer the greatest stormwater capture potential.

4.1.7.2 The permittee shall install at a minimum 350,000 square feet of green roofs on District properties during the term of the permit (including schools and school administration buildings).

4.1.7.3 Document the square footage of green roof coverage in the District, whether publicly or privately owned, report any incentive programs implemented during the permit term, and estimate the volume of stormwater that is being removed from the MS4 (and combined

system, as relevant) in a typical year of rainfall as a result of the combined total green roof facilities in the District.

4.2 Operation and Maintenance of Stormwater Capture Practices

4.2.1 District Owned and Operated Practices.

Within two years of the effective date of this permit, develop and implement operation and maintenance protocols and guidance for District-owned and operated on-site retention practices (development and retrofits) to include maintenance needs, inspection frequencies, estimated maintenance frequencies, and a tracking system to document relevant information. Provide training to all relevant municipal employees and contractors, with regular refreshers, as necessary.

4.2.2 Non-District Owned and Operated Practices.

In conjunction with updating of relevant ordinances and policies, develop accountability mechanisms to ensure maintenance of stormwater control measures on non-District property. Those mechanisms may include combinations of deed restrictions, ordinances, maintenance agreements, or other policies deemed appropriate by the permittee. The permittee must also include a long-term verification process of O&M, which may include municipal inspections, 3rd party inspections, owner/operator certification on a frequency deemed appropriate by the permittee, and/or other mechanisms. The permittee must continue to maintain an electronic inventory of practices on private property to include this information.

4.2.3 Stormwater Management Guidebook and Training

4.2.3.1 No later than 18 months from the permit issuance date, the permittee shall finalize a Stormwater Management Guidebook to be available for wide-spread use by land use planners and developers. The Stormwater Management Guidebook shall provide regular updates, as applicable, in a format that facilitates such regular updates, and shall include objectives and specifications for integration of stormwater management technologies, including on site retention practices, in the areas of:

a. Site Assessment.
b. Site Planning and Layout.
c. Vegetative Protection, Revegetation, and Maintenance.
d. Techniques to Minimize Land Disturbance.
e. Techniques to Implement Measures at Various Scales.
f. Integrated Water Resources Management Practices.
g. Designing to meet the required performance standard(s).
h. Flow Modeling Guidance.
i. Hydrologic Analysis.
j. Construction Considerations.
k. Operation and Maintenance

4.2.3.2 The permittee shall continue to provide key industry, regulatory, and other stakeholders with information regarding objectives and specifications of green infrastructure practices contained in the Stormwater Management Guidebook through a training program. The Stormwater Management training program will include at a minimum the following:

a. Stormwater management/green technology practices targeted sessions and materials for builders, design professionals, regulators, resource agencies, and stakeholders.
b. Materials and data from stormwater management/green technology practices pilot projects and demonstration projects including case studies.
c. Design and construction methods for integration of stormwater management/green technology practices measures at various project scales.
d. Guidance on performance and cost of various types of stormwater management/green technology practices measures in the District.

4.3 Management of for District Government Areas

Procedures to reduce the discharge of pollutants in stormwater runoff shall include, but not be limited to:

4.3.1 Sanitary Sewage System Maintenance Overflow and Spill Prevention Response

The permittee shall implement an effective response protocol for overflows of the sanitary sewer system into the MS4. The response protocol shall clearly identify agencies responsible and telephone numbers and e-mail for any contact and shall contain at a minimum, procedures for:

1. Investigating any complaints received within 24 hours of the incident report.
2. Responding within two hours to overflows for containment.
3. Notifying appropriate sewer and public health agencies within 24 hours when the sanitary sewer overflows to the MS4.
4. Notifying the public in a timely and effective manner when SSO discharges to the MS4 may adversely affect public health.

This provision in no way authorizes sanitary sewer overflow discharges either directly or via the MS4.

4.3.2 Public Construction Activities Management

The permittee shall implement and comply with the Development and Redevelopment and the Construction requirements in Part 4.6 of this permit at all permittee-owned or operated public construction projects.

The permittee shall obtain discharge authorization under the applicable EPA Construction General permit for construction activities and comply with provisions therein.

4.3.3 Vehicle Maintenance/Material Storage Facilities/ Municipal Operations.

The permittee shall implement stormwater pollution prevention measures at all permittee-owned, leased facilities and job sites including but not limited to vehicle/ equipment maintenance facilities, and material storage facilities.

For vehicle and equipment wash areas and municipal facilities constructed, redeveloped, or replaced, the permittee shall eliminate discharges of wash waters from vehicle and equipment washing into the MS4 by implementing any of the following measures at existing facilities with vehicle or equipment wash areas:

1. Self-contain, and haul off-site for disposal;
2. Equip with a clarifier; or
3. Equip with an alternative pre-treatment device.

4.3.4 Landscape and Recreational Facilities Management, Pesticide, Herbicide, Fertilizer and Landscape Irrigation

4.3.4.1 The permittee shall further reduce pollutants and pollutant discharges associated with the storage and application of pesticides, fertilizers, herbicides, the use of other toxic substances and landscape irrigation according to an integrated pest management program (IPM). The IPM shall be an ecosystem based strategy that focuses on long-term prevention of pests or their damage through a combination of techniques such as biological control, habitat manipulation, modification of cultural practices, use of resistant varieties, and use of low or no chemical and irrigation input landscapes, in accordance with the provisions of this permit, procedures and practices described in the SWMP and regulations.

The permittee shall further utilize IPM controls to reduce pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied by employees or contractors, to public rights-of-way, parks, and other District property to ensure that:

a. Pesticides are used only if monitoring indicates they are needed according to established guidelines;

b. Fertilizers are used only when soil tests indicate that they are necessary, and only in minimum amounts and for needed purposes (e.g., seed germination).

c. Treatments are made with the purpose of removing only the target organism;

d. Pest controls are selected and applied in a manner that minimizes risks to human health, beneficial, non-target organisms, and the environment;

e. No pesticides or fertilizers are applied to an area immediately prior to an expected rain event, or during or immediately following a rain event, or when water is flowing off the area;

f. No banned or unregistered pesticides are stored or applied;

g. All staff applying pesticides are certified or are under the direct supervision of a pesticide applicator certified in the appropriate category;

h. Procedures are implemented to encourage the retention and planting of native and/or non-invasive, naturalized vegetation to reduce water, pesticide and fertilizer needs;

i. Pesticides and fertilizers are stored indoors or under cover on paved surfaces or enclosed in secondary containment and storage areas inspected regularly to reduce the potential for spills; and

j. Landscapes that maximize on-site retention of stormwater, while minimizing mowing, chemical inputs and irrigation are given preference for all new landscape installation.

4.3.4.2 The permittee shall coordinate internally among departments for the purpose of ensuring that pesticide and fertilizer use within its jurisdiction does not threaten water quality.

4.3.4.3 The permittee shall partner with other organizations to ensure that pesticide and fertilizer use within their jurisdiction does not threaten water quality.

4.3.4.4 The permittee shall continue to conduct education and outreach, as well as provide incentives, to curtail the use of turf-grass fertilizers for the purpose of reducing nitrogen and phosphorous discharges to surface waters. The program shall incentivize the use of vegetative landscapes other than turf grass and other measures to restrict the use of turf grass fertilizers.

4.3.4.5 The permittee shall use GIS layers of public land and sewersheds, as well as background data, to identify priority areas for a targeted strategy to reduce the sources of pesticides, herbicides, and fertilizers that contaminate the stormwater runoff, and report progress toward completing the screening characterization in the next Updated SWMP.

4.3.4.6 The permittee shall include in each Annual Report a report on the implementation of the above application procedures, a history of the improvements in the control of these materials, and an explanation on how these procedures will meet the requirements of this permit.

4.3.5 Storm Drain System Operation and Management and Solids and Floatables Reduction

4.3.5.1 Within 18 months of the effective date of this permit, the permittee shall complete, public notice and submit to EPA for review and approval a plan for optimal catch basin inspections, cleaning and repairs. The permittee shall fully implement the plan upon EPA approval.

4.3.5.2 Until such time as the catch basin maintenance study has been completed and approved, the permittee shall ensure that each catch basin within the DC MS4 Permit Area is cleaned at least once annually during the life of the permit. The permittee shall continue to use strategies for coordinated catch basin cleaning and street-sweeping that will optimize reduction of stormwater pollutants.

4.3.5.3 Within 18 months of the effective date of this permit, and consistent with the 2006 Outfall Survey, the permittee shall complete, public notice and submit to EPA for review and approval an outfall repair schedule to ensure that approximately 10% of all outfalls needing repair are repaired annually, with the overall objective of having all outfalls in good repair by 2022. This schedule may be combined with the catch basin maintenance study outlined in 4.3.5.1. The repair schedule shall be fully implemented upon EPA approval.

4.3.5.4 The permittee shall comply with the Anacostia River Trash TMDL implementation provisions in Part 4.10 of this permit and apply the technologies and other activities developed in the Anacostia River Watershed Trash TMDL throughout the entire MS4 Permit Area. The permittee shall continue to report the progress of trash reduction in the Consolidated Annual Report.

4.3.6 Streets, Alleys and Roadways

4.3.6.1 Street sweeping shall be conducted on no less than 641 acres of roadway in the MS4 area annually in accordance with the following schedule:

TABLE 3
Street Sweeping

Area/Street Classification	Frequency
Arterials-heavily developed commercial and central business districts with considerable vehicular and pedestrian traffic	At least nine (9) times per year
Industrial areas	At least six (6) times per year
Residential-residential areas with limited throughway and pedestrian traffic AND neighborhood streets which are used for local purposes only	At least four (4) times per year
Central Business District/Commercial-neighborhood business districts and main streets with moderate vehicular and pedestrian traffic	At least one (1) time every two weeks

Environmental hot spots in the Anacostia River Watershed	At least two (2) times per month March through October

4.3.6.2 Standard road repair practices shall include limiting the amount of soil disturbance to the immediate area under repair. Stormwater conveyances which are denuded shall be resodded, reseeded and mulched, or otherwise stabilized for rapid revegetation, and these areas should have effective erosion control until stabilized.

4.3.6.3 The permittee shall continue to evaluate and update the use, application and removal of anti-icers, chemical deicers, salt, sand, and/or sand/deicer mixtures in an effort to minimize the impact of these materials on water quality. The permittee shall investigate and implement techniques available for reducing pollution from deicing salts in snowmelt runoff and runoff from salt storage facilities. The permittee shall evaluate and implement the use of porous/permeable surfaces that require less use of deicing materials and activities. This evaluation shall be made a part of an overall investigation of ways to meet the requirements of the Clean Water Act and reported in each Annual Report.

4.3.6.4 The permittee shall continue to implement and update a program to ensure that excessive quantities of snow and ice control materials do not enter the District's water bodies. The permittee shall report its progress in implementing the program in each Annual Report. Except during a declared Snow Emergency when the permittee determines that the foremost concern of snow removal activities is public health and safety, it shall avoid snow dumping or storage in areas adjacent to water bodies, wetlands, and areas near public or private drinking water wells which would ultimately reenter the MS4.

4.3.7 Infrastructure Maintenance/Pollution Source Control Maintenance

The permittee shall continue to implement an operation and maintenance program that incorporates good housekeeping components at all municipal facilities located in the DC MS4 Permit Area, including but not limited to; municipal waste water treatment facility, potable drinking water facility, municipal fleet operations, maintenance garages, parks and recreation, street and infrastructure maintenance, and grounds maintenance operations, libraries and schools. The permittee shall document the program in the Annual Report, as required at Section 6.2 herein. The permittee shall, at a minimum:

1. Continue to implement maintenance standards at all municipal facilities that will protect the physical, chemical and biological integrity of receiving waters.

2. Continue to implement an inspection schedule in which to perform inspections to determine if maintenance standards are being met. Inspections shall be performed no less than once per calendar year and shall provide guidance in Stormwater Pollution Prevention Plan development and implementation, where needed.

3. Continue to implement procedures for record keeping and tracking inspections and maintenance at all municipal facilities.

4. Continue to implement an inspection and maintenance program for all permittee-owned management practices, including post-construction measures.

5. Continue to ensure proper operation of all treatment management practices and maintain them as necessary for proper operation, including all post-construction measures.

6. Ensure that any residual water following infrastructure maintenance shall be self-contained and disposed of legally in accordance with the Clean Water Act.

4.3.8 Public Industrial Activities Management/Municipal and Hazardous Facilities

For any municipal activity associated with industrial activity, as defined by 40 C.F.R. § 122.26, which discharges stormwater to, from and through the DC MS4, the permittee shall obtain separate coverage under either: (1) the EPA Multi-Sector General Permit for Stormwater Discharges Associated with Industrial Activity (MSGP) (As modified May 27, 2009); or (2) an individual permit.

4.3.9 Emergency Procedures

The permittee may conduct repairs of essential public service systems and infrastructure in emergency situations. An emergency includes only those situations included as conditions necessary for demonstration of an upset at 40 C.F.R. 122.41(n). For each claimed emergency, the permittee shall submit to the Permitting Authority a statement of the occurrence of the emergency, an explanation of the circumstances, and the measures that were implemented to reduce the threat to water quality, no later than required by applicable Clean Water Act regulations.

4.3.10 Municipal Official Training

The permittee shall continue to implement an on-going training program for those employees specified below, and any other employees whose job functions may impact stormwater program implementation. The training program shall address the importance of protecting water quality, the requirements of this permit, design, performance, operation and maintenance standards, inspection procedures, selecting appropriate management practices, ways to perform their job activities to prevent or minimize impacts to receiving waters, and procedures for tracking, inspecting and reporting, including potential illicit discharges. The permittee shall provide follow-up and refresher training at a minimum of once every twelve months, and shall include any changes in procedures, techniques or requirements.

The training program shall include, but is not limited to, those employees who work in the following areas:

1. Municipal Planning
2. Site plan review
3. Design
4. Construction
5. Transportation planning and engineering
6. Street/sewer and right-of-way construction and maintenance
7. Water and sewer departments
8. Parks and recreation department
9. Municipal water treatment and waste water treatment
10. Fleet maintenance
11. Fire and police departments
12. Building maintenance and janitorial
13. Garage and mechanic crew
14. Contractors and subcontractors who may be contracted to work in the above described
15. areas
16. Personnel responsible for answering questions about the permittee's stormwater program,
17. including persons who may take phone calls about the program
18. Any other department of the permittee that may impact stormwater runoff

4.4 Management of Commercial and Institutional Areas

The permittee shall establish and implement policies and procedures to reduce the discharge of pollutants in stormwater runoff from all commercial and institutional (including federal) areas covered by this permit.

The permittee shall ensure maintenance of all stormwater management controls in commercial and institutional land areas in accordance with the following provisions:

1. Tracking all controls;
2. Inspecting all controls on a regular basis, according to an inspection schedule;
3. Ensure compliance with the MS4 permit and municipal ordinances at commercial and institutional facilities.

4.4.1 Inventory of Critical Sources and Source Controls

4.4.1.1 The permittee shall continue to maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of stormwater pollution. Critical sources to be tracked shall include the following:

a. Automotive service facilities, *e.g.*, service, fueling and salvage facilities;
b. Industrial activities, as defined at 40 C.F.R. §§ 122.26(b)(14); and
c. Construction sites exceeding one acre, or sites under one acre that are part of a larger common plan of development.
d. Dry cleaners

e. Any other facility the permittee has identified as a Critical Source

4.4.1.2 The permittee shall include the following minimum fields of information for each industrial and commercial facility identified as a critical source:

a. Name of facility and name of owner/ operator;
b. Address of facility;
c. Size of facility; and
d. Activities conducted at the facility that could impact stormwater.
e. Practices and/or measures to control pollutants.
f. Inspection and maintenance schedules, dates and findings.

4.4.1.3 The permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available inter and intra-agency informational databases (*e.g.*, business licenses, pretreatment permits, sanitary sewer hook-up permits, and similar information).

4.4.2 Inspection of Critical Sources

The permittee shall continue to inspect all commercial facilities identified in Part 4.4.1. herein and any others found to be critical sources twice during the five-year term of the permit. A minimum interval of six months between the first and the second mandatory compliance inspection is required, unless a follow-up inspection to ensure compliance must occur sooner.

4.4.3 Compliance Assurance.

At each facility identified as a critical source, the permittee's inspector(s) shall verify that the operator is implementing a control strategy necessary to protect water quality. Where the permittee determines that existing measures are not adequate to protect water quality, the permittee shall require additional site-specific controls sufficient to protect water quality.

4.5 <u>Management of Industrial Facilities and Spill Prevention</u>

4.5.1 The permittee shall continue to implement a program to monitor and control pollutants in stormwater discharged from Industrial Facilities located within the MS4 Permit Area, as defined herein, pursuant to the requirements in 40 C.F.R. § 122.26(d)(2)(iv)(C). These facilities shall include, but are not limited to:

a. Private Solid Waste Transfer Stations
b. Hazardous Waste Treatment, Disposal, and/or Recovery Plants
c. Industrial Facilities subject to SARA or EPCRA Title III
d. Industrial Facilities with NPDES Permits
e. Industrial facilities with a discharge to the MS4

4.5.2 The permittee shall continue to maintain and update the industrial facilities database.

4.5.3 The permittee shall continue to perform or provide on-site assistance/inspections and outreach focused on the development of stormwater pollution prevention plans and NPDES permit compliance.

4.5.4 The permittee shall continue to refine and implement procedures to govern the investigation of facilities suspected of contributing pollutants to the MS4, including at a minimum: (i) a review, if applicable, of monitoring data collected by the facility pursuant to its NPDES permit; and (ii) wet weather screening as required by Part 5.2.1 herein (including collecting data on discharges from industrial sites). These procedures shall be submitted as part of each Annual Report required by Part 6.2 herein.

4.5.5 The permittee shall continue to implement the prohibition against illicit discharges, control spills, and prohibit dumping. Continue to implement a program to prevent, contain, and respond to spills that may discharge to the MS4, and report on such implementation submitted in each Annual Report. The spill response program may include a combination of spill response actions by the permittee and/or another public or private entity.

4.5.6 The permittee shall report progress in developing and carrying out industrial-related programs in each Annual Report required by Section 6 herein. Provide an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act.

4.6 Stormwater Management for Construction Sites

4.6.1 Continue implementation of the Program that reduces the discharge of pollutants from construction sites. In each Annual Report, the permittee shall evaluate and report to determine if the existing practices meet the requirements of 40 C.F.R. § 122.26(d)(2)(iv)(A) and (D).

4.6.2 Continue the review and approval process of the sediment and erosion control plans under this program. Also, the permittee shall ensure that all construction projects impacting one acre or greater, or less than one acre when part of a larger common plan of development or sale equal to or larger than one acre, are not authorized until documentation is provided that they have received EPA NPDES Construction General Permit Coverage.

4.6.3 Continue to implement inspection and enforcement procedures, including but not limited to inspection of permitted construction sites that disturb more than 5,000 square feet of soil as follows:

1. First inspection prior to ground disturbing activities to review planned sediment and erosion control measures;
2. Second inspection to verify proper installation and maintenance of sediment and erosion control measures;

3. Third inspection to review planned installation and maintenance of stormwater management practices;
4. Fourth inspection to verify proper installation of stormwater management practices following final stabilization of the project site; and
5. Other inspections as necessary to ensure compliance with relevant standards and requirements.

4.6.4 When a violation of local erosion and sediment control ordinances occurs, the permittee shall follow existing enforcement procedures and practices using standardized reports as part of the inspection process to provide accurate record keeping of inspections of construction sites. The permittee shall use a listing of all violations and enforcement actions to assess the effectiveness of the Enforcement Program in each Annual Report.

4.6.5 Continue with educational measures for construction site operators (Section 4.9 of this permit) that consist, at a minimum, of providing guidance manuals and technical publications.

4.6.6 Report progress in developing and carrying out the above construction-related programs in each Annual Report required by Parts 6.2 herein, including: (i) an explanation as to how the implementation of these procedures will meet the requirements of the Clean Water Act; (ii) an explanation as to how the implementation of these procedures, particularly with regard to District "waivers and exemptions", will meet the requirements of the Clean Water Act; and (iii) discussion of progress toward meeting TMDL and the District Watershed Implementation Plan deadlines.

4.7 Illicit Discharges and Improper Disposal.

4.7.1 The permittee shall continue to implement an ongoing program to detect illicit discharges, pursuant to the SWMP, and Part 4 of this permit, and to prevent improper disposal into the storm sewer system, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1). Such program shall include, at a minimum the following:

a. An updated schedule of procedures and practices to prevent illicit discharges, as defined at 40 C.F.R. § 122.26(b)(2), and, pursuant to 40 C.F.R. § 122.26(d)(2)(iv)(B)(1), to detect and remove illicit discharges as defined herein;

b. An updated inventory (organized by watershed) of all outfalls that discharge through the MS4 including any changes to the identification and mapping of existing permitted outfalls. Such inventory shall include, but not be limited to, the name and address, and a description (such as SIC code) which best reflects the principal products or services provided by each facility which may discharge to the MS4;

c. Continue to implement an illicit connection detection and enforcement program to perform dry weather flow inspections in target areas;

d. Visual inspections of targeted areas;

e. Issuance of fines, tracking and reporting illicit discharges, and reporting progress on stopping targeted illicit discharges, and in appropriate cases, chemical testing immediately after discovery of an illicit discharge;

f. Enforcement procedures for illicit discharges set forth in Part 4 herein;

g. All necessary inspection, surveillance, and monitoring procedures to remedy and prevent illicit discharges. The permittee shall submit an inspection schedule, inspection criteria, documentation regarding protocols and parameters of field screening, and allocation of resources as a part of each Annual Report.

h. The permittee shall continue to implement procedures to prevent, contain, and respond to spills that may discharge into the MS4. The permittee shall provide for the training of appropriate personnel in spill prevention and response procedures.

i. The permittee shall report the accomplishments of this program in each Annual Report.

4.7.2 The permittee shall continue to ensure the implementation of a program to further reduce the discharge of floatables (e.g. litter and other human-generated solid refuse). The floatables program shall include source controls and, where necessary, structural controls.

4.7.3 The permittee shall continue to implement the prohibition against the discharge or disposal of used motor vehicle fluids, household hazardous wastes, grass clippings, leaf litter, and animal waste into separate storm sewers. The permittee shall ensure the implementation of programs to collect used motor vehicle fluids (at a minimum oil and anti-freeze) for recycle, reuse, and proper disposal and to collect household hazardous waste materials (including paint, solvents, pesticides, herbicides, and other hazardous materials) for recycle, reuse, or proper disposal. The permittee shall ensure that such programs are readily available within the District, and that they are publicized and promoted on a regular basis, pursuant to Public Education provisions in this permit at Part 4.9 herein.

4.7.4 The permittee shall continue to work with members of the Metropolitan Police Department to enhance illegal dumping enforcement.

4.7.5 The permittee shall implement the District’s ban on coal tar pavement products, including conducting outreach and enforcement activities.

4.7.6 The permittee shall implement the Anacostia Clean Up and Protection Act of 2009, to ban the use of disposable non-recyclable plastic carryout bags and restrict the use on disposable carryout bags in certain food establishments.

4.8 Flood Control Projects

4.8.1 The permittee shall update the impervious surface analysis of floodplains six months after the approval of the revised Flood Insurance Rate Maps by the Federal Emergency Management Agency.

4.8.2 The permittee shall assess potential impacts on the water quality and the ability of the receiving water to support beneficial uses for all flood management projects. Evaluate the feasibility of retrofitting existing flood control devices to provide additional pollutant and volume removal from stormwater. Report results of such assessment, mapping program, and feasibility studies in the Annual Report (Part 6.2 herein).

4.8.3 The permittee shall review all development proposed in flood plain areas to ensure that the impacts on the water quality of receiving water bodies have been properly addressed. Information regarding impervious surface area located in the flood plains shall be used (in conjunction with other environmental indicators) as a planning tool. The permittee shall collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development beginning six months after the effective date of this permit. The permittee shall collect similar data for existing development in flood plain areas, in accordance with the mapping program and other activities designed to improve water quality. Critical unmapped areas shall be prioritized by the permittee with an emphasis on developed and developing acreage. Reports of this work shall be summarized in the Annual Report.

4.9 Public Education and Public Participation

The permittee shall continue to implement a public education program including but not limited to an education program aimed at residents, businesses, industries, elected officials, policy makers, planning staff and other employees of the permittee. The purpose of education is to reduce or eliminate behaviors and practices that cause or contribute to adverse stormwater impacts. Education initiatives may be developed locally or regionally.

4.9.1 Education and Outreach.

4.9.1.1 The permittee shall continue to implement its education and outreach program for the area served by the MS4 that was established during the previous permit cycle. The outreach program shall be designed to achieve measurable improvements in the target audience's understanding of stormwater pollution and steps they can take to reduce their impacts.

4.9.1.2 The permittee shall assess current education and outreach efforts and identify areas where additional outreach and education are needed. Audiences and subject areas to be considered include:

a. General public

1) General impacts of stormwater flows into surface waters
2) Impacts from impervious surfaces
3) Source control practices and environmental stewardship actions and opportunities in the areas of pet waste, vehicle maintenance, landscaping, and rain water reuse.

4) A household hazardous waste educational and outreach program to control illicit discharges to the MS4 as required herein
5) Information and education on proper management and disposal of used oil, other automotive fluids, and household chemicals
6) Businesses, including home-based and mobile businesses
7) Management practices for use and storage of automotive chemicals, hazardous cleaning supplies, carwash soaps and other hazardous materials
8) Impacts of illicit discharges and how to report them including information for industries about stormwater permitting and pollution prevention plans and the requirement that they develop structural and non-structural control systems

b. Homeowners, landscapers and property managers

1) Use of low or no phosphorus fertilizers, alternatives to fertilizers, alternative landscaping requiring no fertilizers
2) Landscape designs to reduce runoff and pollutant loadings
3) Car washing alternatives with the objective of eliminating phosphorus detergent discharges
4) Yard care techniques that protect water quality
5) Management practices for use and storage of pesticides and fertilizers
6) Management practices for carpet cleaning and auto repair and maintenance
7) Runoff Reduction techniques, including site design, on-site retention, pervious paving, retention of forests and mature trees
8) Stormwater pond maintenance

c. Engineers, contractors, developers, review staff and land use planners

1) Technical standards for construction site sediment and erosion control
2) Runoff Reduction techniques, including site design, on-site reduction, pervious pavement, alternative parking lot design, retention of forests and mature trees
3) Stormwater treatment and flow control controls
4) Impacts of increased stormwater flows into receiving water bodies

4.9.2 Measurement of Impacts.

The permittee shall continue to measure the understanding and adoption of selected targeted behaviors among the targeted audiences. The resulting measurements shall be used to direct education and outreach resources most effectively, as well as to evaluate changes in adoption of the targeted behaviors.

4.9.3 Recordkeeping.

The permittee shall track and maintain records of public education and outreach activities.

4.9.4 Public Involvement and Participation.

The permittee shall continue to include ongoing opportunities for public involvement through advisory councils, watershed associations and/or committees, participation in developing updates to the stormwater fee system, stewardship programs, environmental activities or other similar activities. The permittee shall facilitate opportunities for direct action, educational, and volunteer programs such as riparian planting, volunteer monitoring programs, storm drain marking or stream clean up programs.

4.9.4.1 The permittee shall continue to create opportunities for the public to participate in the decision making processes involving the implementation and update of the permittee's SWMP. In particular, the permittee shall provide meaningful opportunity for the public to participate in the development of the permittee's Consolidated TMDL Implementation Plan. The permittee shall continue to implement its process for consideration of public comments on their SWMP.

4.9.4.2 The permittee shall continue to establish a method of routine communication to groups such as watershed associations and environmental organizations that are located in the same watershed(s) as the permittee, or organizations that conduct environmental stewardship projects located in the same watershed(s) or in close proximity to the permittee. This is to make these groups aware of opportunities for their direct involvement and assistance in stormwater activities that are in their watershed.

4.9.4.3 The permittee shall make all draft and approved MS4 documents required under this permit available to the public for comment. The current draft and approved SWMP and the MS4 annual reports deliverable documents required under this permit shall be posted on the permittee's website.

4.9.4.4 The permittee shall continue to develop public educational and participation materials in cooperation and coordination with other agencies and organizations in the District with similar responsibilities and objectives. Progress reports on public education shall be included in the Annual Report. An explanation shall be provided as to how this effort will reduce pollution loadings to meet the requirements of this permit.

4.9.4.5 The permittee shall periodically, and at least annually, update its website.

4.10 Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA) Planning and Implementation

4.10.1 Anacostia River Watershed Trash TMDL Implementation

The permittee shall attain removal of 103,188 pounds of trash annually, as determined in the Anacostia River Watershed Trash TMDL, as a specific single-year measure by the fifth year of this permit term.

Reductions must be made through a combination of the following approaches:

1. Direct removal from waterbodies, e.g., stream clean-ups, skimmers
2. Direct removal from the MS4, e.g., catch basin clean-out, trash racks
3. Direct removal prior to entry to the MS4, e.g., street sweeping
4. Prevention through additional disposal alternatives, e.g., public trash/recycling collection
5. Prevention through waste reduction practices, regulations and/or incentives, e.g., bag fees

At the end of the first year the permittee must submit the trash reduction calculation methodology with Annual Report to EPA for review and approval. The methodology should accurately account for trash prevention/removal methods beyond those already established when the TMDL was approved, which may mean crediting a percentage of certain approaches. The calculation methodology must be consistent with assumptions for weights and other characteristics of trash, as described in the 2010 Anacostia River Watershed Trash TMDL.

Annual reports must include the trash prevention/removal approaches utilized, as well as the overall total weight (in pounds) of trash captured for each type of approach.

The requirements of this Section, and related elements as appropriate, shall be included in the Consolidated TMDL Implementation Plan (Section 4.10.3).

4.10.2 Hickey Run TMDL Implementation

The permittee shall implement and complete the proposed replacement/rehabilitation, inspection and enforcement, and public education aspects of the strategy for Hickey Run as described in the updated Plan to satisfy the requirements of the oil and grease wasteload allocations for Hickey Run. If monitoring or other assessment determine it to be necessary, the permittee shall install or implement appropriate controls to address oil & grease in Hickey Run no later than the end of this permit term. As appropriate, any requirement of this Section not completed prior to finalization of the Consolidated TMDL Implementation Plan (Section 4.10.3) shall be included in that Plan.

4.10.3 Consolidated TMDL Implementation Plan

For all TMDL wasteload allocations assigned to District MS4 discharges, the permittee shall develop, public notice and submit to EPA for review and approval a consolidated TMDL Implementation Plan within 30 months of the effective date of this permit provision. This Plan shall include, at a minimum, the following TMDLs and any subsequent updates:

1. TMDL for Biochemical Oxygen Demand (BOD) in the Upper and Lower Anacostia River (2001)
2. TMDL for Fecal Coliform Bacteria in the Upper and Lower Anacostia River (2003)
3. TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)
4. TMDL for Fecal Coliform Bacteria in Kingman Lake (2003)
5. TMDL for Total Suspended Solids, Oil and Grease and Biochemical Oxygen Demand in Kingman Lake (2003)

6. TMDL for Fecal Coliform Bacteria in Rock Creek (2004)
7. TMDL for Organics and Metals in the Tributaries to Rock Creek (2004)
8. TMDL for Fecal Coliform Bacteria in the Upper, Middle and Lower Potomac River and Tributaries (2004)
9. TMDL for Organics, Metals and Bacteria in Oxon Run (2004)
10. TMDL for Organics in the Tidal Basin and Washington Ship Channel (2004)
11. TMDL for Sediment/Total Suspended Solids for the Anacostia River Basin in Maryland and the District (2007) [pending resolution of court vacature, Anacostia Riverkeeper, Inc. v. Jackson, No. 09-cv-97 (RCL)]
12. TMDL for PCBs for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (2007)
13. TMDL for Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin in Maryland and the District (2008)
14. TMDL for Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia (2010)
15. TMDL for Nitrogen, Phosphorus and Sediment for the Chesapeake Bay Watershed (2010)

This Plan shall place particular emphasis on the pollutants in Table 4, but shall also evaluate other pollutants of concern for which relevant WLAs exist. EPA will incorporate elements of the Consolidate TMDL Implementation Plan as enforceable permit provisions, including milestones and final dates for attainment of applicable WLAs. The permittee shall fully implement the Plan upon EPA approval. This Plan shall preempt any existing TMDL implementation plans for the relevant WLAs. To account for any new or revised TMDL established or approved by EPA with wasteload allocations assigned to District MS4 discharges, the permittee shall submit an updated Consolidated TMDL Implementation Plan annually, as necessary. Such updates will account for any actions taken in the 12-month period preceding the date 6 months before the revision is due. If necessary, the first such update will be due 18 months after the submittal of the initial Plan, with subsequent updates due on the anniversary of the submittal date.

The Plan shall include:

1. A specified schedule for attainment of WLAs that includes final attainment dates and, where applicable, interim milestones and numeric benchmarks.
    a. Numeric benchmarks will specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks.
    b. Interim milestones will be included where final attainment of applicable WLAs requires more than five years. Milestone intervals will be as frequent as possible but will in no case be greater than five (5) years.
2. Demonstration using modeling of how each applicable WLA will be attained using the chosen controls, by the date for ultimate attainment.
3. An associated narrative providing an explanation for the schedules and controls included in the Plan.

4. Unless and until an applicable TMDL is no longer in effect (e.g., withdrawn, reissued or the water delisted), the Plan must include the elements in 1-3 above for each TMDL as approved or established.
5. The current version of the Plan will be posted on the permittee's website.

4.10.4 Adjustments to TMDL Implementation Strategies

If evaluation data, as outlined in the monitoring strategy being developed per Part 5.1, indicate insufficient progress towards attaining any WLA covered in 4.10.1, 4.10.2 or 4.10.3, the permittee shall make the appropriate adjustements within six (6) months to address the insufficient progress and document those adjustments in the Consolidated TMDL Implementation Plan. The Plan modification shall include a reasonable assurance demonstration of the additional controls to achieve the incorporated milestones. Annual reports must include a description of progress as evaluated against all implementation objectives, milestones and benchmarks, as relevant, outlined in Part 4.10.

4.11 Additional Pollutant Sources

For any additional pollutant sources not addressed in sections 4.1 through 4.9, the permittee shall continue to compile pertinent information on known or potential pollution sources, including significant changes in:

1. land use activities,
2. population estimates,
3. runoff characteristics,
4. major structural controls,
5. landfills,
6. publicly owned lands, and
7. industries impacting the MS4.

For purposes of this section, “significant changes” are changes that have the potential to revise, enhance, modify or otherwise affect the physical, legal, institutional, or administrative characteristics of the above-listed potential pollution sources. This information shall be submitted in each of the Annual Reports submitted to EPA pursuant to the procedures in Part 6.2 herein. For the Stormwater Model, analysis of data for these pollution sources shall be reported according to Part 7 herein.

The permittee shall implement controls to minimize and prevent discharges of pollutants from additional pollutant sources, including but not limited to Bacteria (*E. coli*), Total Nitrogen, Total Phosphorus, Total Suspended Solids, Cadmium, Copper, Lead, Zinc, and Trash, to receiving waters. Controls shall be designed to prevent and restrict priority pollutants from coming into contact with stormwater, *e.g.*, restricting the use of lawn fertilizers rather than end-of-pipe treatment. These strategies shall include program priorities and a schedule of activities to address those priorities and an outline of which agencies will be responsible for implementing those strategies. The strategies used to reduce or eliminate these pollutants shall be documented in updates to the Stormwater Management Program Plan.

5. MONITORING AND ASSESSMENT OF CONTROLS

5.1 Revised monitoring program

5.1.1 Design of the Revised Monitoring Program

Within 30 months of the effective date of Part 4.10.3 of this permit the permittee shall develop, public notice and submit to EPA for review and approval a revised monitoring program. The permittee shall fully implement the program upon EPA approval. The revised monitoring program shall meet the following objectives:

1. Make wet weather loading estimates of the parameters in Table 4 from the MS4 to receiving waters. Number of samples, sampling frequencies and number and locations of sampling stations must be adequate to ensure data are statistically significant and interpretable.

2. Evaluate the health of the receiving waters, to include biological and physical indicators such as macroinvertebrates and geomorphologic factors. Number of samples, frequencies and locations must be adequate to ensure data are statistically significant and interpretable for long-term trend purposes (not variation among individual years or seasons).

3. Include any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. This strategy must align with the Consolidated TMDL Implementation Plan required in Part 4.10.3 For all pollutants in Table 4 monitoring must be adequate to determine if relevant WLAs are being attained within specified timeframes in order to make modifications to relevant management programs, as necessary.

Table 4
Monitoring Parameters

Parameter
E. coli
Total nitrogen
Total phosphorus
Total Suspended Solids
Cadmium
Copper
Lead
Zinc
Trash

4. All chemical analyses shall be performed in accordance with analytical methods approved under 40 C.F.R. Part 136. When there is not an approved analytical method, the applicant may use any suitable method as described in Section 5.7 herein, but must provide a description of the method.

5.1.2 Utilization of the Revised Monitoring Program

The permittee must use the information to evaluate the quality of the stormwater program and the health of the receiving waters at a minimum to include:

1. The permittee shall estimate annual cumulative pollutant loadings for pollutants listed in Table 4. Pollutant loadings and, as appropriate, event mean concentrations, will be reported in DMRs and annual reports on TMDL implementation for pollutants listed in Table 4 in discharges from the monitoring stations in Table 5.

2. The permittee shall perform the following activities at least once during the permit term, but no later than the fourth year of this permit:

   a. Identify and prioritize additional efforts needed to address water quality exceedances, and receiving stream impairments and threats;

   b. Identify water quality improvements or degradation

Upon approval of the Revised Monitoring Program by EPA Region III, or 2 years from the effective date of this permit, whichever comes first, the permittee shall begin implementation of the Revised Monitoring Program.

5.2 Interim Monitoring

Until such time as EPA has approved the Revised Monitoring Program, the permittee shall implement the following monitoring program:

5.2.1 Wet Weather Discharge Monitoring

The permittee shall monitor for the parameters identified in Table 4 herein, at the locations listed in Table 5 herein. Monitoring frequency for chemical/physical parameters shall be taken by at least three times per year at a minimum. This does not include a geomorphologic assessment and/or physical habitat assessment. The permittee shall conduct sampling as provided in 40 C.F.R. § 122.21(g)(7).

The permittee shall monitor and provide an annual Discharge Monitoring Report for the period of interim monitoring.

TABLE 5
Monitoring Stations

A. Anacostia River Sub Watershed Monitoring Sites
1. Gallatin Street & 14th Street N.E. across from the intersection of 14th St. and Gallatin St. in an outfall (MS-2)
2. Anacostia High School/Anacostia Recreation Center – Corner of 17th St and Minnesota Ave SE
B. Rock Creek Subwatershed Monitoring Sites
1. Walter Reed -- Fort Stevens Drive -- 16th Street and Fort Stevens Road, N.W. at an outfall (MS-6)
2. Soapstone Creek -- Connecticut Avenue and Ablemarle Street N.W. at an outfall (MS-5)
C. Potomac River Subwatershed Monitoring Sites
1. Battery Kemble Creek-49th and Hawthorne Streets, N.W. at an outfall (MS-4)
2. Oxon Run-Mississippi Avenue and 15th Street, S.E. into Oxon Run via an outfall (MS-1)

The permittee may revise this list of sites in accordance with its revised monitoring program in Section 5.1 herein. Otherwise, changes to the above MS4 monitoring stations and/or sites for any reason shall be considered a major modification to the permit subject to the reopener clause.

During the interim monitoring period for the pollutants listed in Table 4, demonstration of compliance will be calculated using the procedures identified in the SWMP, the approved Anacostia River TMDL Implementation Plan, and/or other appropriate modeling tools and data on management practices efficiencies. The annual report will provide all monitoring data, and a brief synthesis of whether the data indicate that relevant wasteload allocations and other relevant targets are being achieved.

5.2.2 Storm Event Data

In addition to the parameters listed above, the permittee shall continue to maintain records of the date and duration (in hours) of the storm events sampled; rainfall measurements or estimates (in inches) of the storm event which generated the sampled runoff; the duration (in hours) between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event; and a calculated flow estimate of the total volume (in gallons) and nature of the discharge sampled.

5.2.3 Sample Type, Collection, and Analysis

The following requirements apply only to samples collected for Part 5.2.1, Representative Monitoring.

1. For discharges from holding ponds or other impoundments with a retention period greater than 24 hours, (estimated by dividing the volume of the detention pond by the estimated volume of water discharged during the 24 hours previous to the time that the sample is collected) a minimum of one sample shall be taken for pollutants listed in Table 4 including temperature, DO, pH and specific conductivity. For all parameters, data shall be reported for the entire event of the discharge pursuant to 40 C.F.R. § 122.26(d)(2)(iii).

2. All such samples shall be collected from the discharge resulting from a storm event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable (greater than 0.1 inch rainfall) storm event. Samples may be taken with a continuous sampler or as a combination of a minimum of three sample aliquots taken in each hour of discharge for the entire discharge, with each aliquot being separated by a minimum period of fifteen minutes.

3. Analysis and collection of samples shall be done in accordance with the most recent EPA approved laboratory methods and procedures specified at 40 C.F.R. Part 136 and its subsequent amendments.

5.2.4 Sampling Waiver

When a discharger is unable to collect samples due to adverse climatic conditions, the discharger must submit in lieu of sampling data a description of why samples could not be collected, including available documentation of the event.

Adverse climatic conditions which may prohibit the collection of samples includes weather conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.).

5.3 Dry Weather Monitoring

5.3.1 Dry Weather Screening Program

The permittee shall continue with ongoing efforts to detect the presence of illicit connections and improper discharges to the MS4 pursuant to the District SWMP. The permittee shall perform the following: (1) continue to screen known problem sewersheds within the District based on past screening activities; (2) continue to inventory all MS4 outfalls in the District and inspect all outfalls by the end of the permit term; and (3) ensure that the dry weather screening program has addressed all watersheds within the permit term. The screening shall be

sufficient to estimate the frequency and volume of dry weather discharges and their environmental impact.

5.3.2 Screening Procedures

Screening may be developed and/or modified based on experience gained during actual field screening activities. The permittee shall establish a protocol which requires screening to ensure that such procedures are occurring, but such protocol need not conform to the procedures published at 40 C.F.R. § 122.26(d)(1)(iv)(D). The permittee shall describe the protocol actually used in each Annual Report with a justification for its use. The procedures described in the SWMP shall be used as guidance.

5.3.3 Follow-up on Dry Weather Screening Results

The permittee shall continue to implement its enforcement program for locating and ensuring elimination of all suspected sources of illicit connections and improper disposal identified during dry weather screening activities. The permittee shall report the results of such implementation in each Annual Report.

5.4. Area and/or Source Identification Program

The permittee shall continue to implement a program to identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters, including but not limited to those pollutants identified in Table 4 herein.

5.5 Flow Measurements

The permittee shall continue to select and use appropriate flow measurement devices and methods consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device.

5.6 Monitoring and Analysis Procedures

5.6.1 Monitoring must be conducted according to laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments, unless other test procedures have been specified in the permit.

5.6.2 The permittee is authorized to use a more current or sensitive (i.e., lower) detection method than the one identified in 40 C.F.R. Part 136 exists for a particular parameter, including but not limited to PCBs (Method 1668B) and mercury (Method 1631E). If used, the permittee shall report using the more current and/or more sensitive method for compliance reporting and monitoring purposes.

5.6.3 EPA reserves the right to modify the permit in order to require a more sensitive method for measuring compliance with any pollutant contamination levels, consistent with 40 CFR, Part 136, should it become necessary.

5.7 Reporting of Monitoring Results

The permittee shall continue to report monitoring results annually in a Discharge Monitoring Report. If NetDMR (http://www.epa.gov/netdmr/) is unavailable to any of the following then the original and one copy of the Report are to be submitted at the following addresses:

NPDES Permits Branch
U.S. EPA Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, PA 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

Monitoring results obtained during the previous year shall be summarized and reported in the Annual Report.

5.8 Additional Monitoring by the Permittee

If the permittee monitors (for the purposes of this permit) any pollutant more frequently than required by this permit, using laboratory and test procedures approved under 40 C.F.R. Part 136 and subsequent amendments or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the annual Discharge Monitoring Report. Such frequency shall also be indicated.

5.9 Retention of Monitoring Information

The permittee shall continue to retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation for a period of at least five(5) years from the date of the sample, measurement or report. This period may be extended by request of EPA at any time.

5.10 Record Content

Records of monitoring information shall include:

1. The date, exact location, time and methods of sampling or measurements;
2. The individual(s) who performed the sampling or measurements;

3. The date(s) analyses were performed;
4. The individual(s) who performed the analyses;
5. The analytical techniques or methods used; and
6. The results of such analyses.

6. REPORTING REQUIREMENTS

The permittee shall comply with the reporting requirements identified in this section, including but not limited to the deliverables identified in Table 6 below.

TABLE 6
Reporting Requirements

Submittal	Deadline
Discharge Monitoring Report	Each year on the anniversary of the effective date of the permit (AEDOP)
Annual Report	Each year on the AEDOP.
MS4 Permit Application	Six months prior to the permit expiration date.

6.1 Discharge Monitoring Reports

The permittee shall provide discharge monitoring reports per Part 5.7 of this permit on the quality of stormwater discharges from the MS4 for all analytical chemical monitoring stipulated in Part 5 of this permit.

6.2 Annual Reporting

The permittee shall submit an Annual Report to EPA on or by the effective yearly date of the permit for the duration of the permitting cycle. At the same time the Annual Report it submitted to EPA it shall also be posted on the permittee's website at an easily accessible location. If the annual report is subsequently modified per EPA approval (part 6.2.3 of this permit) the updated report shall be posted on the permittee's website.

6.2.1 Annual Report.

The Annual Report shall follow the format of the permit as written, address each permit requirement, and also include the following elements:

a. A review of the status of program implementation and compliance (or non-compliance) with all provisions and schedules of compliance contained in this

permit, including documentation as to compliance with performance standards and other provisions and deliverables contained in Section 4 herein;

b. A review of monitoring data and any trends in estimated cumulative annual pollutant loadings, including TMDL WLAs and TMDL implementation activities;

c. An assessment of the effectiveness of controls established by the SWMP;

d. An assessment of the projected cost of SWMP implementation for the upcoming year (or longer) and a description of the permittee's budget for existing stormwater programs, including: (i) an overview of the permittee's financial resources and budget, (ii) overall indebtedness and assets, (iii) sources for funds for stormwater programs; and (iv) a demonstration of adequate fiscal capacity to meet the requirements of this permit, subject to the (a) the federal Anti-Deficiency Act, 31 U.S.C. §§ 1341, 1342, 1349, 1351, (b) the District of Columbia Anti-Deficiency Act, D.C. Official Code §§ 47-355.01-355.08 (2001), (c) D.C. Official Code § 47-105 (2001), and (d) D.C. Official Code § 1-204.46 (2006 Supp.), as the foregoing statutes may be amended from time to time;

e. A summary describing the number and nature of enforcement actions, inspections, and public education programs and installation of control systems;

f. Identification of water quality improvements or degradation through application of a measurable performance standard as stated throughout this permit;

g. Results of storm and water quality modeling and its use in planning installation of control systems and maintenance and other activities;

h. An assessment of any SWMP modifications needed to meet the requirements of this permit;

i. Revisions, if necessary, to the assessments of controls and the fiscal analysis reported in the permit application under 40 C.F.R. § 122.26(d)(2)(iv) and (v);

j. Methodology to assess the effects of the Stormwater Management Program (SWMP);

k. Annual expenditures and budget for the year following each annual report;

l. A summary of commitments for the next year and evaluation of the commitments from the previous year;

m. A summary of the monitoring data for stormwater and ambient sampling that is collected in the previous year and the plan, including identification of monitoring locations, to collect additional data for the next year;

n. The amount of impervious cover within the District, and within the three major watersheds in the District (Anacostia, Potomac and Rock Creek);

o. The percentage of effective impervious cover reduced annually, including but not limited to the number and square footage of green roofs installed in the District, including the square footage of drainage managed by practices that meet the performance standard in 4.1.1; and

p. An analysis of the work to be performed in the next successive year, including performance measures for those tasks. In the following year, progress with those performance measures shall be part of the Annual Report. The basis for each of the performance standards, which will be used as tools for evaluating environmental results and determining the success of each MS4 activity, shall be described incorporating an integrated program approach that considers all programs and projects which have a direct as well as an indirect affect on

stormwater management quantity and quality within the District. The report shall also provide an update of the fiscal analysis for each year of the permit as required by 40 C.F.R. § 122.26(d)(2)(vi).

6.2.2 Annual Report Meeting

Within 12 months of the effective date of this permit the permittee shall convene an annual report meeting with EPA to present annual progress and plans for the following year. In conjunction with this meeting the annual written report may consist of presentation materials summarizing all required elements of the annual report rather than a lengthy written report, as long as all required elements are included. Following this first annual reporting meeting EPA and the permittee shall determine if the meeting and associated presentation materials constitute an effective reporting mechanism. With the agreement of both EPA and the permittee the annual reporting meeting and the use of summarized presentation materials in lieu of a lengthy written report may be extended for the remainder of the permit term.

6.2.3 Annual Report Revisions

Each Annual Report may be revised with written approval by EPA. The revised Report will become effective after its approval.

6.2.4 Signature and Certification

The permittee shall sign and certify the Annual Report in accordance with 40 C.F.R §122.22(b), and include a statement or resolution that the permittee's governing body or agency (or delegated representative) has reviewed or been appraised of the content of such submissions. The permittee shall provide a description of the procedure used to meet the above requirement.

6.2.5 EPA Approval

In reviewing any submittal identified in Table 1 or 6, EPA may approve or disapprove each submittal. If EPA disapproves any submittal, EPA shall provide comments to the permittee. The permittee shall address such comments in writing within thirty (30) days of receipt of the disapproval from EPA. If EPA determines that the permittee has not adequately addressed the disapproval/comments, EPA may revise that submittal or portions of that submittal. Such revision by EPA is effective thirty (30) days from receipt by the permittee. Once approved by EPA, or in the event of EPA disapproval, as revised by EPA, each submission shall be an enforceable element of this permit.

6.3 MS4 Permit Application

The permittee develop a permit Application based on the findings presented in each of the Annual SWMP Reports submitted during the permitting cycle to be submitted six months prior to the expiration date of the permit. The permit application shall define the next iterative set of objectives for the program and provide an analysis to demonstrate that these objectives will be achieved in the subsequent permit term.

7. STORMWATER MODEL

The permittee shall continue to update and report all progress made in developing a Stormwater Model and Geographical Information System (GIS) to EPA on an annual basis as an attachment to each Annual Report required herein.

On an annual basis, the permittee shall report on pollutant load reductions throughout the area covered by this permit using the statistical model developed by DDOE or other appropriate model. In the annual update, the permittee shall include, at a minimum, other applicable components which are not only limited to those activities identified in Section 6 herein, but which are necessary to demonstrate the effectiveness of the permittee's Stormwater Management Program toward implementing a sustainable strategy for reducing stormwater pollution runoff to the impaired waters of the District of Columbia.

Assess performance of stormwater on-site retention projects through monitoring, modeling and/or estimating storm retention capacity to determine the volume of stormwater removed from the MS4 in a typical year of rainfall as a result of implementing stormwater controls. This provision does not require all practices to be individually monitored, only that a reasonable evaluation strategy must provide estimates of overall volume reductions by sewershed.

8. STANDARD PERMIT CONDITIONS FOR NPDES PERMITS

8.1 Duty to Comply

The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Clean Water Act and may result in an enforcement action; permit termination, revocation and reissuance, or modification; and denial of a permit renewal application.

8.2 Inspection and Entry

The permittee shall allow EPA, or an authorized representative, and/or the permittee’s contractor(s)/subcontractor(s), upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises at reasonable times where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

2. Have access to and copy, at reasonable times, any records that must be maintained under the conditions of this permit;

3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), processes, or operations regulated or required under this permit; and

4. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by the Clean Water Act, any substances or parameters at any location.

8.3 Civil and Criminal Penalties for Violations of Permit Conditions

Nothing in this permit shall be construed to relieve the permittee from civil or criminal penalties for noncompliance.

The Clean Water Act provides that any person who violates Sections 301, 302, 306, 307, 308, 318, or 405 of the Clean Water Act, or any permit condition or limitation implementing such section, or any requirement imposed in an approved pretreatment program and any person who violates any Order issued by EPA under Section 301(a) of the Act, shall be subject to a civil penalty not to exceed $25,000 per day for each violation, Pursuant to the Civil Monetary Penalty Inflation Adjustment Rule, EPA has raised the statutory maximum penalty for such violations to $37,500 per day for each such violation. 74 Fed. Reg. 626 (Jan. 7, 2009). The Clean Water Act also provides for an action for appropriate relief including a permanent or temporary injunction.

Any person who negligently violates Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, any permit condition or limitation implementation any such section, shall be punished by a criminal fine of not less than $5,000 nor more than $50,000 per day of such violation, or by imprisonment for not more than 3 years, or by both. Any person who knowingly violates any permit condition or limitation implementing Section 301, 302, 305, 307, 308, 318, or 405 of the Clean Water Act, and who knows at the time that he thereby places another person in imminent danger of death or serious bodily injury, shall, upon conviction, be subject to a fine of not more than $250,000, or by imprisonment of not more than 15 years, or by both.

8.4 Duty to Mitigate

The permittee shall take all reasonable steps to minimize or correct any adverse impact on the environment resulting from noncompliance with this permit.

In the event that the permittee or permitting authority determines that discharges are causing or contributing to a violation of applicable WQS, the permittee shall take corrective action to eliminate the WQS exceedance or correct the issues and/or problems by requiring the party or parties responsible for the alleged violation(s) comply with Part I.C.1 (Limitations to Coverage) of this permit. The methods used to correct the WQS exceedances shall be documented in subsequent annual reports and in revisions to the Stormwater Management Program Plan.

8.5 Permit Actions

This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:

1. Violation of any terms or conditions of this permit;

2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts;

3. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge;

4. Information newly acquired by the Agency, including but not limited to the results of the studies, planning, or monitoring described and/or required by this permit;

5. Material and substantial facility modifications, additions, and/or expansions;

6. Any anticipated change in the facility discharge, including any new significant industrial discharge or changes in the quantity or quality of existing industrial discharges that will result in new or increased discharges of pollutants; or

7. A determination that the permitted activity endangers human health or the environment and that it can only be regulated to acceptable levels by permit modification or termination.

The effluent limitations expressed in this permit are based on compliance with the District of Columbia's water quality standards in accordance with the Clean Water Act. In the event of a revision of the District of Columbia's water quality standards, this document may be modified by EPA to reflect this revision.

The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition. When a permit is modified, only conditions subject to modification are reopened.

8.6 Retention of Records

The permittee shall continue to retain records of all documents pertinent to this permit not otherwise required herein, including but not limited copies of all reports required by this permit, and records of all data used to complete the application for this permit, for a period of at least five (5) years from the expiration date of this permit. This period may be extended by request of EPA at any time.

8.7 Signatory Requirements

All Discharge Monitoring Reports, plans, annual reports, certifications or information either submitted to EPA or that this permit requires be maintained by the permittee shall be signed by either a principal executive officer or ranking elected official, or a duly authorized representative of that person. A person is a duly authorized representative only if: (i) the authorization is made in writing by a person described above and submitted to EPA; and (ii) the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for an agency. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

If an authorization is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new notice satisfying the requirements of this paragraph must be submitted to EPA prior or together with any reports, information, or applications to be signed by an authorized representative.

8.8 Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the Act, 33 U.S.C. § 1321.

8.9 District Laws, Regulations and Ordinances

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable District law, regulation or ordinance identified in the SWMP. In the case of "exemptions and waivers" under District law, regulation or ordinance, Federal law and regulation shall be controlling.

8.10 Property Rights

The issuance of this permit does not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

8.11 Severability

The provisions of this permit are severable, and if any provisions of this permit, or the application of any provision of this permit to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

8.12 Transfer of Permit

In the event of any change in ownership or control of facilities from which the authorized discharge emanates, the permit may be transferred to another person if:

1. The current permittee notifies the EPA, in writing of the proposed transfer at least 30 days in advance of the proposed transfer date;

2. The notice includes a written agreement between the existing and new permittee containing a specific date for transfer of permit responsibility, coverage, and liability between them; and

3. The EPA does not notify the current permittee and the new permittee of intent to modify, revoke and reissue, or terminate the permit and require that a new application be submitted.

8.13 Construction Authorization

This permit does not authorize or approve the construction of any onshore or offshore physical structures or facilities or the undertaking of any work in any navigable waters.

8.14 Historic Preservation

During the design stage of any project by the Government of the District of Columbia within the scope of this permit that may include ground disturbance, new and existing or retrofit construction, or demolition of a structure, the permittee shall notify the Historic Preservation liaison and provide the liaison planning documents for the proposed undertaking. The documents shall include project location; scope of work or conditions; photograph of the area/areas to be impacted and the methods and techniques for accomplishing the undertaking. Depending on the complexity of the undertaking, sketches, plans and specifications shall also be submitted for review. The documentation will enable the liaison to assess the applicability of compliance procedures associated with Section 106 of the National Historic Preservation Act. Among the steps in the process are included:

1. The determination of the presence or absence of significant historic properties (architectural, historic or prehistoric). This can include the evaluation of standing structures and the determination of the need for an archaeological survey of the project area.

2. The evaluation of these properties in terms of their eligibility for nomination to the National Register of Historic Places.

3. The determination of the effect that the proposed undertaking will have on these properties.

4. The development of mitigating measures in conjunction with any anticipated effects.

All such evaluations and determinations will be presented to the permittee for its concurrence.

If an alternate Historic Preservation procedure is approved by EPA in writing during the term of this permit, the alternate procedure will become effective after its approval.

8.15 Endangered Species

The U.S. Fish and Wildlife Service (FWS) has indicated that Hay's Spring Amphipod, a Federally listed endangered species, occurs at several locations in the District of Columbia. The National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) has indicated that the endangered shortnose sturgeon occurs in the Potomac River drainage and may occur within the District of Columbia. The FWS and NOAA Fisheries indicate that at the present time there is no evidence that the ongoing stormwater discharges covered by this permit are adversely affecting these Federally-listed species. Stormwater discharges, construction, or any other activity that adversely affects a Federally-listed endangered or threatened species are not authorized under the terms and conditions of this permit.

The monitoring required by this permit will allow further evaluation of potential effects on these threatened and endangered species once monitoring data has been collected and analyzed. EPA requires that the permittee submit to NOAA Fisheries, at the same time it submits to EPA, the Annual Outfall Discharge Monitoring Report of the monitoring data which will be used by EPA and NOAA Fisheries to further assess effects on endangered or threatened species. If this data indicates that it is appropriate, requirements of this NPDES permit may be modified to prevent adverse impacts on habitats of endangered and threatened species.

The above-referenced Report of monitoring data is required under this permit to be sent on an annual basis to:

The United States Environmental Protection Agency
Region III (3WP41)
Water Protection Division
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

National Marine Fisheries Service/Northeast Region
Protected Resource Division
55 Great Republic Drive
Gloucester, Massachusetts 01930-2276

8.16 Toxic Pollutants

If a toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is established under section 307(a) of the Act, 33 U.S.C. § 1317(a), for a toxic pollutant which is present in the discharge and such standard or prohibition

is more stringent than any limitation for such pollutant in this permit, the permittee shall comply with such standard or prohibition even if the permit has not yet been modified to comply with the requirement.

8.17 Bypass

8.17.1 Bypass not exceeding limitations. In accordance with 40 C.F.R. § 122.41(m), the permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation.

8.17.2 Notice

1. Anticipated bypass. If the permittee knows in advance of the need for a bypass, it must submit prior notice at least ten days before the date of the bypass. See 40 C.F.R. § 122.41(m)(3)(i).

2. Unanticipated bypass. The permittee must submit notice of an unanticipated bypass as required by 40 C.F.R. § 122.41(l)6) (24-hour notice). See 40 C.F.R. § 122.41(m)(3)(ii).

8.17.3 Prohibition of bypass. See 40 C.F.R. § 122.41(m)(4).

1. Bypass is prohibited, and EPA may take enforcement action against the permittee for bypass, unless:

    a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage as defined herein;

    b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and

    c. The permittee submitted notices as required herein.

2. EPA may approve an anticipated bypass, after considering its adverse effects, if EPA determines that it will meet the three conditions listed above.

8.18 Upset

Effect of an upset: An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of 40 C.F.R. § 122.41(n) are met.

8.19 Reopener Clause for Permits

The permit shall be modified or revoked and reissued, including but not limited to, for any of the following reasons:

1. To incorporate any applicable effluent standard or limitation issued or approved under Sections 301, 304, or 307 of the Clean Water Act, and any other applicable provision, such as provided for in the Chesapeake Bay Agreements based on water quality considerations, and if the effluent standard or limitation so issued or approved:

   a. Contains different conditions or is otherwise more stringent than any effluent limitation in the permit; or

   b. Controls any pollutant not limited in the permit. The permit, as modified or reissued under this paragraph, shall also contain any other requirements of the Act then applicable; or

2. To incorporate additional controls that are necessary to ensure that the permit effluent limits are consistent with any applicable TMDL WLA allocated to the discharge of pollutants from the MS4 or to incorporate milestones and schedules of a TMDL Implementation Plan; or

3. As specified in 40 C.F.R. §§ 122.44(c), 122.62, 122.63, 122.64, and 124.5.

8.20 Duty to Reapply

If the permittee wishes to continue an activity regulated by this permit after the expiration date of this permit, it must apply for and obtain a new permit. The application shall be submitted at least 180 days before the expiration date of this permit. EPA may grant permission to submit an application less than 180 days in advance but no longer than the permit expiration date. In the event that a timely and complete reapplication has been submitted and EPA is unable through no fault of he permittee, to issue a new permit before the expiration date of this permit, the terms and conditions of this permit are automatically continued and remain fully effective and enforceable.

9. PERMIT DEFINITIONS

Terms that are not defined herein shall have the meaning accorded them under section 502 of the Clean Water Act, 33 U.S.C. §§ 1251 *et seq.*, or its implementing regulations, 40 C.F.R. Part 122.

"Annual Report" refers to the consolidated Annual Report that the permittee is required to submit annually.

"Benchmark" as used in this permit is a quantifiable goal or target to be used to assess progress toward "milestones" (see separate definition) and WLAs, such as a numeric goal for BMP implementation. If a benchmark is not met, the permittee should take appropriate corrective action to improve progress toward meeting milestones or other objectives. Benchmarks are intended as an adaptive management aid and generally are not considered to be enforceable.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. See 40 C.F.R. § 122.41(m)(1)(i).

"CWA" means Clean Water Act (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Pub.L. 92-500, as amended Pub. L. 95-217, Pub. L. 95-576, Pub. L. (6-483 and Pub. L. 97-117, 33 U.S.C. §§ 1251 *et seq.*

"Development" is the undertaking of any activity that disturbs a surface area greater than or equal to 5,000 square feet, including new development projects and redevelopment projects. For purposes of Parts 4.1.1 through 4.1.4 of the permit the requirements apply to discharges from sites for which design or construction commenced after 18 months from the effective date of this permit or as required by District of Columbia law, whichever is sooner. The permittee may exempt development projects receiving site plan approval prior to this date from these requirements.

"Director" means the Regional Administrator of USEPA Region 3 or an authorized representative.

"Discharge" for the purpose of this permit, unless indicated otherwise, refers to discharges from the Municipal Separate Storm Sewer System (MS4).

"Discharge Monitoring Report", "DMR" or "Outfall Discharge Monitoring Report" includes the monitoring and assessment of controls identified in Section 5 herein.

"EPA" means USEPA Region 3.

"Green Roof" is a low-maintenance roof system that stores rainwater where the water is taken up by plants and/or transpired into the air.

"Green Technology Practices" means stormwater management practices that are used to mimic pre-development site hydrology by using site design techniques that retain stormwater on-site through infiltration, evapotranspiration, harvest and use.

"Guidance" means assistance in achieving a particular outcome or objective.

"Illicit connection" means any man-made conveyance connecting an illicit discharge directly to a municipal separate storm sewer.

"Illicit discharge" means any discharge to a municipal separate storm sewer that is not composed entirely of stormwater except discharges pursuant to an NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities, pursuant to 40 C.F.R. § 122.26(b)(2).

“Impaired Water” (or “Water Quality Impaired Water” or “Water Quality Limited Segment”): A water is impaired for purposes of this permit if it has been identified by the District or EPA pursuant to Section 303(d) of the Clean Water Act as not meeting applicable State water quality standards (these waters are called “water quality limited segments” under 40 C.F.R. 30.2(j)). Impaired waters include both waters with approved or established TMDLs, and those for which a TMDL has not yet been approved or established.

"Landfill" means an area of land or an excavation in which wastes are placed for permanent disposal, and which is not a land application unit (i.e., an area where wastes are applied onto or incorporated into the soil surface [excluding manure spreading operations] for treatment or disposal), surface impoundment, injection well, or waste pile.

"Large or Medium municipal separate storm sewer system" means all municipal separate storm sewers that are either: (1) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 C.F.R. Part 122); or (2) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 C.F.R. Part 122); or (3) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

"Milestone" as used in this permit is an interim step toward attainment of a WLA that upon incorporation into the permit will become an enforceable limit or requirement to be achieved by a stated date. A milestone should be expressed in numeric terms, i.e. as a volume reduction, pollutant load, specified implementation action or set of actions or other objective metric, when possible and appropriate.

"MS4" refers to either a Large or Medium Municipal Separate Storm Sewer System.

"Municipal Separate Storm Sewer" means a conveyance, or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (1) owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State Law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes; (2) Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); (3) not a combined sewer; and (4) not part of a Publicly-Owned Treatment Works as defined at 40 C.F.R. § 122.2.

“Offset” means a unit of measurement, either used as monetary or non-monetary compensation, as a substitute or replacement for mitigation of a stormwater control practice that has been determined to be impracticable to implement.

“Performance measure” means for purposes of this permit, a minimum set of criteria for evaluating progress toward meeting a standard of performance.

“Performance standard” means for purposes of this permit, a cumulative measure or provision for attainment of an outcome or objective.

"Permittee" refers to the Government of the District of Columbia.

"Point Source" means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural stormwater runoff.

“Pollutant of concern” means a pollutant in an MS4 discharge that may cause or contribute to the violation of a water quality criterion for that pollutant downstream from the discharge.

“Pre-Development Condition” means the combination of runoff, infiltration and evapotranspiration rates, volumes, durations and temperatures that typically existed on the site with natural soils and vegetation before human-induced land disturbance occurred. In the context of requirements in this permit the environmental objective is a stable, natural hydrologic site condition that protects or restores to the degree relevant for that site, stable hydrology in the receiving water, which will not necessarily be the hydrologic regime of that receiving water prior to any human disturbance in the watershed.

“Retention” means the use of soils, vegetation, water harvesting and other mechanisms and practices to retain a target volume of stormwater on a given site through the functions of: pore space and surface ponding storage; infiltration; reuse, and/or evapotranspiration.

“Retrofit” means improvement in a previously developed area that results in reduced stormwater discharge volumes and pollutant loads and/or improvement in water quality over current conditions.

“Stormwater” means the flow of surface water which results from, and which occurs immediately following, a rainfall event, snow melt runoff, and surface runoff and drainage.

“Stormwater management” means (1) for quantitative control, a system of vegetative or structural measures, or both, which reduces the increased volume and rate of surface runoff caused by man-made changes to the land; and (2) for qualitative control, a system of vegetative, structural, and other measures which reduce or eliminate pollutants which might otherwise be carried by surface runoff.

"SWMP" is an acronym for Stormwater Management Program. For purposes of this permit, the term includes all stormwater activities described in the District's SWMP Plan updated February 19, 2009, or any subsequent update, and all other strategies, plans, documents, reports, studies, agreements and related correspondences developed and used pursuant to the requirements of this permit.

"Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. See 40 C.F.R. § 122.41(m)(1)(ii).

"Total Maximum Daily Load (TMDL) Units" means for purposes of this permit, the sum of individual waste load allocations (WLAs) and natural background. Unless specifically permitted otherwise in an EPA-approved TMDL report covered under the permit, TMDLs are expressed in terms of mass per time, toxicity or other appropriate measure such as pollutant pounds of a total average annual load.

"TMDL Implementation Plan" means for purposes of this permit, a plan and subsequent revisions/updates to that plan that are designed to demonstrate how to achieve compliance with applicable waste load allocations as set forth in the permit requirements described in Section 4.10.3.

"Stormwater Management Program (SWMP)" is a modified and improved SWMP based on the existing SWMP and on information in each of the Annual Reports/Discharge Monitoring Reports. The purpose of the SWMP is to describe the list of activities that need to be done to meet the requirements of the Clean Water Act, an explanation as to why these activities will meet the Clean Water Act requirements, and a schedule for those activities.

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond reasonable control. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. See 40 C.F.R. § 122.41(n)(1).

"Waste pile" means any non-containerized accumulation of solid, nonflowing waste.

"Water quality standards" refers to the District of Columbia's Surface and Ground Water Quality Standards codified at Code of District of Columbia Regulations §§ 21-1100 *et seq.*, which are effective on the date of issuance of the permit and any subsequent amendments which may be adopted during the life of this permit.

"Waters of the United States" is defined at 40 C.F.R. § 122.2.

ATTACHMENT
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FACT SHEET

National Pollutant Discharge Elimination System (NPDES)
Municipal Separate Storm Sewer System (MS4)
Permit No. DC0000221 (Government of the District of Columbia)

NPDES PERMIT NUMBER: DC0000221 (Reissuance)

FACILITY NAME AND MAILING ADDRESS:

Government of the District of Columbia
The John A. Wilson Building
1350 Pennsylvania Avenue, N.W.
Washington, D.C. 20004

MS4 ADMINISTRATOR NAME AND MAILING ADDRESS:

Director, District Department of the Environment
1200 First Street, N.E., 6th Floor
Washington, D.C. 20002

FACILITY LOCATION:

District of Columbia's Municipal Separate Storm Sewer System (MS4)

RECEIVING WATERS:

Potomac River, Anacostia River, Rock Creek, and Stream Segments Tributary
To Each Such Water Body

INTRODUCTION:

Today's action finalizes reissuance of the District of Columbia Municipal Separate Storm Sewer System (MS4) Permit. In the Final Permit EPA has continued to integrate the adaptive management approach with enhanced control measures to address the complex issues associated with urban stormwater runoff within the corporate boundaries of the District of Columbia, where stormwater discharges via the Municipal Separate Storm Sewer System (MS4).

Since the United States Environmental Protection Agency, Region III (EPA) issued the District of Columbia (the District) its first MS4 Permit in 2000, the Agency has responded to a number of legal challenges involving both that Permit (as well as amendments thereto) and the second-round MS4 Permit issued in 2004. For the better part of ten years, the Agency has worked with various parties in the litigation, including the District and two non-governmental organizations, Defenders of Wildlife and Friends of the Earth, to address the concerns of the various parties. The Agency has engaged in both litigation and negotiation, including formal

mediation.[1] These activities ultimately led to an enhanced stormwater management strategy in the District, consisting of measurable outputs for addressing the issues raised during the litigation and mediation process.

FACILITY BACKGROUND AND DESCRIPTION:

The Government of the District of Columbia owns and operates its own MS4, which discharges stormwater from various outfall locations throughout the District into its waterways.[2]

On April 21, 2010 EPA public noticed the Draft Permit. The Draft Fact Sheet published with that Draft Permit contains more extensive permit background information, and the reader is referred to that document for the history of the District of Columbia MS4 permit.

The public comment period closed on June 4, 2010. EPA received comments from 21 individual commenters and an additional 53 form letters. The Draft Permit, Draft Fact Sheet, and comments received on those documents are all available at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html. The Final Permit reflects many of the comments received. EPA is simultaneously releasing a responsiveness summary responding to these comments.

ACTION TO BE TAKEN:

EPA is today reissuing the District of Columbia NPDES MS4 Permit. The Final Permit replaces the 2004 Permit, which expired on August 18, 2009 and has been administratively extended since that time. The Final Permit incorporates concepts and approaches developed from studies and pilot projects that were planned and implemented by the District under the 2000 and 2004 MS4 permits and modifying Letters of Agreement, and implements Total Maximum Daily Loads (TMDLs) that have been finalized since the prior permit was issued, including the Chesapeake Bay TMDL. A number of applicable measurable performance standards have been incorporated into the Final Permit. These and other changes between the 2004 Permit and today's Final Permit are reflected in a Comparison Document that is part of today's Permit issuance.

WATER QUALITY IN DISTRICT RECEIVING WATERS:

The District's *2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act*[3] documents the serious water

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1 A procedural history of Permit appeals can be viewed at the EPA Environmental Appeals Board web: http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/77355bee1a56a5aa8525711400542d23/b5e5b68e89edabe98525714f00731c6f!OpenDocument&Highlight=2,municipal.

2 Portions of the District are served by a combined sanitary and storm sewer system. The discharges from the combined sewer system are not subject to the MS4 permit, but are covered under NPDES Permit No. xxxx issued to the District of Columbia Water and Sewer Authority.

3 District Department of the Environment, *The District of Columbia Water Quality Assessment, 2008 Integrated Report to the Environmental Protection Agency and U.S. Congress Pursuant to Sections 305(b) and 303(d) Clean Water Act* (hereinafter "2008 Integrated Report").

quality impairments in the surface waters in and around the District. A number of the relevant designated uses are not being met, *e.g.*, aquatic life, fish consumption, and full body contact, and there are a number of specific pollutants of concern that have been identified (for additional discussion on relevant TMDLs *see* Section 4.10 of this Final Fact Sheet).

Commenters on the Draft Permit expressed some frustration over very slow progress or even lack of progress after a decade of implementation of the MS4 program and even longer for other water quality programs. EPA appreciates this concern. Although the District's receiving waters are affected by a range of discharge sources, discharges from the MS4 are a significant contributor of pollutants and cause of stream degradation. EPA also recognizes, however, that stormwater management efforts that achieve a reversal of the ongoing degradation of water quality caused by urban stormwater discharges entail a long term, multi-faceted approach.

Consistent with the federal stormwater regulations for characterizing discharges from the MS4 (40 C.F.R. §122.26(d)(2)(iii)), the first two permit terms for the District's MS4 program required end-of-pipe monitoring to determine the type and severity of pollutants discharging via the system. The monitoring program was not designed to evaluate receiving water quality *per se*, therefore detection of trends or patterns was not reasonably possible. Today's Final Permit includes requirements for a Revised Monitoring Program, and one of the objectives for the program is to use a suite of approaches and indicators to evaluate and track water quality over the long-term (*see* discussion of Section 5.1 in this Final Fact Sheet).
There have been identified improvements in some areas. For example the *2008 Integrated Report* noted improvements in the diversity of submerged aquatic vegetation in the Potomac River, as well as improvements in fish species richness in Rock Creek. Biota metrics are often the best indicators of the integrity of any aquatic system.

EPA also notes that there are a variety of indirect measures indicative of improvement. The federal stormwater regulations foresaw the difficulty, especially in the near-term, of detecting measurable improvement in receiving waters, and relied instead on indirect measures, such as estimates of pollutant load reductions (40 C.F.R. §122.26(d)(2)(v)). The District documents these types of indirect measures in its annual reports, *e.g.*, tons of solids collected from catch basin clean-outs, amount of household hazardous waste collected, number of trees planted, square footage of green roofs installed, and many other measures of success.[4]

EPA believes that documenting trends in water quality, whether improvements, no change, or even further degradation, is an important element of a municipal water quality program. Today's Final Permit recognizes this principle, both in the types of robust measures required as well as the transition to new monitoring paradigms. EPA encourages all interested parties to provide the District with input during the development of these program elements.

THIS FACT SHEET:

(http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/DC_IR_2008_Revised_9-9-2008.pdf

4 District MS4 Annual Reports can be found at: http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495855.asp

This Final Fact Sheet is organized to correspond with the chronological organization and numbering in today's Final Permit. Where descriptions or discussions may be relevant to more than one element of the Final Permit the reader will be referred to the relevant section(s).

To keep today's Final Fact Sheet of readable length, many of the elements included in the fact sheet published with the Draft Permit (Draft Fact Sheet) on April 21, 2010 have not been repeated, but are referenced. Readers are referred to the Draft Fact Sheet published with the Draft Permit for additional discussion on provisions that have been finalized as proposed.[5] The Final Fact Sheet does discuss significant changes since the 2004 Permit (even if discussed in the Draft Fact Sheet). The Final Fact Sheet also contains additional explanation of the Final Permit where commenters requested additional clarification. In addition, this Final Fact Sheet explains modifications to the Final Permit where provisions were changed in response to comments.

In many cases EPA made a number of very simple modifications to the Final Permit, *e.g.*, a word, phrase, or minor reorganization, simply for purposes of clarification. These modifications were not intended to change the substance of the permit provisions, only to clarify them. Most of those types of edits are not discussed in this Final Fact Sheet, but EPA has provided a Comparison Document of the Draft and Final Permits for readers who would like that level of detail.

Many commenters noted that the Draft Permit was not logically organized. EPA agrees. The major reorganization principles include:

1) There is a new Section 3, Stormwater Management Program (SWMP) Plan consolidating the various plans, strategies and other documents developed in fulfillment of permit requirements.
2) All implementation measures, *i.e.*, those stipulating management measures and implementation policies, are included in Section 4 of today's Final Permit. This includes "Source Identification" elements (Section 3 in the Draft Permit) and "Other Applicable Provisions" elements (Section 8 in the Draft Permit), which included TMDL requirements.
3) All monitoring requirements are consolidated in Section 5 of the Final Permit.
4) All reporting requirements are consolidated in Section 6 of the Final Permit.

EPA also refers readers to the Responsiveness Summary released today along with the Final Permit and Final Fact Sheet, for responses to comments and questions received on the Draft Permit. That document contains additional detailed explanations of the rationale for changes made to the Draft Permit in the Final Permit.

Finally, EPA made significant effort to avoid appending or incorporating by reference other documents containing permit requirements into the Final Permit. In the interest of clarity

5 The Permit and Fact Sheet proposed on April 21, 2010 can be viewed at: http://www.epa.gov/reg3wapd/npdes/draft_permits.html

and transparency EPA, to the extent possible, has included all requirements directly in the permit. Thus, EPA reviewed a variety of documents with relevant implementation measures, *e.g.*, TMDL Implementation Plans and the 2008 Modified Letter of Agreement to the 2004 permit[6], and translated elements of those plans and strategies into specific permit requirements that are now contained in the Final Permit. This Fact Sheet provides an explanation of the sources of provisions that are significant and are a direct result of one of those strategies.

1. DISCHARGES AUTHORIZED UNDER THIS PERMIT

(1.2 Authorized Discharges): The Final Permit authorizes certain non-stormwater discharges, including discharges from water line flushing. One commenter noted that many of these discharges, especially from potable water systems, contain concentrations of chlorine that may exceed water quality standards. EPA agrees, and has therefore clarified that dechlorinated water line flushing is authorized to be discharged under the Final Permit.

(1.4 Discharge Limitations): Comments on the language in Part 1.4 varied widely. Some commenters did not believe it was reasonable to require discharges to meet water quality standards. Other commenters believed this to be an unambiguous requirement of the Clean Water Act.

Today's Final Permit is premised upon EPA's longstanding view that the MS4 NPDES permit program is both an iterative and an adaptive management process for pollutant reduction and for achieving applicable water quality standard and/or total maximum daily load (TMDL) compliance. *See generally,* "National Pollutant Discharge Elimination System Permit Application Regulations for Stormwater Discharges," 55 F.R. 47990 (Nov. 16, 1990).

EPA is aware that many permittees, especially those in highly urbanized areas such as the District, likely will be unable to attain all applicable water quality standards within one or more MS4 permit cycles. Rather the attainment of applicable water quality standards as an incremental process is authorized under section 402(p)(3)(B)(iii) of the Clean Water Act, 33 U.S.C. § 1342(p)(3)(B)(iii), which requires an MS4 permit "to reduce the discharge of pollutants to the maximum extent practicable" (MEP) "and such other provisions" deemed appropriate to control pollutants in municipal stormwater discharges. To be clear, the goal of EPA's stormwater program is attainment of applicable water quality standards, but Congress expected that many municipal stormwater dischargers would need several permit cycles to achieve that goal.

Specifically, the Agency expects that attainment of applicable water quality standards in waters to which the District's MS4 discharges, requires staged implementation and increasingly more stringent requirements over several permitting cycles. During each cycle, EPA will continue to review deliverables from the District to ensure that its activities constitute sufficient progress toward standards attainment. With each permit reissuance EPA will continue to increase

6 District Department of the Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

stringency until such time as standards are met in all receiving waters. Therefore today's Final Permit is clear that attainment of applicable water quality standards and consistency with the assumptions and requirements of any applicable WLA are requirements of the Permit, but, given the iterative nature of this requirement under CWA Section 402(p)(3)(B)(iii), the Final Permit is also clear that "compliance with all performance standards and provisions contained in the Final Permit shall constitute adequate progress toward compliance with DCWQS and WLAs for this permit term" (Section 1.4).

EPA believes that permitting authorities have the obligation to write permits with clear and enforceable provisions and thus the determination of what is the "maximum extent practicable" under a permit is one that must be made by the permitting authority and translated into provisions that are understandable and measurable. In this Final Permit EPA has carefully evaluated the maturity of the District stormwater program and the water quality status of the receiving waters, including TMDL wasteload allocations. In determining whether certain measures, actions and performance standards are practicable, EPA has also looked at other programs and measures around the country for feasibility of implementation. Therefore today's Final Permit does not qualify any provision with MEP thus leaving this determination to the discretion of the District. Instead each provision has already been determined to be the maximum extent practicable for this permit term for this discharger.

EPA modified the language in the Final Permit to provide clarity on the expectations consistent with the preceding explanation. Specifically Section 1.4.2 of the Final Permit requires that discharges 'attain' applicable wasteload allocations rather than just 'be consistent' with them, since the latter term is somewhat ambiguous.

In addition, the general discharge limitation 'no increase in pollutant loadings from discharges from the MS4 may occur to receiving waters' was removed because of the difficulty in measuring, demonstrating and enforcing this provision. Instead, consistent with EPA's belief that the Final Permit must include all of the enforceable requirements that would achieve this principle, the following discharge limitation is substituted: "comply with all other provisions and requirements contained in this permit, and in plans and schedules developed in fulfillment of this permit."

In addition, EPA made the following modifications: "Compliance with <u>the</u> performance standards and provisions contained in <u>Parts 2 through 8 of</u> this permit shall constitute adequate progress towards compliance with DCWQS <u>and WLAs for this permit term</u>" (*underlined text added*) (Section 1.4 of the Final Permit). EPA eliminated circularity with the addition of "Parts 2 through 8", clarifying that this requirement does not circle back to include the statements in 1.4.1 and 1.4.2, but rather interprets them. Also, although WLAs are a mechanism for attainment of water quality standards, EPA added the specific language "and WLAs" to make this concept explicit rather than just implicit. In addition this revised language emphasizes that the specific measures contained in the Final Permit, while appropriate for this permit term, will not necessarily constitute full compliance in subsequent permit terms. It is the expectation that with each permit reissuance, additional or enhanced requirements will be included with the objective

of ensuring that MS4 discharges do not cause or contribute to an exceedance of applicable water quality standards, including attainment of relevant WLAs.

2. LEGAL AUTHORITY, RESOURCES, AND STORMWATER PROGRAM ADMINISTRATION

(2.1 Legal Authority): Several commenters pointed out that there were a number of requirements in the Draft Permit without clear compliance schedules or deadlines, or with deadlines that did not correspond well to others in the permit. In the Final Permit, EPA has made several revisions to address these comments. For example, EPA changed a requirement that deficiencies in legal authority must be remedied "as soon as possible" to a 120-day requirement for deficiencies that can be addressed through regulation, and two years for deficiencies that require legislative action (Section 2.1.1). Also, EPA increased the compliance schedule for updating the District's stormwater regulation from twelve months to eighteen months, *id.,* so that this action could be adequately coordinated with the development of the District's new offsite mitigation/payment-in-lieu program (for more discussion see Section 4.1.3 below).

(2.2 Fiscal Resources): One commenter suggested eliminating the reference to the District's Enterprise Fund since funding was likely to come from a number of different budgets within the District. EPA agrees with this comment and has removed this reference.

On the other hand, many commenters noted that the implementation costs of the District's stormwater program will be significant. EPA agrees. The federal stormwater regulations identify the importance of adequate financial resources [40 C.F.R. §122.26(d)(1)(vi) and (d)(2)(vi)]. In addition, after seeing notable differences in the caliber of stormwater programs across the country, EPA recognizes that dedicated funding is critical for implementation of effective MS4 programs.[7,8,9] In 2009 the District established, and in 2010 revised, an impervious-based surface area fee for service to provide core funding to the stormwater program[10] (understanding that stormwater-related financing may still come from other sources as they fulfill multiple purposes, *e.g.,* street and public right-of-way retrofits). In conjunction with the 2010 rule-making to revise the fee the District issued a Frequently Asked Questions document[11] that indicates the intent to restrict this fee to its original purpose, *i.e.*, dedicated funding to implement the stormwater program and comply with MS4 permit requirements. EPA believes this action is essential, and he expects that the District will maintain a dedicated source of funding for the stormwater program.

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7 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

8 National Association of Flood and Stormwater Agencies, Funded by EPA, *Guidance for Municipal Stormwater Funding* (2006) http://www.nafsma.org/Guidance%20Manual%20Version%202X.pdf

9 EPA, *Funding Stormwater Programs* (2008) http://www.epa.gov/npdes/pubs/region3_factsheet_funding.pdf

10 District of Columbia, Rule 21-566 Stormwater Fees, http://www.dcregs.dc.gov/Gateway/RuleHome.aspx?RuleID=474056

11 District of Columbia, FAQ Document *Changes to the District's Stormwater Fee* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/information2/water.reg.leg/Stormwater_Fee_FAQ_10-5-10_-final.pdf

3. STORMWATER MANAGEMENT PROGRAM (SWMP) PLAN

A number of commenters were confused by the wide variety of plans, strategies and other written documents required by the Draft Permit. A number of commenters were also concerned about public access to several of these documents.

In today's Final Permit EPA is clarifying that any written study, strategy, plan, schedule or other element, existing or new, is part of the District Stormwater Management Program Plan. It is EPA's intent that all elements of the program be described in this central 'Plan'. This does not mean that the Plan cannot consist of separate documents. EPA understands that stand-alone elements may aid in implementation in certain situations. However, EPA is clarifying that all such documents are inherent components of the Plan.

To address the accessibility issue EPA is also requiring that the most current version of the Plan be posted on the District website. As such, all elements that may be documented in separate documents and deliverables must be posted at this location (a hyperlink to any element of the program in a different document is sufficient).

Moreover, today's Final Permit requires the District to public notice a fully updated Plan (to include all existing and new elements required by the Final Permit) within three years of the effective date of this Final Permit, and to then submit that Plan to EPA within four years of the effective date of the Final Permit. This schedule will enable this evaluation of the Plan to be part of EPA's evaluation of the Districts stormwater management program in preparation for the next reissuance of the permit.

The Final Permit requires the District to develop a number of new initiatives. Many commenters raised concerns about the rigor and suitability of these new elements in the absence of a requirement for public input, and in the absence of EPA review and approval. In light of those concerns EPA reviewed all elements of the Draft Permit, and where appropriate has added requirements to the Final Permit both for public notice and opportunity to comment and for submittal to EPA for review and approval. Not every new element has been subjected to this requirement. However, EPA agrees that the opportunity for the public and EPA to review new program elements that will become major components of the stormwater management program is reasonable. Thus, for provisions that EPA believes will be important foundations of the program in years to come, EPA has added a requirement for public notice and EPA review and approval. A new Table 1 in the Final Permit summarizes the elements that must now be submitted to EPA for review and approval.

TABLE 1
Elements Requiring EPA Review and Approval

Element	Submittal Date (from effective date of this permit)
Anacostia River Watershed Trash Reduction Calculation Methodology (4.10)	1 year
Catch Basin Operation and Maintenance Plan (4.3.5.1)	18 months
Outfall Repair Schedule (4.3.5.3)	18 months
Off-site Mitigation/Payment-in-Lieu Program (4.1.3)	18 months
Retrofit Program (4.1.6)	2 years
Consolidated TMDL Implementation Plan (4.10.3)	2 years
Revised Monitoring Program (5.1)	2 years
Revised Stormwater Management Program Plan (3)	4 years

4. IMPLEMENTATION OF STORMWATER CONTROL MEASURES

(4.1 Standard for Long-Term Stormwater Management): One of the fundamental differences between today's Final Permit and earlier permits is the inclusion of measurable requirements for green technology practices, sometimes referred to as "low-impact development" or "green infrastructure." These requirements, which include green roofs, enhanced tree plantings, permeable pavements, and a performance standard to promote practices such as bioretention and water harvesting, are designed to increase the effectiveness of stormwater controls by reducing runoff volumes and associated pollutant loads.[12,13] In past years, stormwater management requirements in permits did not include clear performance goals, numeric requirements or environmental objectives. Today's Final Permit stipulates a specific standard for newly developed and redeveloped sites, and also emphasizes the use of "green infrastructure" controls to be used to meet the performance standard. These permit requirements are intended to improve the permit by providing clarity regarding program performance and promoting the use of technologies and strategies that do not rely solely on end-of-pipe detention measures to manage runoff. EPA notes that much of this emphasis is based on changing paradigms in stormwater science, technology and policy (see discussion below), but also points out that the groundwork for this framework was laid during the prior permit term, and all of the green infrastructure elements agreed to in the 2008 Modified Letter of Agreement to the 2004 Permit.[14]

In the natural, undisturbed environment precipitation is quickly intercepted by trees and other vegetation, or absorbed by soils and humic matter on the surface of the ground where it is

12 The performance of green infrastructure control measures is well-established through numerous studies and reports, many of which are available at http://cfpub2.epa.gov/npdes/greeninfrastructure/research.cfm#research

13 Jay Landers, *Stormwater Test Results Permit Side-by-Side Comparisons of BMPs* (2006) Civil Engineering News http://www.unh.edu/erg/civil_eng_4_06.pdf

14 District Department of the Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222*, (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

used by plants, becomes baseflow (shallow groundwater feeding waterways) or infiltrates more deeply to aquifers. During most storms very little rainfall becomes stormwater runoff where the landscape is naturally vegetated or in cases where there are permeable soils. Runoff generally only occurs with larger precipitation events, which constitute a very small proportion of the storms that occur in Washington, DC. In contrast to natural settings, traditional development practices cover large areas of the ground with impervious surfaces such as roads, driveways, sidewalks, and buildings. In addition, the remaining soils are often heavily compacted and are effectively impervious. Under developed conditions, stormwater runs off or is channeled away even during small precipitation events. The collective force of the increased stormwater flows entering the MS4 and discharging through outfalls into receiving streams scours streambeds, erodes stream banks, and causes large quantities of sediment and other entrained pollutants, such as metals, nutrients and trash, to enter the water body each time it rains[15,16,17]. Stormwater research generally shows a high correlation between the level of imperviousness in a watershed and the degree of overall degradation of water quality and habitat. This principle is so well-settled that EPA has not included individual study results here, but refers interested readers to an excellent compendium of relevant studies compiled by the Maryland Department of Natural Resources at http://www.dnr.state.md.us/irc/bibs/effectsdevelopment.html.

To date stormwater management approaches generally have been focused primarily on flood management, in particular extended detention controls, such as wet ponds or dry detention basins, or on in-pipe or end-of-pipe treatment systems. Extended detention approaches are intended to reduce downstream flooding to the extent necessary to protect the public safety and private and public property. End-of-pipe systems are intended to filter or settle specific pollutants, but typically do not reduce the large suite of pollutants in storm water, nor do anything to address degradation attributable to increased discharge volumes. These approaches occurred largely by default since stormwater permits and regulations, including those with water quality objectives, did not stipulate specific, measurable standards or environmental objectives. In addition, water quality was not the primary concern during the early evolution of stormwater management practices.

There are multiple potential problems with extended detention as a water quality management practice, including the fact that receiving stream dynamics are generally based on balances of much more than just discharge rates.[18] Stream stability, habitat protection and water quality are not necessarily protected by the use of extended detention practices and systems. In fact the use of practices such as wet detention basins often results in continued stream bank

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15 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

16 Schueler, Thomas R., *The Importance of Imperviousness* (2000) Center for Watershed Protection, http://yosemite.epa.gov/R10/WATER.NSF/840a5de5d0a8d1418825650f00715a27/159859e0c556f1c988256b7f007525b9/$FILE/The%20Importance%20of%20Imperviousness.pdf

17 E. Shaver, R. Horner, J. Skupien, C. May, and G. Ridley. *Fundamentals of Urban Runoff Management: Technical and Institutional Issues – 2nd Edition*, (2007) North American Lake Management Society, Madison, WI. http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEE0/$file/Fundamentals_full_manual_lowres.pdf?OpenElement

18 Low Impact Development Center, *A Review of Low Impact Development Policies: Removing Institutional Barriers to Adoption* (2007) http://pepi.ucdavis.edu/mapinfo/pdf/CA_LID_Policy_Review_Final.pdf

destabilization and increased pollutant loadings of sediment, phosphorus and other pollutants due to bank and channel erosion. Numerous studies have documented the physical, chemical and biological impairments of receiving waters caused by increased volumes, rates, frequencies, and durations of stormwater discharges, and the critical importance of managing stormwater flows and volumes to protecting and restoring our nation's waters[19,20].

Traditional stormwater management is very heavily focused on extended detention approaches, *i.e.*, collecting water short-term (usually in a large basin), and discharging it to the receiving water over the period of one to several days, depending on the size of the storm. Extended detention practices are first and foremost designed to prevent downstream flooding and not to protect downstream channel stability and water quality. For decades, water quality protection has been a secondary goal, or one omitted entirely during the design of these facilities. Over time it has become apparent through research and monitoring that these traditional practices do not effectively protect the physical, chemical or biological integrity of receiving waters[21]. Furthermore, operation and maintenance of these systems to ensure they perform as designed requires a level of managerial and financial commitment that is often not provided, further diminishing the effectiveness of these practices from a water quality performance perspective. A number of researchers have documented that extended detention practices fail to maintain water quality, downstream habitat and biotic integrity of the receiving waters.[22,23,24,25] As a result, today's Final Permit shifts the District's practices from extended detention approaches to water quality protection approaches based on retention of discharge volumes and reduced pollutant loadings.

(4.1.1 Standard for Stormwater Discharges from Development): The 2008 National Research Council Report (NRC Report) on urban stormwater confirmed that current stormwater control efforts are not fully adequate. Three of the NRC Report's findings on stormwater management approaches are particularly relevant:

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19 Daren M Carlisle, David M Wolock, and Michael R Meador , *Alteration of streamflow magnitudes and potential ecological consequences: a multiregional assessment*, , Front Ecol Environ, (2010)

20 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

21 EPA, *Protecting Water Quality from Urban Runoff* (2003) http://www.epa.gov/npdes/pubs/nps_urban-facts_final.pdf

22 C.R. MacRae, *Experience from Morphological Research on Canadian Streams: Is Control of the Two Year Frequency Runoff Event the Best Basis for Stream Channel Protection?* (1997) in Effects of Watershed Development and Management on Aquatic Ecosystems, ASCE

23 R. Horner, C. May, E. Livingston, D. Blaha, M. Scoggins, J. Tims & J. Maxted, *Structural and Nonstructural BMPs for Protecting Streams* (2002) Seventh Biennial Stormwater Research & Watershed Management Conference http://www.p2pays.org/ref/41/40364.pdf

24 D.B. Booth & C.R. Jackson, *Urbanization of Aquatic Systems – Degradation Thresholds, Stormwater Detention and the Limits of Mitigation* (1997) Journal of the American Water Resources Association 22(5) http://clear.uconn.edu/projects/TMDL/library/papers/BoothJackson_1997.pdf

25 E. Shaver, R. Horner, J. Skupien, C. May, and G. Ridley. *Fundamentals of Urban Runoff Management: Technical and Institutional Issues – 2nd Edition*, (2007) North American Lake Management Society, Madison, WI. http://www.deq.state.ms.us/mdeq.nsf/0/A8E8B82B89DCDDCE862573530049EEE0/$file/Fundamentals_full_manual_lowres.pdf?OpenElement

1) Individual controls on stormwater discharges are inadequate as the sole solution to stormwater impacts in urban watersheds;
2) Stormwater control measures such as product substitution, better site design, downspout disconnection, conservation of natural areas, and watershed and land-use planning can dramatically reduce the volume of runoff and pollutant loadings from new development; and
3) Stormwater control measures that harvest, infiltrate, and evapotranspire stormwater are critical to reducing the volume and pollutant loading of storms.

The NRC Report points out the wisdom of managing stormwater flow not just for the hydrologic benefits as described above, but because it serves as an excellent proxy for pollutants, *i.e.*, by reducing the volume of stormwater discharged, the amount of pollutants typically entrained in stormwater will also be reduced. Reductions in the number of concentrated and erosive flow events will result in decreased mobilization and transport of sediments and other pollutants into receiving waters. The NRC Report also noted that it is generally easier and less expensive to measure flow than the concentration or load of individual pollutant constituents. For all of these reasons EPA has chosen to use flow volume as the management parameter to implement policies, strategies and approaches.

The objective of effective stormwater management is to replicate the pre-development hydrology to protect and preserve both the water resources onsite and those downstream by eliminating or reducing the amount of both water and pollutants that run off a site, enter the MS4, and ultimately are discharged into adjacent water bodies. The fundamental principle is to employ systems and practices that use or mimic natural processes to: 1) infiltrate and recharge, 2) evapotranspire, and/or 3) harvest and use precipitation near to where it falls to earth.

Retaining the volume of all storms up to and including the 95th percentile storm event is approximately analogous to maintaining or restoring the pre-development hydrology with respect to the volume, rate, and duration of the runoff for most sites. In the mid-Atlantic region the 95th percentile approach represents a volume that appears to reasonably represent the volume that is fully infiltrated in a natural condition and thus should be managed onsite to restore and maintain this pre-development hydrology for the duration, rate and volume of stormwater flows. This approach also employs and/or mimics natural treatment and flow attenuation methods, *i.e.*, soil and vegetation, that existed on the site before the construction of infrastructure (*e.g.*, building, roads, parking lots, driveways). The 95th percentile volume is not a “magic” number; there will be variation among sites based on site-specific factors when replicating predevelopment hydrologic conditions. However, this metric represents a good approximation of what is protective of water quality on a watershed scale, it can be easily and fairly incorporated into standards, and can be equitably applied on a jurisdictional basis.

In the Draft Permit EPA proposed two sets of performance standards to be implemented by the District: on-site retention of the 90th percentile volume, or 1.2” for all non-federal projects, and on-site retention of the 95th percentile volume, or 1.7” for all federal projects.

In determining ‘maximum extent practicable’ for discharges from development involving

federal facilities EPA considered several factors in the Draft Permit:

1) Energy Independence and Security Act (EISA) Section 438 and EPA Guidance[26]: Entitled "Storm water runoff requirements for federal development projects," EISA section 438 provides: "The sponsor of any development or redevelopment project involving a Federal facility with a footprint that exceeds 5,000 share feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow."

   Guidance for federal agencies to implement EISA section 438 has been in place since December 2009, and sets forth two optional approaches to meeting the statutory requirements: a performance objective to retain the volume from the 95th percentile storm on site for any federally sponsored new development or redevelopment project and a site-specific hydrologic analysis to determine the pre-development runoff conditions and to develop the site such that the post-development hydrology replicates those conditions "to the maximum extent technically feasible."

2) Executive Orders:
   a. Executive Order 13508 - Chesapeake Bay Protection and Restoration: Calling the Chesapeake Bay a national treasure, E,O. 13508, issued May 12, 2009, establishes a mandate for federal leadership, action and accountability in restoring the Bay. Among the provisions of the Executive Order, section 202(c) directs the strengthening of stormwater management practices at Federal facilities and on Federal lands within the Chesapeake Bay watershed. In addition, section 501 directs federal agencies to implement controls as expeditiously as practicable on their own properties. As required by section 502, EPA issued guidance for federal land management practices to protect and restore the Bay, which includes guidance for managing existing development, as well as redevelopment, new development Thus federal agencies have an executive directive to be leaders in stormwater management in the District and throughout the Chesapeake Bay watershed.[27]

   b. Executive Order 13514 - Federal Leadership in Environmental, Energy, and Economic Performance E.O 13514, issued Oct. 5, 2009, directs the federal government to "lead by example" and includes a requirement for federal agencies to implement EPA's EISA Section 438 guidance (see Sections 2(d)(iv)[28] and 14).

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26 EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009) http://www.epa.gov/owow_keep/nps/lid/section438/

27 EPA, *Guidance for Federal Land Management in the Chesapeake Bay Watershed*, Chapter 3. Urban and Suburban, (2010) 841-R-10-002 (http://www.epa.gov/owow_keep/NPS/chesbay502/pdf/chesbay_chap03.pdf)

28 Sec. 2. Goals for Agencies. In implementing the policy set forth in Section 1 of this order, and preparing and implementing the Strategic Sustainability Performance Plan called for in Section 8 of this order, the head of each agency shall: . . . (d) improve water use efficiency and management by: . . . (iv) implementing and

3) Water Quality**:** These performance standards are aappropriate as water quality-based effluent limitations in the Final Permit. In order to meet the necessary water quality requirements of the Clean Water Act, and to be consistent with the assumptions and requirements of the wasteload allocations for the Chesapeake Bay TMDL, EPA has determined that this performance standard is necessary. In fact, the District's final Phase I WIP acknowledges reasonable assurance demonstration for meeting its obligations to implement the Chesapeake Bay TMDL on an expectation that federal new development and redevelopment projects will achieve a 1.7" stormwater retention objective[29].

EPA concluded in the Draft Permit, and maintains in the Final Permit, that in this first permit in which a performance standard is being required, a retention standard of 1.2" represents the "maximum extent practicable" (MEP) for the District to implement at this time. In the District of Columbia area the 90th percentile event volume is estimated at 1.2 inches. This volume was calculated from 59 years (1948-2006) of rainfall data collected at Reagan National Airport using the methodology detailed in the Energy Independence and Security Act (EISA) Section 438 Guidance[30]. EPA expects that the performance objective shall be accomplished largely by the use of practices that infiltrate, evapotranspire and/or harvest and use rainwater.

EPA's MEP determination included evaluating what has been demonstrated to be feasible in the mid-Atlantic region as well as in other parts of the country. Because on-site retention of the 90th percentile rainfall event volume and analogous approaches have been successfully implemented in other locations across the nation as requirements of stormwater permits, state regulations and local standards [31,32,33,34,35,36,37,38,39] and under a wide variety of climates and

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achieving the objectives identified in the stormwater management guidance referenced in Section 14 of this order. Sec. 14. Stormwater Guidance for Federal Facilities. Within 60 days of the date of this order, the Environmental Protection Agency, in coordination with other Federal agencies as appropriate, shall issue guidance on the implementation of Section 438 of the Energy Independence and Security Act of 2007 (42 U.S.C. 17094).

29 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010)
http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Coluimbia_WIP_Bay_TMDL.pdf

30 EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009)
http://www.epa.gov/owow_keep/nps/lid/section438/

31 EPA, *The Municipality of Anchorage and the Alaska Department of Transportation and Public Facilities Municipal Separate Storm Sewer System Permit*, NPDES No. AKS052558 (2010)
http://yosemite.epa.gov/r10/water.nsf/NPDES+Permits/MS4+requirements+-+Region+10/$FILE/ATTCZX11/AKS052558%20FP.pdf

32 California Regional Water Quality Control Board Los Angeles Region, *Ventura County Municipal Separate Storm Sewer System Permit*, NPDES No. CAS004002 (2009)
http://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/ventura_ms4/Final_Ventura_County_MS4_Permit_Order_No.09-0057__01-13-2010.pdf

33 Montana Department of Environmental Quality, *General Permit for Stormwater Discharge Associated with Small Municipal Separate Storm Sewer System*, NPDES No. MTR040000 (2010)
http://www.deq.mt.gov/wqinfo/mpdes/StormWater/ms4.mcpx

34 Tennessee Department of Environment and Conservation, *General Permit for Discharges from Small Municipal Separate Storm Sewer Systems*, NPDES No. TNS000000, (2010)
http://state.tn.us/environment/wpc/stormh2o/finals/tns000000_ms4_phase_ii_2010.pdf

conditions, EPA considers this performance standard to be proven and therefore 'practicable' at this point in time. EPA believes that application of this performance standard will result in a significant improvement to the *status quo* and that it will provide notable water quality benefits. This approach will also provide a sound foundation and framework for future management approaches, strategies, measures and practices as the program evolves over subsequent permit cycles. In this context, EPA notes that there may be a need to improve upon this standard in the future, and expects to evaluate implementation success, performance of practices and the overall program, and water quality in the receiving waters when determining whether or not to modify this requirement in a future permit cycle.

EPA received a number of comments on these proposed development performance standards. Many commenters supported this approach. A few were opposed, largely to the numbers rather than the retention framework. Only one federal agency, the Department of Defense, to whom the 95th percentile standard would apply, opposed this provision, on the basis that they should not be subject to the higher standard.

In response to comments EPA revised the Final Permit to require the District to implement a performance standard of on-site retention of 1.2" for all development projects, regardless of who owns or operates the development. EPA's rationale for including a single performance standard for all development projects is based on the fact that this permit is issued to the District of Columbia and the MEP determination must be based on what is practicable for that permittee even though certain property owners discharging to the District's MS4 may have the ability as well as the mandate to achieve more. EPA concludes that it would be not be inappropriate to include the 1.7" performance standard in a permit to a federal permittee. This permit, however, is being issued to a non-federal permittee.

Therefore today's Final Permit includes a performance standard for stormwater discharges from development that disturbs an area of land greater than or equal to 5,000 square feet. The requirement must be in effect 18 months from today. The Permit requires the design, construction, and maintenance of stormwater management practices to retain rainfall onsite, and

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35 West Virginia Department of Environmental Protection, General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems, NPDES WV0116025 (2009) http://www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Documents/WV%20MS4%202009%20General%20Permit.pdf

36 North Carolina Department of Environment and Natural Resources, *General Permit to Construct Operate and Maintain Impervious Areas and BMPs Associated with a Residential Development Disturbing Less than 1 Acre*, State Permit No. SWG050000 (2008) http://portal.ncdenr.org/c/document_library/get_file?uuid=724171cc-c208-4f39-a68c-b4cd84022cd9&groupId=38364

37 State of Maryland, *Stormwater Management Act of 2007*, Environment Article 4 §201.1 and §203 http://www.mde.state.md.us/programs/Water/StormwaterManagementProgram/Pages/Programs/WaterPrograms/SedimentandStormwater/swm2007.aspx

38 City of Philadelphia, *Stormwater Regulations*, §600.0 Stormwater Management (2006) http://www.phillyriverinfo.org/WICLibrary/StormwaterRegulations.pdf

39 EPA, See Chapter 3, *Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure* (2010) http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf

prevent the off-site discharge of the rainfall volume from all events less than or equal to the 90th percentile rainfall event.

The District's Phase I Watershed Implementation Plan (WIP) for the Chesapeake Bay TMDL[40] based its proposed nutrient and sediment reductions, and the associated reasonable assurance demonstration, on these performance standards, i.e., 1.2" for non-federal projects and 1.7" for federal projects. In establishing the Chesapeake Bay TMDL, EPA used the information in the Bay jurisdictions' final Phase I WIPs, including that of the District, where possible. Thus the wasteload allocations (WLAs) in the TMDL[41] are based, in part, on the expectation that all development in the District will be subject to these standards.

EPA notes that all federal facilities still must comply with the EISA requirements. The District will track the performance of federal development projects subject to the District's stormwater regulations, and therefore document those achieving better than 1.2" onsite retention. However, the District cannot, nor should they be expected to, enforce the EISA requirements.

EPA dropped the option for determination of the predevelopment runoff conditions based on a full hydrologic and hydraulic analysis of the site. EISA guidance had provided this option to federal facilities and EPA did not want to provide an *a priori* limitation to federal projects in the Draft Permit, but rather provide the District with the flexibility to include it if they determined it to be administratively feasible. However, since the Final Permit no longer includes an additional requirement for federal facilities, this provision is no longer necessary to provide federal facilities options consistent with EISA. With respect to non-federal facilities, in the seventeen months since the Draft Permit was proposed the District has continued with the process of finalizing their stormwater regulations, and has determined that inclusion of this option is not necessary or reasonable, and EPA concurs.

Several commenters raised the issue of costs associated with implementation of the performance standard. EPA has responded by noting that there are many locations where this stormwater management framework has already been implemented (*see* footnote 22), and also where costs have been well documented to be competitive or instances where infrastructure costs were less expensive because of avoided costs, *e.g.*, reduced infrastructure, narrower roads and otherwise fewer impervious surfaces, reduced or eliminated curbs and gutters, no or fewer buried storm sewers. In addition, where cost-benefit analyses have been conducted, green infrastructure practices are even more cost effective because of the wide array of additional benefits[42] that do not accrue when traditional stormwater management practices are used.[43,44,45,46,47,48,49,50,51,52,53,54]

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40 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Coluimbia_WIP_Bay_TMDL.pdf

41 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html

42 EPA, Managing Wet Weather with Green Infrastructure website, Benefits: (http://cfpub2.epa.gov/npdes/home.cfm?program_id=298)

43 LimnoTech, *Analysis of the Pollution Reduction Potential of DC Stormwater Standards* (2009)

44 EPA, *Reducing Stormwater Costs through Low Impact Development Strategies and Practices* (2007)

Several commenters took issue with the inclusion of any numeric performance standard for discharges from development. As discussed above EPA believes that stormwater discharge permits should include clear and enforceable standards, and where feasible, numeric limits are preferred. As discussed above, for the purpose of requiring the permittee to ensure adequate management of discharges from development, a numeric performance standard is a proven means of establishing a clear and enforceable requirement. EPA recognizes that there will be development projects that may not be able to meet the performance standard on site because of site conditions or site activities that preclude the use of extensive green infrastructure practices. Thus as proposed in the Draft Permit, the Final Permit requires the District to develop an alternative means of compliance for development projects under these circumstances (*see* discussion of Section 4.1.3 Off-Site Mitigation and/or Fee-in-Lieu for all Facilities).

In July 2010 EPA Region III issued *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*.[55] This document provides direction to all NPDES permitting authorities in the Region and establishes expectations for the next generation of MS4 permits. Based on many of the reasons already articulated in this Final Fact Sheet, EPA directed states to incorporate performance-based standards into permits and regulations with the objective of maintaining or restoring a pre-development hydrologic site condition for newly developed and redeveloped sites. In fact most states with authorized NPDES permit programs in the Chesapeake

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http://www.epa.gov/owow/NPS/lid/costs07/

45 Report to Natural Resources Defense Council and Waterkeeper Alliance, *Economic Costs, Benefits and Achievability of Stormwater Regulations for Construction and Development Activities* (2008)

46 Meliora Environmental Design LLC, *Comparison of Environmental Site Design for Stormwater Management for Three Redevelopment Sites in Maryland* (2008)

47 City of Portland Environmental Services, *Cost-Benefit Evaluation of Ecoroofs* (2008) http://www.portlandonline.com/bes/index.cfm?a=261053&c=50818

48 Natural Resources Defense Council, *Rooftops to Rivers, Green Strategies for Controlling Stormwater and Combined Sewer Overflows* (2006) http://www.nrdc.org/water/pollution/rooftops/rooftops.pdf

49 Riverkeeper, *Sustainable Raindrops* (2006) http://www.riverkeeper.org/wp-content/uploads/2009/06/Sustainable-Raindrops-Report-1-8-08.pdf

50 City of Philadelphia Water Department, *A Triple Bottom Line Assessment of Traditional and Green Infrastructure Options for Controlling CSO Events in Philadelphia's Watersheds* (2009) http://www.epa.gov/npdes/pubs/gi_phil_bottomline.pdf

51 Richard R. Horner, *Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices for Ventura County,* and *Initial Investigation of the Feasibility and Benefits of Low-Impact Site Development Practices for the San Francisco Bay Area,* and *Supplementary Investigation of the Feasibility and Benefits of Low-Impact Site Development Practices for the San Francisco Bay Area,* (2007) http://docs.nrdc.org/water/files/wat_09081001b.pdf

52 J. Hathaway and W.F. Hunt. *Stormwater BMP Costs*. (2007) www.bae.ncsu.edu/stormwater/PublicationFiles/DSWC.BMPcosts.2007.pdf.

53 Center for Neighborhood Technology and American Rivers, *The Value of Green Infrastructure: A Guide to Recognizing Its Economic, Environmental and Social Benefits* (2010) http://www.cnt.org/repository/gi-values-guide.pdf

54 J. Gunderson, R. Roseen, T. Janeski, J. Houle, M. Simpson. *Cost-Effective LID in Commercial and Residential Development* (2011) Stormwater http://www.stormh2o.com/march-april-2011/costeffective-lid-development-1.aspx

55 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

Bay Watershed have incorporated numeric on-site retention standards into final or draft regulations or permits.

In addition, this provision is consistent with the 2008 Modified Letter of Agreement to the 2004 Permit[56] in which the District committed to promulgate stormwater regulations that implement "Low Impact Development", *i.e.*, measures that infiltrate, evapotranspire and harvest stormwater.

(4.1.2 Code and Policy Consistency, Site Plan Review, Verification and Tracking): In Region III's *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed*, EPA emphasized the importance of establishing accountability measures around performance measures. The best standards will not provide the necessary environmental outcomes if they are not properly implemented, and the only way to ensure proper implementation is to ensure that stormwater control measures are properly designed and installed.

Today's Final Permit requires the District to ensure that all codes and policies are consistent with the standards in the Final Permit, and to establish and maintain adequate site plan review procedures, and a post-construction verification process (such as inspections or submittal of as-builts) to ensure that controls are properly installed.

Ensuring that local codes, ordinances and other policies are consistent with the requirements of the permit is critical element of success. A number local governments attempting to implement green infrastructure measures have found their own local policies to be one of the most significant barriers[57], *e.g.*, parking codes that require over-sized parking lots, plumbing codes that don't allow rainwater harvesting for indoor uses, or street design standards that prohibit the use of porous/pervious surfaces. EPA has published a document, the *Water Quality Scorecard*, to assist local governments in understanding and identifying these local policy barriers and also provides options for eliminating them.[58] EPA is not requiring the District to use the *Scorecard* or any other specific method, but recommends a systematic assessment of local policies in the context of the requirements of the Final Permit in order to comply with the provisions of this Section.

EPA and others have long recognized the importance of site plan review in ensuring that development projects are designed according to standards and regulations, and a verification process following construction that projects were constructed as designed and approved.[59,60,61,62]

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56 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

57 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

58 EPA, *Water Quality Scorecard, Incorporating Green Infrastructure Practices and the Municipal, Neighborhood and Site Scales* (2009) http://www.epa.gov/smartgrowth/pdf/2009_1208_wq_scorecard.pdf

59 EPA, *Post-Construction Plan Review*, Menu of BMPs http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=factsheet_results&view=specific&bmp=123

Most local governments, including the District, already have some form of site plan review and post-construction verification process for development projects. Today's Final Permit includes them as critical accountability elements of the District stormwater program.

In addition, today's Final Permit requires the District to track volume reductions from all projects. This is a critical element of determining whether wasteload allocations are being achieved.

One commenter noted that EPA had not imposed a clear compliance schedule for this requirement. The Final Permit includes a deadline of the end of the permit term for full compliance with this requirement, acknowledging that updating codes, ordinances and other policies may be a time-consuming process that typically requires consultation and support from elected officials, coordination amongst multiple departments and agencies, e.g., the Office of Planning, the Department of Transportation and the Department of the Environment, as well as public involvement.

(4.1.3 Off-Site Mitigation and/or Fee-in Lieu for all Facilities): Today's Final Permit requires the District to establish a program for Off-site Mitigation and/or Fee-In-Lieu within 18 months of the effective date of the Final Permit. The Final Permit provides the District flexibility to develop a program with either one of those elements or both. Specifically the Permit states:

The program shall include at a minimum:

1) Establishment of baseline requirements for on-site retention and for mitigation projects. On-site volume plus off-site volume (or fee-in-lieu equivalent or other relevant credits) must equal no less than the relevant volume in Section 4.1.1;
2) Specific criteria for determining when compliance with the baseline requirement for on-site retention cannot technically be met based on physical site constraints, or a rationale for why this is not necessary;
3) For a fee-in-lieu program, establishment of a system or process to assign monetary values at least equivalent to the cost of implementation of controls to account for the difference in the performance standard, and the alternative reduced value calculated; and
4) The necessary tracking and accounting systems to implement this section, including policies and mechanisms to ensure and verify that the required stormwater practices on the original site and appropriate required off-site practices stay in place and are adequately maintained.

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60 Center for Watershed Protection, *Managing Stormwater in Your Community, A Guide for Building an Effective Post-Construction Program* (2008) http://www.cwp.org/documents/cat_view/76-stormwater-management-publications/90-managing-stormwater-in-your-community-a-guide-for-building-an-effective-post-construction-program.html

61 EPA, *MS4 Permit Improvement Guide* (2010) http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

62 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

This provision is included in today's Final Permit in acknowledgement that meeting the performance standard in 4.1.1 may be challenging in some situations. The NRC Report noted that an offset system is critical to situations when on-site stormwater control measures are not feasible.[63] In cases where a full complement of onsite controls is not feasible, offsite practices should be employed that result in net improvements to watershed function and water quality at the watershed scale. The *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* contemplates offsets in MS4 programs.[64] EPA has also articulated expectations in the Chesapeake Bay TMDL that it expects the Bay jurisdictions to account for growth via offset programs that are consistent with Section 10 and Appendix S of the Chesapeake Bay TMDL.[65]

EPA received numerous comments on this provision. No commenter was opposed to an offset program *per se*, but there were various opinions on how it should function. Because there was so much general interest in how this program would be shaped, EPA is responding to these comments by requiring the program be subject to public notice followed by submittal to and review by EPA. EPA believes this provides all of those with an interest in this program the opportunity to provide meaningful input. EPA will also review the program to ensure that it has adequate tracking and enforceability components, and meets the water quality objectives of the Final Permit. It is EPA's expectation that these mechanisms will be described by the permittee in the proposed implementation scheme. EPA emphasizes that accountability measures (*e.g.*, inspections, maintenance, tracking) will be critical to ensure the success of the program, and therefore the District's plan will be closely scrutinized for those measures prior to implementation.

The Final Permit includes an option for the District to include incentives for other environmental objectives, e.g., carbon sequestration, in the offset program. As noted, because of the wide array of opinions EPA feels that consideration of some of these other environmental objectives deserve a full vetting by the community. The District is not required to include any incentives or credits along these lines in the program. If it chooses to do so, anything implemented to achieve those other environmental objectives must be subject to the same level of site plan review, inspection, and operation and maintenance requirements as stormwater controls implemented in fulfillment of other permit requirements.

Finally, for the duration of this permit term, the Final Permit exempts District owned and operated transportation rights-of-way projects from the requirement to mitigate stormwater off-site or pay into a fee-in-lieu program for development projects where the on-site performance standard cannot be met. This decision was based on the District request for short-term relief while the District Department of Transportation develops new stormwater management design, construction, and operation and maintenance processes, protocols, requirements and

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63 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

64 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

65 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html

specifications for transportation systems and public rights of way. EPA notes that this exemption does not apply to other District owned projects.

(4.1.4 Green Landscaping Incentives Program): Green infrastructure regulatory and incentive programs are becoming common across the country.[66,67] Landscaping requirements that provide flexibility and a suite of options from which to select appropriate green infrastructure practices and systems, e.g. Seattle's Green Factor[68], have proven to be quite popular with developers, land owners and municipal officials.

The green landscaping provision is consistent with the 2008 Modified Letter of Agreement to the 2004 Permit[69] that articulated a long list of specific green infrastructure measures to be implemented, coupled with the commitment by the District to develop green infrastructure policies and incentives. Because these green landscaping provisions fill an important gap in the District's suite of green infrastructure-related policies, EPA specifically identified landscaping as an important area for development of incentives.

Other than general support EPA received little comment on this provision, thus the Final Permit has not been modified from the Draft Permit.

(4.1.5 Retrofit Program for Existing Discharges): Changes in land cover that occurred when urban and urbanizing areas were developed have changed both the hydrology and pollutant loadings to receiving waters and have led to water quality problems and stream degradation. In order to protect and restore receiving waters in and around the District stormwater volume and pollutant loadings from sites with existing development must be reduced. Due to historical development practices, most of these areas were developed without adequate stormwater pollutant reduction or water quality-related controls. To compensate for the lack of adequate stormwater discharge controls in these areas, EPA is requiring the District to include retrofit elements in the stormwater management program.[70,71,72]

EPA has acknowledged the importance of including retrofit requirements in MS4 permits.[73,74] The Chesapeake Bay TMDL allocations are founded on the expectation of

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66 EPA, *Green Infrastructure Incentive Mechanisms*, Green Infrastructure Municipal Handbook Series, (2009) http://www.epa.gov/npdes/pubs/gi_munichandbook_incentives.pdf

67 EPA, *Green Infrastructure Case Studies: Municipal Policies for Managing Stormwater with Green Infrastructure* (2010) http://www.epa.gov/owow/NPS/lid/gi_case_studies_2010.pdf

68 City of Seattle, *Seattle Green Factor*, http://www.seattle.gov/dpd/Permits/GreenFactor/Overview/

69 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

70 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

71 Schueler, Thomas. *Urban Subwatershed Restoration Manual No. 1: An Integrated Framework to Restore Small Urban Watersheds* (2005)

72 EPA, *Green Infrastructure Retrofit Policies*, Managing Wet Weather with Green Infrastructure Municipal Handbook Series (2008) http://www.epa.gov/npdes/pubs/gi_munichandbook_retrofits.pdf

73 EPA, *MS4 Permit Improvement Guide* (2010) EPA 833-R-10-001,

stormwater retrofits in the District (*see* Section 8 of the TMDL[75]), based on actions outlined in the District's final Phase I WIP developed for the Chesapeake Bay TMDL.[76]

EPA received quite a few comments on this set of requirements. Some commenters strongly approved of the retrofit provisions in the Draft Permit, while others expressed concerns.

Today's Final Permit requires the District to develop performance metrics for retrofits, using the performance standard in Section 4.1.1 as the starting point, *i.e.*, if projects can meet the environmental objectives specified in Part 4.1.1 they should. However, understanding the challenges associated with retrofitting some sites, the Final Permit allows that the performance metrics for retrofit projects may vary from the performance standard in 4.1.1, *e.g.*, different requirements may apply to differing sets of circumstances, site conditions or types of projects. EPA believes the most important first step in a robust retrofit program is to set stringent environmental objectives, thus the requirement to develop clear and specific performance standards. EPA fully expects the District to utilize this permit term to develop design, construction and operation and maintenance protocols to meet the requisite performance standards.

Several modifications were made to this provision:

1) Because there was so much interest in this provision EPA added a requirement for public notice.
2) Because there were so many opinions on how this program should function, EPA removed some of the criteria in the Final Permit to allow the community to shape the program. In exchange EPA included a requirement that the relevant performance metrics be submitted to EPA for review and approval.
3) The compliance schedule for development, public notice and submittal to EPA of performance metrics for a retrofit program has been extended from one year to 18 months at the request of the District. EPA believes the additional time will allow better coordination of the offset program with the District's stormwater regulations (also with an 18 month compliance schedule), and allow adequate time for a public notice process and an EPA review.

Also included in the permit is a requirement that the District must work with federal agencies to document federal commitments to retrofitting their properties. Consistent with Executive Order 13508 on the Chesapeake Bay, the federal strategies developed pursuant thereto, and in fulfillment of the Chesapeake Bay TMDL, federal agencies have obligations to

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http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

74 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

75 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html

76 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Coluimbia_WIP_Bay_TMDL.pdf

implement substantive stormwater controls. In order to accurately account for loads from federal lands that discharge through the District MS4 system, the District needs to be able to track the pollutant reductions resulting from federal actions. To do so the District will need to identify federal facilities and properties and work with federal agencies to identify retrofit opportunities on federal lands and properties and track progress in retrofitting these lands and properties.

In addition, the Final Permit requires the District to make pollutant load and volume reduction estimates for all retrofit projects for the nine pollutants in Table 4, and by each of the major District watersheds (Anacostia River, Rock Creek, Potomac River).

The Final Permit requires the District to implement retrofits to manage runoff from 18,000,000 square feet of impervious surfaces during the permit term. Of that total, 1,500,000 square feet must be in transportation rights-of-way. Although these initial drainage area objectives are not especially aggressive, EPA believes that a strong foundation for the retrofitting program must first be established. EPA can then set more aggressive drainage area objectives in subsequent permits. In its comments on the Draft Permit the District contended that the requirement in the Draft Permit for the retrofitting of 3,600,000 square feet of impervious surfaces in transportation rights-of-way was more than it could accomplish in a single permit term. The District suggested 1,500,000 square feet, almost 60% less than what was required in the Draft Permit would be achievable. In consideration of these comments, the total square footage of retrofitted impervious surfaces that must be in transportation rights-of-way is 1,500,000 square feet. EPA notes that the total square footage retrofit requirement is unchanged. EPA believes that this requirement will establish a strong foundation for the implementing a retrofitting program overall and in transportation rights-of-way, which can be followed in subsequent permits with more aggressive drainage area objectives. In addition, the Final Permit includes an additional provision that is intended to enhance the District's retrofit opportunities (*see* next paragraph).

The Final Permit establishes a requirement for the District to adopt and implement stormwater retention requirements for properties where less than 5,000 square feet of soil is being disturbed but where the buildings or structures have a footprint that is greater than or equal to 5,000 square feet and are undergoing substantial improvement. Substantial improvement, as consistent with District regulations at 12J DCMR § 202, is any repair, alteration, addition, or improvement of a building or structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the improvement or repair is started. Although this specific element was not included in the Draft Permit, it reflects the fact that the District has already considered this provision in their proposed stormwater regulations, and is consistent with the overall retrofit approach in the Draft Permit. Both the District and EPA believe this will promote retrofitting on smaller sites that would not otherwise be subject to the performance standard in the stormwater regulations.

This section of the Final Permit also requires the District to ensure that every major renovation/ rehabilitation project for District-owned properties within the inventory of Department of Real Estate Services (DRES) and Office of Public Education Facilities Modernization (OPEFM) includes on-site retention measures to manage stormwater. This

requirement is based in part on EPA's understanding that these two agencies have control over most District buildings and renovation projects in the District. This provision was in Section 4.2 Operation and Maintenance of Stormwater Capture Practices of the Draft Permit, and was moved to Section 4.1.5 of the Final Permit since it is a retrofit requirement rather than a maintenance requirement.

(4.1.6 Tree Canopy): Several studies have documented the capacity for planting additional trees in the District and quantified the benefits.[77,78,79,80] The District commitments to the tree planting requirements of the Final Permit are documented in the 2008 Modified Letter of Agreement to the 2004 Permit,[81] and the District's Chesapeake Bay TMDL WIP.[82] The number was derived from the District Urban Tree Canopy Goal[83] of planting 216,300 trees over the next 25 years, an average of 8,600 trees per year District-wide. Adjusting this number for the MS4 area of the District, the Final Permit requires the District to develop a strategy to plant new trees at a rate of at least 4,150 annually.

There was some interest from commenters in providing input to the tree canopy strategy, thus the Final Permit includes a requirement for the District to public notice this strategy. Also, in response to several comments, EPA has clarified the annual number as a net increase in order to account for mortality.

(4.1.7 Green Roof Projects): Quite a few studies have documented the water quality benefits of green roofs.[84,85,86] The Green Build-out Model, a project specifically carried out to

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77 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, DC* (2007) (http://www.caseytrees.org/planning/greener-development/gbo/index.php).

78 University of Vermont and the U.S. Forest Service, A Report on Washington D.C.'s Existing and Potential Tree Canopy (2009) http://www.caseytrees.org/geographic/key-findings-data-resources/urban-tree-canopy-goals/documents/UnivofVermontUTCReport4-17-09.pdf

79 Casey Trees, et al. *See* several District tree inventories: http://www.caseytrees.org/geographic/tree-inventory/community/index.php

80 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, D.C.* (2007) http://www.caseytrees.org/planning/greener-development/gbo/documents/GBO_Model_Full_Report_20051607.pdf

81 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

82 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Coluimbia_WIP_Bay_TMDL.pdf

83 Casey Trees, Urban Tree Canopy Goal website: http://www.caseytrees.org/geographic/key-findings-data-resources/urban-tree-canopy-goals/index.php

84 EPA, *Green Roofs for Stormwater Runoff Control* (2009) http://www.epa.gov/nrmrl/pubs/600r09026/600r09026.pdf

85 E. Oberndorfer et al, *Green Roofs as Urban Ecosystems: Ecological Structures, Functions, and Services* (2007) BioScience 57(10):823-833 http://www.bioone.org/doi/full/10.1641/B571005

86 M. Hathaway, W.F. Hunt, G.D. Jennings, *A Field Study of Green Roof Hydrologic and Water Quality Performance* (2008) Transactions of American Society of Agricultural and Biological Engineers, Vol. 51(1): 37-44 http://www.bae.ncsu.edu/people/faculty/jennings/Publications/ASABE%20Hathaway%20Hunt%20Jennings.pdf

evaluate the potential in the District for using green roofs and other green infrastructure measures to reduce flows and pollutants from the District's wet weather systems, documented significant opportunities for green roof implementation.[87]

The District commitments to green roof implementation are documented in the 2008 Modified Letter of Agreement to the 2004 Permit,[88] and the District Chesapeake Bay TMDL Watershed Implementation Plan.[89] The District is required to evaluate the feasibility of installing green roofs on District-owned buildings, and to install at least 350,000 square feet of green roof during the permit term.

(4.2 Operation and Maintenance of Retention Practices): Operation and maintenance, required pursuant to 40 C.F.R. 122.26(d)(2)(iv)(A)(*1*) and (*3*), is critical for the continued performance of stormwater control measures.[90,91] EPA has consistently noted the importance of operation and maintenance in regulatory guidance.[92,93,94] Today's Final Permit requires the District to ensure adequate maintenance of all stormwater control measures, both publicly and privately owned and operated.

The District has two years from the effective date of the Final Permit to develop and implement operation and maintenance protocols for all District owned and operated stormwater management practices. The District is also required to provide regular and ongoing training to all relevant contractors and employees.

The District is required to develop operation and maintenance mechanisms to ensure that stormwater practices are maintained and operated to meet the objectives of the program and that they continue to function over multiple permit cycles to provide the water quality benefits intended by design. Such mechanisms may include deed restrictions, ordinances and/or maintenance agreements to ensure that all non-District owned and operated stormwater control measures are adequately maintained. In addition the District must develop and/or refine

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87 Casey Trees, *The Green Build-out Model: Quantifying the Stormwater Management Benefits of Trees and Green Roofs in Washington, D.C.* (2007) http://www.caseytrees.org/planning/greener-development/gbo/documents/GBO_Model_Full_Report_20051607.pdf

88 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

89 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Coluimbia_WIP_Bay_TMDL.pdf

90 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

91 EPA Website: Stormwater Control Operation and Maintenance. http://www.epa.gov/owow/NPS/ordinance/stormwater.htm

92 EPA, *MS4 Permit Improvement Guide* (2010) EPA 833-R-10-001, http://www.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

93 EPA, *MS4 Program Evaluation Guidance* (2007) EPA-833-R-07-003, http://www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf

94 EPA, *Urban Stormwater Approach for the Mid-Atlantic Region and the Chesapeake Bay Watershed,* (2010) http://www.epa.gov/reg3wapd/pdf/pdf_chesbay/MS4GuideR3final07_29_10.pdf

verification mechanisms, such as inspections, and an electronic inventory system to ensure the long-term integrity of stormwater controls in the District.

In addition the District is required to develop a Stormwater Management Guidebook and associated training within eighteen months of the effective date of the Final Permit. This requirement is based on commitments in the 2008 Modified Letter of Agreement to the 2004 Permit[95]. Completion of the Guidebook has been delayed pending finalization of the District's revised stormwater regulations. However EPA expects Guidebook completion to parallel finalization of the District's revised stormwater regulations, which incorporate the standards and requirements of the Final Permit.

(4.3 Management of District Government Areas): Requirements in this section of the Final Permit largely continue provisions in the 2004 Permit. EPA received few comments on most elements of this section of the Draft Permit. The following revisions were made:

1) The District now must notify not only public health agencies within 24-hours in the event of a sanitary sewer overflow, but also ensure adequate public notification procedures within that same time period (Section 4.3.1 of the Final Permit). EPA emphasizes that this provision in no way authorizes sanitary sewer overflow discharges either directly or via the MS4. Those discharges are expressly prohibited.
2) Within 18 months of the effective date of the Final Permit, the District shall complete, public notice and submit to EPA for review and approval a plan for optimal catch basin inspections, cleaning and repairs. The District shall fully implement the plan upon EPA approval. This revision is based on comments that the catch basin maintenance provisions on the Draft Permit were vague and not within the context of a comprehensive plan (Section 4.3.5.1 of the Final Permit).
3) Section 3.2 of the Draft Permit required the District to update its outfall inventory. One commenter noted that the District's 2006 Outfall Survey had already essentially accomplished this, and that meanwhile many of these outfalls were in severe disrepair, thus contributing to increased sediment loading to receiving waters. EPA agrees this is a serious concern, and has thus modified the Final Permit to require the District to undertake the following: within 18 months of the effective date of the Final Permit, and consistent with the 2006 Outfall Survey, the District shall complete, public notice and submit to EPA for review and approval an outfall repair schedule to ensure that approximately 10% of all outfalls needing repair are repaired annually, with the overall objective of having all outfalls in good repair by 2022 (Section 4.3.5.3 of the Final Permit).
4) Consistent with the District's *Enhanced Street Sweeping and Fine Particle Removal Strategy*,[96] an additional element has been included in Table 3, Street Sweeping. The

95 District Department of Environment, *Modification to the Letter of Agreement dated November 27, 2007 for the NPDES Municipal Separate Storm Sewer (MS4) Permit DC0000222* (2008) http://www.epa.gov/reg3wapd/npdes/pdf/DCMS4/Letter.PDF

96 District Department of the Environment, *Municipal Separate Storm Sewer System Program Annual Report* (2010)

table now documents that environmental hotspots in the Anacostia River Watershed will now be swept at least two times per month from March through October.

(4.6 Management of Construction Activities): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. Several commenters suggested that these provisions needed to be significantly improved, including specifying more stringent effluent limitations, in order to address the impairments attributable to sediment.

While permitting authorities have a fair amount of latitude to modify many elements of a permit based on public comments, inclusion of a *de novo* numeric effluent limitation, when neither the Draft Permit nor the Draft Fact Sheet suggested such an option would require further public notice. Therefore, this Final Permit does not include a numeric effluent limitation for sediment discharged in stormwater from active construction sites.

However, EPA agrees that construction activities cause serious water quality problems, and has revised this section to require more robust oversight of construction stormwater controls. A significant cause of water quality problems caused by construction activities is the failure of construction site operators to comply with existing regulations. Thus, EPA expects increased inspections and enforcement activity to result in improved compliance and therefore reduced sediment loads.[97] Therefore the Final Permit includes construction site inspection frequency requirements to ensure compliance with the District erosion and sediment requirements.

(4.8 Flood Control Projects): Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. EPA received few comments on this section. The following revision was made: a start date of six months after the effective date of the Final Permit was added for the requirement to collect data on the percentage of impervious surface area located in flood plain boundaries for all proposed development.

(4.10 Total Maximum Daily Load (TMDL) Wasteload Allocation (WLA) Planning and Implementation): There are several TMDLs with wasteload allocations that either directly or indirectly affect the District's MS4 discharges. The following are those that EPA has determined to be relevant for purposes of implementation via the Final Permit:

1. TMDL for Biochemical Oxygen Demand (BOD) in the Upper and Lower Anacostia River (2001)
2. TMDL for Total Suspended Solids (TSS) in the Upper and Lower Anacostia River (2002)
3. TMDL for Fecal Coliform Bacteria in the Upper and Lower Anacostia River (2003)
4. TMDL for Organics and Metals in the Anacostia River and Tributaries (2003)
5. TMDL for Fecal Coliform Bacteria in Kingman Lake (2003)
6. TMDL for Total Suspended Solids, Oil and Grease and Biochemical Oxygen Demand in Kingman Lake (2003)

97 EPA, *Office of Enforcement and Compliance Assurance Accomplishments Report* (2008) http://www.epa.gov/compliance/resources/reports/accomplishments/oeca/fy08accomplishment.pdf

7. TMDL for Fecal Coliform Bacteria in Rock Creek (2004)
8. TMDL for Organics and Metals in the Tributaries to Rock Creek (2004)
9. TMDL for Fecal Coliform Bacteria in the Upper, Middle and Lower Potomac River and Tributaries (2004)
10. TMDL for Organics, Metals and Bacteria in Oxon Run (2004)
11. TMDL for Organics in the Tidal Basin and Washington Ship Channel (2004)
12. TMDL for Sediment/Total Suspended Solids for the Anacostia River Basin in Maryland and the District (2007) [pending resolution of court vacature, Anacostia Riverkeeper, Inc. v. Jackson, No. 09-cv-97 (RCL)]
13. TMDL for PCBs for Tidal Portions of the Potomac and Anacostia Rivers in the District of Columbia, Maryland and Virginia (2007)
14. TMDL for Nutrients/Biochemical Oxygen Demand for the Anacostia River Basin in Maryland and the District (2008)
15. TMDL for Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia (2010)
16. TMDL for Nitrogen, Phosphorus and Sediment for the Chesapeake Bay Watershed (2010)

On July 25, 2011, in connection with a challenge by the Anacostia Riverkeeper and other environmental organizations, the U.S. District Court for the District of Columbia vacated EPA's approval of a total maximum daily load (TMDL) for sediment in the Anacostia River. While the court ruled in EPA's favor on a number of issues of significant importance to the TMDL program and that the TMDL adequately would achieve the designated aquatic life use, the court held that EPA's decision record did not adequately support EPA's determination that the TMDL would lead to river conditions that would support the primary (swimming) and secondary (boating) contact recreation and aesthetic designated uses. Based on its holding regarding the recreational and aesthetic uses, the court vacated the TMDL, but stayed its vacatur for one year to give EPA sufficient time to address the court's concerns. This TMDL is included in the above list (#12), because EPA expects this vacatur to be resolved within the time frame for TMDL efforts outlined in this permit. However, District planning and implementation efforts on this TMDL are not required until such time as the legal challenge is resolved and the TMDL is established.

Most EPA developed TMDLs for the District, as well as all District developed and EPA approved TMDLs can be found at the following website: http://www.epa.gov/reg3wapd/tmdl/dc_tmdl/index.htm.

The Chesapeake Bay TMDL for nitrogen, phosphorus and sediment is available at: http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html.

The District also has a number of TMDL-related documents on its website: http://ddoe.dc.gov/ddoe/cwp/view,a,1209,q,495456.asp.

In addition, the tidal Anacostia River is listed as impaired for TSS and BOD, and the Upper Potomac River is listed as impaired for pH. TMDL establishment by EPA is pending for both.

As part of permit reissuance EPA has reviewed several existing TMDL implementation plans, including those for the Potomac River, Anacostia River and Rock Creek. EPA has identified the relevant implementation actions from those Plans and included them as requirements of the Final Permit, *e.g.*, green roofs, tree plantings. This approach provides more clarity for the District and the general public, and is also consistent with the obligation of NPDES permit writers to articulate enforceable provisions in permits to implement TMDL WLAs.

EPA took the same approach with the Anacostia River Watershed Trash TMDL[98] (Trash TMDL) (Part 4.10.1 of the Final Permit), which was finalized in September 2010. This TMDL was well-developed with quantifiable information about the sources and causes of impairment. The Trash TMDL assigned a specific WLA to MS4 discharges: removal of 103,188 pounds of trash annually. The Final Permit requires the District to attain this WLA as a specific single-year measure by the fifth year of this permit term. The Final Permit provision is based on the annual trash WLA for the District MS4. In the TMDL, annual WLAs were divided by 365 days to obtain daily WLAs. Given the fact that the daily and annual WLAs are congruent with each other, use of the annual WLA as the permit metric is consistent with the assumptions and requirements of the TMDL and is a more feasible measure for monitoring purposes.

Because the Anacostia River Watershed Trash TMDL provided a solid foundation for action, EPA determined the implementation requirements and included them in the Final Permit rather than require the District to develop a separate implementation plan. The Permit requires the District to determine a method for estimating trash reductions and submit that to EPA for review and approval within one year of the effective date of the Final Permit. In addition, the District must annually report the trash prevention/removal approaches utilized, and the overall total weight (in pounds) of trash captured for each type of approach.

On December 29, 2010, the U.S. Environmental Protection Agency established the Chesapeake Bay TMDL[99] to restore clean water in the Chesapeake Bay Watershed. The TMDL identifies the necessary reductions of nitrogen, phosphorus and sediment from Delaware, Maryland, New York, Pennsylvania, Virginia, West Virginia and the District of Columbia that, when attained, will allow the Bay to meet applicable water quality standards. EPA based the TMDL allocations, where possible, on information provided by the Bay jurisdictions in their final Phase I WIPs. The TMDL requires the Bay jurisdictions to have in place by 2017 the necessary controls to attain 60% of the reductions called for in the TMDL, and to have all controls in place by 2025. EPA has committed to hold jurisdictions accountable for results along the way, including ensuring that NPDES permits contain provisions and limits that are consistent with the assumptions and requirements of the relevant WLAs.

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98 Maryland Department of the Environment and District of Columbia Department of Environment, *Total Maximum Daily Loads of Trash for the Anacostia River Watershed, Montgomery and Prince George's Counties, Maryland and the District of Columbia* (2010) http://www.epa.gov/reg3wapd/pdf/AnacostiaTMDLPortfolio.pdf

99 EPA, *Chesapeake Bay Total Maximum Daily Load for Nitrogen, Phosphorus and Sediment* (2010) http://www.epa.gov/reg3wapd/tmdl/ChesapeakeBay/tmdlexec.html

The District's final Phase I Chesapeake Bay WIP proposed very aggressive targets for pollutant reductions in its MS4 program.

Pollutant of Concern	% Reductions in Urban Runoff Loads by 2025 from 2009 Baseline	Reductions in Urban Runoff Loads by 2025 from 2009 Baseline
Total Nitrogen	17	29,310 lbs/yr
Total Phosphorus	33	7,740 lbs/yr
Sediment	35	2,192 tons/yr

These numbers are from the District's final input deck to the Chesapeake Bay Model in association with the final Phase I WIP.

The Final Permit requires a very robust set of measures, based on a determination that these measures are necessary to ultimately achieve the specified reductions. EPA took a similar approach with the Chesapeake Bay TMDL as it did with the aforementioned TMDLs, and incorporated specific implementation measures into the Final Permit. Although EPA did not finalize the Chesapeake Bay TMDL until December 2010, EPA had a reasonably clear understanding of what would be needed even prior to publishing the Draft Permit because of the significant amount of data, modeling output and other information available in advance of its finalization, as well as many months of ongoing discussions with the District about the elements of its final Phase I WIP.[100] Based on the final TMDL , EPA is assured that the Final Permit is consistent with the assumptions and requirements of the WLAs in the TMDL.

In partial fulfillment of attaining the Chesapeake Bay WLAs, the Final Permit contains: a new performance standard for development, a requirement for an offset program for development, numeric requirements for tree plantings and green roof installation, numeric requirements for retrofits, and a variety of other actions. The relevant sections of this Final Fact Sheet discuss those provisions more fully.

There will be two additional permit terms prior to 2025 during which the District will implement many additional and/or more robust measures to attain its Bay TMDL WLAs. Provisions, targets and numeric thresholds in this Final Permit are not necessarily the ones that will be included in subsequent permits. EPA believes, however, that the 2011 Final Permit sets the foundation for a number of actions and policies upon which those future actions will be based.

Section 4.10.2 of the Final Permit requires the District to implement and complete the proposed replacement/rehabilitation, inspection and enforcement, and public education aspects of the strategy for Hickey Run to satisfy the applicable oil and grease TMDL wasteload allocations. In addition, the District is required to install end-of-pipe management practices at four identified outfalls to address oil and grease and trash in Hickey Run no later than the end of this permit term. Implementation requirements to attain these WLAs were initiated during prior

100 District of Columbia Department of Environment, *Chesapeake Bay TMDL Watershed Implementation Plan* (2010) http://ddoe.dc.gov/ddoe/frames.asp?doc=/ddoe/lib/ddoe/tmdl/Final_District_of_Coluimbia_WIP_Bay_TMDL.pdf

permit terms. The requirements of today's Final Permit are intended to bring the District to the concluding stages of attaining the Hickey Run oil and grease and trash WLAs.

The 2003 District of Columbia TMDL for oil and grease in the Anacostia River noted that the waterbody was no longer impaired by oil and grease. In particular data from Hickey Run, which provided the basis for listing the Anacostia River as an impaired water body, had demonstrated consistent compliance with applicable water quality standards for oil and grease: for twenty-one samples taken in Hickey Run between January and December 2002, no values exceeded the 10mg/L standard, and only one sample exceeded a 5 mg/L detection limit value. The 2003 TMDL further concluded that on-going implementation activities, which included public education and automobile shop enforcement actions, caused a significant decrease in ambient pollutant concentrations.[101] The Final Permit includes a provision for additional controls on oil and grease in Hickey Run should monitoring during this permit term indicate it is necessary. However, per the demonstration noted above, EPA believes it likely this may not be necessary.

One commenter indicated that the shift from an aggregate numeric effluent limit for four outfalls into Hickey Run in the 2004 permit to a management practice-based approach in the Draft Permit violated the Clean Water Act's prohibition against backsliding, section 402(o)(1) of the CWA, 33 U.S.C. § 1342(o)(1) ("[A] Permit may not be renewed, reissued, or modified … subsequent to the original issuance of such Permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous Permit"). In response, EPA notes that a non-numeric effluent limitation is not automatically less stringent than a numeric effluent limitation. A different (numeric or non-numeric) effluent limitation only violates the anti-backsliding prohibition if it can be fairly compared to the prior numeric limit and found to be less stringent than that requirement. *See e.g., Communities for a Better Environment v. State Water Resources Control Bd.*, 132 Cal. App. 4th 1313 (August 29, 2005) (finding that no backsliding had occurred where the effluent limit in existing permit was not "comparable" to WQBEL in previous permit). In this case EPA 1) notes that additional controls on oil and grease may not be needed (as explained above), and 2) has determined regardless that compliance with the performance standards in the Final Permit will result in improved water quality protections for the District MS4 receiving streams more effectively than did the previous numeric effluent limitations (see discussions in relevant sections).

Section 4.10.3 of today's Final Permit requires the District to develop a Consolidated TMDL Implementation Plan (Consolidated Plan) for all TMDL wasteload allocations assigned to District MS4 discharges. All applicable WLAs must be considered in this plan, though the TMDLs listed at the beginning of this Section form the basis for District action to meet this requirement. EPA has evaluated these TMDLs along with existing water quality data and has concluded that *E. coli*, total nitrogen, total phosphorus, total suspended solids, copper, lead, zinc and trash are critical pollutants of concern for District waters, and should be the focus of implementation measures as well as of a revised monitoring program (*see* Section 5.1 for a

101 District of Columbia, *Final Total Maximum Daily Load for Oil and Grease in the Anacostia River* (2003) http://www.epa.gov/reg3wapd/tmdl/dc_tmdl/AnacostiaRiver/AnacoatiaOilReport.pdf

discussion of the latter).

The rationale for a Consolidated Plan is to allow for more efficient implementation of control measures. In many cases TMDLs have been developed on a stream segment basis, which is not always the most logical framework for implementation of controls. In addition, the solutions for reducing many pollutants and/or improving water bodies will be the same stormwater control measures and/or policies, and it would be wasteful of resources and duplicative to have separate implementation plans under those circumstances.

The Final Permit requires the Consolidated Plan to include:

1) Specified schedules for attaining applicable wasteload allocations for each TMDL; such schedules must includes numeric benchmarks that specify annual pollutant load reductions and the extent of control actions to achieve these numeric benchmarks.
2) Interim numeric milestones for TMDLs where final attainment of applicable wasteload allocations requires more than one permit cycle. These milestones shall originate with the third year of this permit term and every five years thereafter.
3) Demonstration using modeling of how each applicable WLA will be attained using the chosen controls, by the date for ultimate attainment.
4) The Consolidated TMDL Implementation Plan elements required in this section will become enforceable permit terms upon approval of such Plans, including the interim and final dates in this section for attainment of applicable WLAs.
5) Where data demonstrate that existing TMDLs are no longer appropriate or accurate, the Plan shall include recommended solutions, including, if appropriate, revising or withdrawing TMDLs.

Some of the applicable TMDLs developed within the District were based on limited or old data. In those cases the District may choose to reevaluate these waters and impairments to determine if revising or withdrawing the TMDL, or other action, would be appropriate.

The District has two years from the date of Final Permit issuance to develop, public notice and submit the Consolidated Plan to EPA for review and approval. EPA believes the required elements (1-5, above) will ensure clarity and enforceability, but also encourages interested parties to participate in the public process. EPA added this public notice requirement to the Final Permit because of the significant interest expressed by commenters on District TMDLs.

Section 4.10.4, Adjustments to TMDL Implementation Strategies, requires the District to make mid-course improvements to implementation measures and policies whenever data indicate insufficient progress towards attaining any relevant WLA. The District must adjust its management programs to compensate for the inadequate progress within 6 months, and document the modifications in the Consolidated TMDL Implementation Plan. The Plan modification shall include a reasonable assurance demonstration of the additional controls to achieve the necessary reductions, *i.e.*, quantitatively linking sources and causes to discharge

quality. In addition, annual reports must include a description of progress as evaluated against all implementation objectives, milestones and benchmarks, as relevant.

Finally, with respect to any new or revised TMDL that may be approved during the permit term, the Final Permit makes allowances for reopening the permit to address those WLAs (see Section 8.19 of the Final Permit: Reopener Clause for Permits), if necessary. EPA believes that reopening the permit will not typically be necessary since the Final Permit requires the District to update the Consolidated Plan within six months for any TMDL approved during the permit term with wasteload allocations assigned to District MS4 discharges, and also to include a description of revisions in the next regularly scheduled annual report.

(**4.11 Additional Pollutant Sources)**: Requirements in this Section of the Final Permit largely continue provisions in the 2004 Permit. EPA notes that the provisions of this section were mostly included in Section 3 of the Draft Permit.

5. MONITORING AND ASSESSMENT OF CONTROLS

(5.1 Revised Monitoring Program): As included in the Draft Permit, the monitoring requirements for the District's stormwater program have been significantly updated from the last permit cycle. This revision reflects the fact that the District has already performed broad monitoring of a variety of parameters over the last two permit cycles. The Phase I stormwater regulations require representative sampling for the purpose of discharge characterization in the first permit term, or initial years of the program (40 C.F.R. §122.26(d)(1)(iv)(E)). The District now has a decade worth of this type of data, and it is timely to update the monitoring program to more effectively evaluate the effectiveness of the program, and to more effectively and efficiently use the District's funds for this purpose. As noted in the National Research Council's report *Urban Stormwater Management in the United States* [102], the quality of stormwater from urbanized areas has been well-characterized. Continuing the standard end-of-pipe monitoring typical of most MS4 programs has produced data of limited usefulness because of a variety of shortcomings (as detailed in the report). The NRC Report strongly recommends that MS4 programs modify their evaluation metrics and methods to include biological and physical monitoring, better evaluations of the performance/effectiveness of controls and overall programs, and an increased emphasis on watershed scale analyses to ascertain what is actually going on in receiving waters. The report also emphasizes the link between study design and the ability to interpret data, *e.g.*, having enough samples to ensure that conclusions are statistically significant.

Consistent with these goals, the Final Permit requires the District to develop a Revised Monitoring Program to meet the following objectives:

1) Make wet weather loading estimates of the parameters in Table 4 from the MS4 to receiving waters. Number of samples, sampling frequencies and number and locations of

102 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

sampling stations must be adequate to ensure data are statistically significant and interpretable.

2) Evaluate the health of the receiving waters, to include biological and physical indicators such as macroinvertebrates and geomorphologic factors. Number of samples, frequencies and locations must be adequate to ensure data are statistically significant and interpretable for long-term trend purposes (not variation among individual years or seasons).

3) Any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. This strategy must align with the Consolidated TMDL Implementation Plan required in Part 4.10.3 For all pollutants in Table 4 monitoring must be adequate to determine if relevant WLAs are being attained within specified timeframes in order to make modifications to relevant management programs, as necessary.

The Final Permit requires the District to public notice the Revised Monitoring Program, and to submit it to EPA for review and approval within two years of the effective date of the Final Permit.

EPA also significantly refined the list of required pollutant analytes/parameters for which monitoring is required from over 120 to 9:

(Table 4 from the Final Permit)
Monitoring Parameters

Parameter
E. coli
Total nitrogen
Total phosphorus
Total Suspended Solids
Cadmium
Copper
Lead
Zinc
Trash

These parameters are those for which relevant stormwater wasteload allocations exist, or (in the case of cadmium) where monitoring data indicate that the pollutant is occurring in discharges at concentrations and frequencies to consider it a pollutant of concern. End-of-pipe analytical monitoring is an expensive undertaking, and EPA feels strongly that the District's water quality-related evaluations will be much more robust and actionable with an enhanced focus on true pollutants of concern, along with the elimination of analytes for which monitoring routinely shows non-detect concentrations, and/or those to which notable water quality problems have not been linked.

One modification has been made to this list for the Final Permit from the Draft Permit.

The Draft Permit required evaluation of Trash reductions in the relevant sections for the Anacostia River Watershed Trash TMDL (4.10.1), but failed to include it in Table 4 (Table 3 of the Draft Permit). EPA has added trash as a monitoring parameter to this table to correct that oversight.

(5.2 Interim Monitoring): During the interim period from the effective date of the Final Permit until EPA approves the Revised Monitoring Program, the Final Permit requires the District to largely continue the monitoring program established and updated under the 2000 and 2004 permits, except the monitoring program is only required for the list of monitoring parameters in Table 4, which has been reduced to the nine parameters as discussed above.

EPA received several comments and questions on the interim monitoring requirements. Individual responses are included in the Responsiveness Summary published with the Final Permit and this Final Fact Sheet. EPA chose to not modify the interim monitoring provisions for the Final Permit because: 1) they are largely an extension of the same requirements and methods already approved and established under prior permits, which will ensure that data collected during the interim monitoring period are comparable to data collected during the past decade, thus providing "apples to apples" comparisons in data interpretation; and 2) EPA believes that the District's monitoring-related resources are more effectively spent developing a robust revised program, rather than revising the interim program.

(5.4 Area and/or Source Identification Program): The Final Permit provides that "[t]he permittee shall continue to implement a program to identify, investigate, and address areas and/or sources within its jurisdiction that may be contributing excessive levels of pollutants to the MS4 and receiving waters, including but not limited to those pollutants identified in Table 4 herein." This is identical in substance to section 5.5 in the Draft Permit and essentially continues the requirements from the 2004 MS4 Permit. EPA received a comment that this provision has been inadequate to identify sources contributing pollutants to MS4 discharges. EPA recognizes that this provision is general, but believes that the District's ongoing practices are sufficient during the interim monitoring period. EPA notes that the Final Permit requires the Revised Monitoring Program to include any additional necessary monitoring for purposes of source identification and wasteload allocation tracking. The public will have a chance to comment on the proposed objectives and methods in Plan, and EPA will review and approve this Plan. Therefore there will be several opportunities to ensure that the District has robust methods for identify additional pollutant inputs to District MS4 discharges.

(5.7 Reporting of Monitoring Results): In response to several comments, and because of the potential availability of electronic reporting in the future, EPA made several modifications to this Section of the Final Permit. When available the District may submit monitoring data through NetDMR, a national tool for regulated Clean Water Act permittees to submit discharge monitoring reports (DMRs) electronically via a secure Internet application to EPA. *See* http://www.epa.gov/netdmr/. However, if this system is not available to the National Marine Fisheries Service, then the District must continue to submit hard copies. The Final Permit eliminates the requirement for the District to submit monitoring reports to itself. This section

clarifies (consistent with Section 6.2) that all monitoring results from a given year be summarized in the following annual report.

6. REPORTING REQUIREMENTS

Permit reporting is required pursuant to 40 C.F.R. § 122.41(l). EPA has made a number of minor edits to this section primarily for the purposes of: maintaining consistency with other Sections of the Final Permit (as those provisions necessitated changes in reporting, the Final Fact Sheet discusses those changes in association with the relevant Section); eliminating redundancy; and to provide clarification.

(6.2 Annual Reporting): Consistent with comments from a number of commenters regarding public access to documents, today's Final Permit requires the District to post each Annual Report on its website at the same time the Report is submitted to EPA.

The separate 'Reporting on Funding' in the Draft Permit has been eliminated in the Final Permit because it was largely redundant with other reporting requirements, and because it was beyond the scope of what is needed from the District. The Final Permit requires annual reporting on projected costs and budget for the coming year as well as expenditures and budget for the prior year, including (i) an overview of the District's financial resources and budget, (ii) overall indebtedness and assets, (iii) sources for funds for stormwater programs, and (iv) a demonstration of adequate fiscal capacity to meet the permit requirements. However, EPA has concluded that additional detail would be superfluous. In addition, beyond a demonstration of basic budget considerations as outlined in the Final Permit, how the District chooses to allocate resources to comply with the permit is an internal decision.

EPA has also included a provision for an Annual Report Meeting in this permit in order to improve communication between the District and the Agency. This meeting will provide an opportunity for EPA to obtain more in-depth knowledge of the District's program, and should also enhance feed-back on the program. The permit requires the District to convene the first Annual Report Meeting within 12 months of issuance of the permit. If both parties agree that this first meeting was successful, the Annual Report meeting shall be extended for the duration of the permit term.

7. STORMWATER MODEL

The Stormwater Model and associated Geographical Information System are tools used by the District to help track and evaluate certain components of the water quality program. The Final Permit requires the use and maintenance of this system as a component of the District's Stormwater Management Program. There were no modifications to this Section between the Draft Permit and the Final Permit.

8. STANDARD PERMIT CONDITIONS FOR NPDES PERMITS

The provisions in Part 8 are requirements generally applicable to all NPDES permits, pursuant to 40 C.F.R. § 122.41, as well as other applicable conditions pursuant to § 122.49 and specific statutory or regulatory provisions as noted in the permit. No changes were made to this section of the permit.

9. PERMIT DEFINITIONS

Most changes to this section from the Draft Permit consist of minor clarifications. In addition, several terms were eliminated from this section because they do not appear elsewhere in the Final Permit: 'goal', 'internal sampling station', 'significant spills', and 'significant materials'. The definition of 'MS4 Permit Area' was removed because it is already defined in Part 1.1.

A definition of "development" was added to clarify that development is "the undertaking of any activity that disturbs a surface area greater than or equal to 5,000 square feet." The definition further clarifies that the relevant performance standard for development applies to projects that commence after 18 months from the effective date of the Final Permit or as soon as the District's stormwater regulations go into effect, whichever is sooner.

The definition of 'green roof' was modified to allow for the fact that some types of ecoroofs may be constructed without vegetation or soil media.

The definition of "retrofit" was modified to focus on environmental outcomes, *i.e.*, reductions in discharge volumes and pollutant loads and improvements in water quality, rather than implementation of conveyance measures.

The definition of "predevelopment hydrology" was enhanced to clarify that the phrase refers to a "stable, natural hydrologic site condition that protects or restores to the degree relevant for that site, stable hydrology in the receiving water, which will not necessarily be the hydrologic regime of that receiving water prior to any human disturbance in the watershed." This definition is consistent with several seminal publications on the topic including *Urban Stormwater Management in the United States*[103] and references therein, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act*[104], and *Guidance for Federal Land Management in the Chesapeake Bay Watershed*[105], issued in fulfillment of Part 502 of E.O. 13508.

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103 National Research Council, *Urban Stormwater Management in the United States* (2009) National Academy of Sciences http://www.nap.edu/catalog.php?record_id=12465

104 EPA, *Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act* (2009) http://www.epa.gov/owow_keep/nps/lid/section438/

105 EPA, *Guidance for Federal Land Management in the Chesapeake Bay Watershed*, Chapter 3. Urban

RELATIONSHIP TO NON-POINT SOURCE PROGRAM:

It should be noted that the measures required by the Permit are separate from those projects identified in the District's EPA-approved Non-Point Source Management Plan as being funded wholly or partially by funds pursuant to Section 319(h) of the Clean Water Act. See Section 3 of Permit ("These Permit requirements do not prohibit the use of 319(h) funds for other related activities that go beyond the requirements of this Permit, nor do they prohibit other sources of funding and/or other programs where legal or contractual requirements preclude direct use for stormwater permitting activities.").

ADMINISTRATIVE RECORD:

Copies of the documents that comprise the administrative record for the Permit are available to the public for review at the Martin Luther King, Jr. Public Library, which is located at 901 G Street, N.W. in Washington, D.C. An electronic copy of the proposed and final Permits and proposed and Final Fact Sheets are also available on the EPA Region III website, http://www.epa.gov/reg3wapd/npdes/draft_permits.html. For additional information, please contact Ms. Kaitlyn Bendik, Mail Code 3WP41, NPDES Permits Branch, Office of Permits and Enforcement, EPA Region III, United States Environmental Protection Agency, 1650 Arch Street, Philadelphia, Pennsylvania 19103-2029.

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and Suburban, EPA841-R-10-002, (2010) (http://www.epa.gov/owow_keep/NPS/chesbay502/pdf/chesbay_chap03.pdf)

ATTACHMENT
45

STATE OF CALIFORNIA

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. 01-182
NPDES PERMIT NO. CAS004001
WASTE DISCHARGE REQUIREMENTS
FOR
MUNICIPAL STORM WATER AND URBAN RUNOFF DISCHARGES WITHIN THE COUNTY OF LOS ANGELES, AND THE INCORPORATED CITIES THEREIN, EXCEPT THE CITY OF LONG BEACH

December 13, 2001

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STATE OF CALIFORNIA

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION

ORDER NO. 01-182
NPDES PERMIT NO. CAS004001
WASTE DISCHARGE REQUIREMENTS
FOR
MUNICIPAL STORM WATER AND URBAN RUNOFF DISCHARGES WITHIN THE COUNTY OF LOS ANGELES, AND THE INCORPORATED CITIES THEREIN, EXCEPT THE CITY OF LONG BEACH

The California Regional Water Quality Control Board, Los Angeles Region (hereinafter referred to as the Regional Board) finds:

A. Existing Permit

The Los Angeles County Flood Control District, the County of Los Angeles, and 84 incorporated cities within the Los Angeles County Flood Control District (see Attachment A, List of Permittees), hereinafter referred to separately as Permittees and jointly as the Discharger, discharge or contribute to discharges of storm water and urban runoff from municipal separate storm sewer systems (MS4s), also called storm drain systems. The discharges flow to water courses within the Los Angeles County Flood Control District and into receiving waters of the Los Angeles Region. These discharges are covered under countywide waste discharge requirements contained in Order No. 96-054 adopted by this Regional Board on July 15, 1996, which replaced Order No. 90-079 adopted by this Regional Board on June 18, 1990. Order No. 96-054 also serves as a National Pollutant Discharge Elimination System (NPDES) permit for the discharge of municipal storm water.

B. Nature of Discharges and Sources of Pollutant

1. Storm water discharges consist of surface runoff generated from various land uses in all the hydrologic drainage basins that discharge into water bodies of the State. The quality of these discharges varies considerably and is affected by the hydrology, geology, land use, season, and sequence and duration of hydrologic events. The primary constituents of concern currently identified by the Los Angeles County Flood Control District Integrated Receiving Water Impacts Report (1994-2000) are cyanide, indicator bacteria, total dissolved solids, turbidity, total suspended solids, nutrients, total aluminum, dissolved cadmium, copper, lead, total mercury, nickel, zinc, bis(2-ethylhexyl)phthalate, polycyclic aromatic hydrocarbons (PAHs), diazinon, and chlorpyrifos.

2. Certain pollutants present in storm water and/or urban runoff may be derived from extraneous sources that Permittees have no or limited jurisdiction over. Examples of such pollutants and their respective sources are: PAHs which are products of internal combustion engine

operation, nitrates, bis (2-ethylhexyl) phthalate and mercury from atmospheric deposition, lead from fuels, copper from brake pad wear, zinc from tire wear, dioxins as products of combustion, and natural-occurring minerals from local geology. However, the implementation of the measures set forth in this Order is intended to reduce the entry of these pollutants into storm water and their discharge to receiving waters.

3. Water quality assessments conducted by the Regional Board identified impairment, or threatened impairment, of beneficial uses of water bodies in the Los Angeles Region. The causes of impairments include pollutants of concern identified in municipal storm water discharges by the County of Los Angeles in the Integrated Receiving Water Impacts Report (1994-2000). Pollutants in storm water can have damaging effects on both human health and aquatic ecosystems.

4. The Los Angeles County Grand Jury, September 2000, completed an investigation into the health risks of swimming near beaches in Los Angeles County and made several recommendations to reduce public health risks (Final Report, Grand Jury, Los Angeles County, 1999-2000). The Grand Jury recommended that the Regional Board consider among other actions, (i) a focus on setting contaminant limits rather than programmatic evaluations, (ii) audit of MS4 Permittee programs; and (iii) clarifying enforcement responsibilities between the State and local governments.

5. Studies and research conducted by other Regional agencies, academic institutions, and universities have also identified storm water and urban runoff as significant sources of pollutants to surface waters in Southern California. See, e.g., [*Surface Runoff to the Southern California Bight*, Southern California Coastal Water Research Project, (1992); *Impacts of Urban Runoff on Santa Monica Bay and Surrounding Ocean Waters* (Gersberg, R.M., 1995); *State of the Bay 1998*, Santa Monica Bay Restoration Project; *Storm Water Impact*, In, Southern California Environmental Report Card 1999, Institute of the Environment, University of California, Los Angeles (Stenstrom, M.S., 1999); *Distribution of Anthropogenic and Natural Debris on the Mainland Shelf of Southern California Bight,* Shelly L. Moore and M. James Allen (1999); *The Health Effects of Swimming in Ocean Water Contaminated by Storm Drain Runoff*, Haile, R.W. et al. (1999); *Huntington Beach Closure Investigation: Technical Review* (University of Southern California, 2000); *A Regional Survey of the Microbiological Water Quality Along the Shoreline of the Southern California Bight,* Rachel T. Noble *et al.* (2001*); Integrated Receiving Water Impacts Report (1994-2000)*, County of Los Angeles (2001)].

6. Development and urbanization increase pollutant load, volume, and discharge velocity. First, natural vegetated pervious ground cover is converted to impervious surfaces such as paved highways, streets, rooftops and parking lots. Natural vegetated soil can both absorb rainwater and remove pollutants providing an effective natural purification process. In contrast, pavement and concrete can neither absorb water nor remove pollutants, and thus the natural purification characteristics are

lost. Second, urban development creates new pollution sources as the increased density of human population brings proportionately higher levels of vehicle emissions, vehicle maintenance wastes, municipal sewage waste, pesticides, household hazardous wastes, pet wastes, trash, and other anthropogenic pollutants. Development and urbanization especially threaten environmentally sensitive areas. Such areas have a much lower capacity to withstand pollutant shocks than might be acceptable in the general circumstance. In essence, development that is ordinarily insignificant in its impact on the environment may in a particular sensitive environment become significant. These environmentally sensitive areas designated by the State and/or the County of Los Angeles include Areas of Special Biological Significance (ASBS), water bodies designated as supporting a RARE beneficial use, Significant Natural Areas (SNAs), and Significant Ecological Areas (SEAs).

7. The increased volume, increased velocity, and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion and impair stream habitat in natural drainages. Studies have demonstrated a direct correlation between the degree of imperviousness of an area and the degradation of its receiving waters. Significant declines in the biological integrity and physical habitat of streams and other receiving waters have been found to occur with as little as 10 percent conversion from natural to impervious surfaces. Percentage impervious cover is a reliable indicator and predictor of potential water quality degradation expected from new development. (*Impervious Cover as An Urban Stream Indicator and a Watershed Management Tool*, Schueler, T. and R. Claytor, In, Effects of Water Development and Management on Aquatic Ecosystems (1995), ASCE, New York; Leopold, L. B., (1973), *River Channel Change with Time: An Example*, Geological Society of America Bulletin, v. 84, p. 1845-1860; Hammer, T. R., (1972), *Stream Channel Enlargement Due to Urbanization: Water Resources Research*, v. 8, p. 1530-1540; Booth, D. B., (1991), *Urbanization and the Natural Drainage System--Impacts, Solutions and Prognoses*: The Northwest Environmental Journal, v. 7, p. 93-118; Klein, R. D., (1979), *Urbanization and Stream Quality Impairment*: Water Resources Bulletin, v. 15, p. 948-963; May, C. W., Horner, R. R., Karr, J. R., Mar, B. W., and Welch, E. B., (1997), *Effects of Urbanization on Small Streams in the Puget Sound Lowland Ecoregion*: Watershed Protection Techniques, v. 2, p. 483-494; Morisawa, M. and LaFlure, E. *Hydraulic Geometry, Stream Equilibrium and Urbanization* In Rhodes, D. P. and Williams, G. P. *Adjustments to the Fluvial System* p.333-350. (1979); Dubuque, Iowa, Kendall/Hunt. Tenth Annual Geomorphology Symposia Series; and *The Importance of Imperviousness*: Watershed Protection Techniques, 1(3), Schueler, T. (1994).)

8. The County of Los Angeles has identified as the seven highest priority industrial and commercial critical source types, (i) wholesale trade (scrap recycling, auto dismantling); (ii) automotive repair/parking; (iii) fabricated metal products; (iv) motor freight; (v) chemical and allied products; (vi) automotive dealers/gas stations; (vii) primary metal products (*Critical*

Source Selection and Monitoring Report, Los Angeles County Department of Public Works -Sept 1996). Monitoring conducted by Los Angeles County and the Regional Board demonstrates that the priority industrial sectors and auto repair facilities (one of the commercial sectors) on the list, contribute significant concentrations of heavy metals to storm water (*Los Angeles County 1999-2000 Storm Water Monitoring Report*, Los Angeles County Department of Public Works -July 2000; *Compliance Assessment of the Auto Dismantling Industry; Evaluation of the California General Industrial Storm Water Permit*, H. Chang, (2001), 70 pp., California Regional Water Quality Control Board, Los Angeles Region).

9. The discharge of washwaters and contaminated storm water from industries and businesses specified in this Order for inspection by Permittees is an environmental threat and can also adversely impact public health and safety. For example, a review of industrial waste/ pretreatment records performed in 1995 in the County of Los Angeles on illicit discharges indicates that automotive service facilities and food service facilities sometimes discharge polluted washwaters to the MS4. The pollutants of concern in such washwaters include food waste, oil and grease, and toxic chemicals. Other storm water/industrial waste programs in California have reported similar observations. Illicit discharges from automotive service facilities and food service facilities have been identified elsewhere as a major cause of widespread contamination and water quality problems (Washtenaw County Statutory Drainage Board - 1987 Huron River Pollution Abatement Program).

10. Studies indicate that facilities with paved surfaces subject to frequent motor vehicular traffic (such as parking lots and fast food restaurants), or facilities that perform vehicle repair, maintenance, or fueling (automotive service facilities) are potential sources of pollutants of concern in storm water. [References: Pitt *et a*l., *Urban Storm Water Toxic Pollutants: Assessment, Sources, and Treatability*, Water Environment Res., 67, 260 (1995)*; Results of Retail Gas Outlet and Commercial Parking Lot Storm Water Runoff Study*, Western States Petroleum Association and American Petroleum Institute, (1994); *Action Plan Demonstration Project, Demonstration of Gasoline Fueling Station Best Management Practices*, Final Report, County of Sacramento (1993); *Source Characterization*, R. Pitt, In Innovative Urban Wet-Weather Flow Management Systems (2000) Technomic Press, Field, R *et al*. editors; *Characteristics of Parking Lot Runoff Produced by Simulated Rainfall*, , L.L. Tiefenthaler *et al*. Technical Report 343, Southern California Coastal Water Research Project (2001).]

11. Retail Gasoline Outlets (RGOs) are points of convergence for vehicular traffic and are similar to parking lots and urban roads. Studies indicate that storm water discharges from RGOs have high concentrations of hydrocarbons and heavy metals. [*The Quality of Trapped Sediments and Poor Water within Oil Grit Separators in Suburban MD,* Schueler T. and Shepp D. (1992), and *Concentrations of Selected Constituents in Runoff from Impervious Surfaces in Four Urban Catchments of Different*

Landuse, Ranabal, F.I., and T.J. Gizzard (1995), In Proceedings of the Fourth Biennial Stormwater Research Conference, Florida, pp-42-52]. Pilot studies indicate that treatment control best management practices installed at retail gasoline stations are effective in removing pollutants, reasonable in capital cost, easy to operate, and do not present safety risks [*Rouge River National Wet Weather Demonstration Project, Task Product Memorandum – Evaluation of On-line Media Filters RPO-NPS-TPM59.00*, Wayne County, MI, March 1999]. The Regional Board and the San Diego Regional Board have jointly prepared a Technical Report on the applicability of new development BMP design criteria for retail gasoline outlets, (*Retail Gasoline Outlets: New Development Design Standards for Mitigation of Storm Water Impacts*, (June 2001)). Retail Gasoline Outlets in Western U.S. States (such as Washington and Oregon) are already subject to numerical BMP design criteria, as well in other U.S. States.

C. Permit Background

1. The essential components of the Storm Water Management Program, as established by federal regulations [40 CFR 122.26(d)] are: (i) Adequate Legal Authority, (ii) Fiscal Resources, (iii) Storm Water Quality Management Program (SQMP) - (Public Information and Participation Program, Industrial/Commercial Facilities Program, Development Planning Program, Development Construction Program, Public Agency Activities Program, Illicit Connection and Illicit Discharges Elimination Program), and (iv) Monitoring and Reporting Program.

2. The Permittees have filed a Report of Waste Discharge (ROWD), dated February 1, 2001, and applied for renewal of their waste discharge requirements that serves as an NPDES permit to discharge wastes to surface waters. The ROWD includes a proposed SQMP and a Monitoring Program. The proposed SQMP contains programs previously approved under Board Order No. 96-054 in the following areas:

   Public Information and Participation
   Development Planning
   Development Construction
   Public Agency Activities
   Illicit Connection/Illicit Discharge Elimination Program

   These programs are revised pursuant to the provisions of this Order after adoption.

3. The County of Los Angeles has previously conducted source identification and pollutant characterization consistent with 40 CFR 122.26(d)(1)(ii) and (iii) under its storm water Monitoring Program. The Monitoring Program submitted with the ROWD proposes to advance the assessment of receiving water impacts, identification of sources of pollution, evaluation of Best Management Practices (BMPs), and measurement of long term trends in mass emissions.

4. The Regional Board has reviewed the ROWD and has determined it to be complete under the reapplication policy of MS4s issued by the U.S. Environmental Protection Agency (USEPA) (61 *Fed. Reg*. 41697). The Regional Board finds that the Permittees' proposed SQMP, incorporating the additional and/or revised provisions contained in this Order would meet the minimum requirements of federal regulations.

5. The City of Los Angeles has conducted shoreline and nearshore water quality monitoring off the Santa Monica Bay since the 1950s under the monitoring program for the Hyperion Waste Water Treatment Plant (NPDES No. CA0109991). The monitoring results indicate that effluent from Hyperion's 5-Mile Outfall does not impinge the shoreline, and that elevated bacterial counts are associated with runoff from storm drains and discharges from piers. In 1994, the Regional Board approved the relocation of Hyperion's shoreline stations to implement a bay-wide, regional shoreline-monitoring program associated with storm drain outfalls in the Santa Monica Bay. The City of Los Angeles requested that the shoreline-monitoring requirement be incorporated in this Order. The shoreline pathogen monitoring requirements are outlined in the Monitoring Program for this Order.

D. Permit Coverage

1. The requirements in this Order cover all areas within the boundaries of the Permittee municipalities (see Attachment A) over which they have regulatory jurisdiction as well as unincorporated areas in Los Angeles County within the jurisdiction of the Regional Board. The Permittees serve a population of about 9.5 million [Reference: *2000 Census of Population and Housing,* Bureau of the Census, U.S. Department of Commerce (2001)] in an area of approximately 3,100 square miles.

2. Federal, state, regional or local entities within the Permittees' boundaries or in jurisdictions outside the Los Angeles County Flood Control District, and not currently named in this Order, may operate storm drain facilities and/or discharge storm water to storm drains and watercourses covered by this Order. The Permittees may lack legal jurisdiction over these entities under state and federal constitutions. The Regional Board will coordinate with these entities to implement programs that are consistent with the requirements of this Order. The Regional Board will consider such facilities for coverage in 2003 under its NPDES permitting scheme pursuant to USEPA Phase II storm water regulations.

3. Sources of discharges into receiving waters in the County of Los Angeles but in jurisdictions outside its boundary include the following:

   About 34 square miles of unincorporated area in Ventura County, which drain into Malibu Creek and then to Santa Monica Bay,

   About 9 square miles of the City of Thousand Oaks, which also drain into Malibu Creek and then to Santa Monica Bay, and

About 86 square miles of area in Orange County, which drain into Coyote Creek and then into the San Gabriel River.

The Regional Board will ensure that storm water management programs for the areas in Ventura County and the City of Thousand Oaks that drain into Santa Monica Bay are consistent with the requirements of this Order. The Regional Board will coordinate with the Santa Ana Regional Board so that storm water management programs for the areas in Orange County that drain into Coyote Creek are consistent with the requirements of this Order.

4. This permit is intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water to the Maximum Extent Practicable (MEP) from the permitted areas in the County of Los Angeles to the waters of the U.S. subject to the Permittees' jurisdiction.

5. Permittees have expressed their intention to work cooperatively to control the contribution of pollutants from one portion of the MS4 to another portion of the system. Permittees may control the contribution of pollutants to the MS4 from non-permittee dischargers such as Caltrans, the U.S. Department of Defense, and other state and federal facilities, through interagency agreements.

E. Federal, State, and Regional Regulations

1. The Water Quality Act of 1987 added Section 402(p) to the federal Clean Water Act (CWA) (33 U.S.C. § 1251-1387). This section requires the USEPA to establish regulations setting forth NPDES requirements for storm water discharges in two phases.

   - The USEPA Phase I storm water regulations were directed at MS4s serving a population of 100,000 or more, including interconnected systems and storm water discharges associated with industrial activities, including construction activities. The Phase I Final Rule was published on November 16, 1990 (55 *Fed. Reg*. 47990).

   - The USEPA Phase II storm water regulations are directed at storm water discharges not covered in Phase I, including small MS4s (serving a population of less than 100,000), small construction projects (one to five acres), municipal facilities with delayed coverage under the Intermodal Surface Transportation Efficiency Act of 1991, and other discharges for which the USEPA Administrator or the State determines that the storm water discharge contributes to a violation of a water quality standard, or is a significant contributor of pollutants to waters of the United States. The Phase II Final Rule was published on December 8, 1999 (64 *Fed. Reg*. 68722).

2. The USEPA published an 'Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits' on August 26, 1996 (61 *Fed. Reg.* 43761). This policy discusses the appropriate kinds of

water quality-based effluent limitations to be included in NPDES storm water permits to provide for the attainment of water quality standards.

3. The USEPA published an 'Interpretative Policy Memorandum on Reapplication Requirements' for MS4 permits on August 9, 1996 (61 *Fed. Reg*. 41697). This policy requires that MS4 reapplication for reissuance for a subsequent five-year permit term contain certain basic information and information for proposed changes and improvements to the storm water management program and monitoring program.

4. The USEPA has entered into a Memorandum of Agreement (MOA) with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service for enhancing coordination regarding the protection of endangered and threatened species under Section 7 of the Endangered Species Act and the CWA's Water Quality Standards and NPDES programs. Among other actions, the MOA establishes a framework for coordination of actions by the USEPA, the Services, and CWA delegated States on CWA permit issuance under Section 402 of the CWA [66 *Fed. Reg*. 11202 – 11217].

5. USEPA regulations at 40 CFR 122.26(d)(2)(iv)(A) and 40 CFR 122.26(d)(2)(iv)(C) require that MS4 permittees implement a program to monitor and control pollutants in discharges to the municipal system from industrial and commercial facilities that contribute a substantial pollutant load to the MS4. The regulations require that permittees establish priorities and procedures for inspection of industrial facilities and priority commercial establishments. This permit, consistent with the USEPA policy, incorporates a cooperative partnership, including the specifications of minimum expectations, between the Regional Board and the Permittees for the inspection of industrial facilities and priority commercial establishments to control pollutants in storm water discharges (58 *Fed. Reg.* 61157).

6. Section 402 (p) of the CWA (33 U.S.C. § 1342(p) provides that MS4 permits must "require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design engineering method and such other provisions as the [EPA] Administrator or the State determines appropriate for the control of such pollutants." The State Water Resources Control Board's (State Board) Office of Chief Counsel (OCC) has issued a memorandum interpreting the meaning of MEP to include technical feasibility, cost, and benefit derived with the burden being on the municipality to demonstrate compliance with MEP by showing that a BMP is not technically feasible in the locality or that BMPs costs would exceed any benefit to be derived (dated February 11, 1993).

7. The CWA authorizes the USEPA to permit a state to serve as the NPDES permitting authority in lieu of the USEPA. The State of California has in-lieu authority for an NPDES program. The Porter-Cologne Water Quality Control Act authorizes the State Board, through the Regional Boards, to regulate and control the discharge of pollutants into waters of the State. The State Board entered into a MOA with the USEPA, on

September 22, 1989, to administer the NPDES Program governing discharges to waters of the U.S.

8. Section 303(d) of the CWA requires that the State identify a list of impaired water-bodies and develop and implement Total Maximum Daily Loads (TMDLs) for these waterbodies (33 U.S.C. §1313(d)(1)). A TMDL specifies the maximum amount of a pollutant that a water-body can receive, still meet applicable water quality standards and protect beneficial uses. The USEPA entered into a consent decree with the Natural Resources Defense Council (NRDC), Heal the Bay, and the Santa Monica BayKeeper on March 22, 1999, under which the Regional Board must adopt all TMDLs for the Los Angeles Region within 13 years from that date. This permit incorporates a provision to implement and enforce approved load allocations for municipal storm water discharges and requires amending the SQMP after pollutants loads have been allocated and approved.

9. Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990 (CZARA) requires coastal states with approved coastal zone management programs to address non-point pollution impacting or threatening coastal water quality. CZARA (16 U.S.C. § 1451-1465) amends the Coastal Zone Management Act of 1972, to address five sources of non-point pollution: agriculture, silviculture, urban, marinas, and hydromodification. This NPDES permit addresses the management measures required for the urban category, with the exception of septic systems. The Regional Board addresses septic systems through the administration of other programs.

10. On May 18, 2000, the USEPA established numeric criteria for priority toxic pollutants for the State of California (California Toxics Rule (CTR)) 65 *Fed. Reg*. 31682 (40 CFR 131.38), for the protection of human health and aquatic life. These apply as ambient water quality criteria for inland surface waters, enclosed bays, and estuaries. The State Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) – 2000,* on March 2, 2000, for implementation of the CTR (State Board Resolution No. 2000-15 as amended by Board Resolution No. 2000-030). This policy requires that discharges comply with TMDL-derived load allocations as soon as possible but no later than 20 years from the effective date of the policy.

11. The State Board adopted a revised Water Quality Control Plan for Ocean Waters of California (Ocean Plan) on July 23, 1997. The Ocean Plan contains water quality objectives which apply to all discharges to the coastal waters of California.

12. The State Board in *In Re*: California Department of Transportation (State Board Order WQ 2001-08), determined that the discharge of storm water to ASBS is subject to the prohibition in the Ocean Plan against the discharge of wastes to an ASBS.

13. The Regional Board adopted an updated Water Quality Control Plan (Basin Plan) for the Los Angeles Region on June 13, 1994, *'Water Quality Control Plan, Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties*, (1994).' The Basin Plan designates beneficial uses of receiving waters and specifies both narrative and numerical water quality objectives for the receiving waters in Los Angeles County.

14. The Regional Board on September 19, 2001, adopted amendments to the Basin Plan, to incorporate TMDLs for trash in the Los Angeles River (Resolution No. 01-013) and Ballona Creek (Resolution No. 01-014). After approval by the State Board, the Office of Administrative Law, and the USEPA, the TMDLs for trash will be effective and enforceable.

15. The Regional Board on April 13, 1998, approved BMPs for sidewalk rinsing to minimize the discharge of wash waters to the storm drain system (Resolution No. 98-08). By the same resolution, the Regional Board prohibited the discharge of municipal street wash waters to the storm drain system.

16. The Regional Board on April 13, 1998, approved recommended BMPs for industrial/commercial facilities (Resolution No. 98-08).

17. The Regional Board on April 22, 1999, approved a list of BMPs for use in development planning and development construction (Resolution No. 99-03)

18. The Regional Board adopted and approved requirements for new development and significant redevelopment projects in Los Angeles County to control the discharge of storm water pollutants in post-construction storm water, on January 26, 2000, in Board Resolution No. R-00-02. The Regional Board Executive Officer issued the approved Standard Urban Storm Water Mitigation Plans (SUSMPs) on March 8, 2000. The State Board in large part affirmed the Regional Board action and SUSMPs in State Board Order No. WQ 2000-11 issued on October 5, 2000.

    - The State Board's Chief Counsel has issued a statewide policy memorandum (dated December 26, 2000), which interprets the Order to provide broad discretion to Regional Boards and identifies potential future areas for inclusion in SUSMPs and the types of evidence and findings necessary. Such areas include ministerial projects, projects in environmentally sensitive areas, and water quality design criteria for RGOs.

    - The State Board's Chief Counsel interprets the Order to encourage regional solutions and endorses a mitigation fund or "bank" that may be funded by developers who obtain waivers from the numerical design standards for new development and significant redevelopment.

19. 40 CFR 131.10(a) prohibits states from designating waste transport or waste assimilation as a use for any water of the U.S. Authorizing the

construction of a storm water/ urban runoff treatment facility in a jurisdictional water body would be tantamount to accepting waste assimilation as an appropriate use for that water body. Furthermore, the construction and operation of a pollution control facility in a water body can impact the physical, chemical, and biological integrity as well as the beneficial uses of the water body. Therefore, storm water treatment and/or mitigation in accordance with SUSMPs and any other requirements of this Order must occur prior to the discharge of storm water into a water of the U.S.

20. The Regional Board supports a Watershed Management Approach to address water quality protection in the region. The objective of the Watershed Management Approach should be to provide a comprehensive and integrated strategy towards water resource protection, enhancement, and restoration while balancing economic and environmental impacts within a hydrologically defined drainage basin or watershed. It emphasizes cooperative relationships between regulatory agencies, the regulated community, environmental groups, and other stakeholders in the watershed to achieve the greatest environmental improvements with available resources.

21. To promote a watershed management approach, the County of Los Angeles is divided into six Watershed Management Areas (WMAs) as follows:

    Malibu Creek and Rural Santa Monica Bay WMA
    Ballona Creek and Urban Santa Monica Bay WMA
    Los Angeles River WMA
    San Gabriel River WMA
    Dominguez Channel/Los Angeles Harbor WMA, and
    Santa Clara River WMA

    Attachment A shows the list of Permittees under each WMA and some Permittees have expressed an intent to form sub-watershed groups within the WMA to promote regional solutions for the mitigation of storm water discharge pollution.

22. To facilitate compliance with federal regulations, the State Board has issued two statewide general NPDES permits for storm water discharges: one for storm water from industrial sites [NPDES No. CAS000001, General Industrial Activity Storm Water Permit (GIASP)] and the other for storm water from construction sites [NPDES No. CAS000002, General Construction Activity Storm Water Permit (GCASP)]. The GCASP was reissued on August 19, 1999. The GIASP was reissued on April 17, 1997. Facilities discharging storm water associated with industrial activities and construction projects with a disturbed area of five acres or more are required to obtain individual NPDES permits for storm water discharges, or to be covered by a statewide general permit by completing and filing a Notice of Intent (NOI) with the State Board. The USEPA guidance anticipates coordination of the state-administered programs for

industrial and construction activities with the local agency program to reduce pollutants in storm water discharges to the MS4.

The Regional Board is the enforcement authority in the Los Angeles Region for the two statewide general permits regulating discharges from industrial facilities and construction sites, and all NPDES storm water and non-storm water permits issued by the Regional Board. These industrial and construction sites and discharges are also regulated under local laws and regulations.

23. The State Board, on October 28, 1968, adopted Resolution No. 68-16, which established an anti-degradation policy for the State and Regional Boards. This policy restricts the degradation of surface waters and protects waterbodies where existing water quality is higher than is necessary for the protection of beneficial uses.

24. The State Board, on June 17, 1999, adopted Order No. WQ 99-05, which, in a precedential decision, identifies acceptable receiving water limitations language to be included in municipal storm water permits issued by the State and Regional Boards. The receiving water limitations included herein are consistent with the State Board Order, USEPA Policy, and the U.S. Appellate court decision in, *Defenders of Wildlife v. Browner* (9th. Cir, 1999). The State Board OCC has determined that the federal court decision did not conflict with State Board Order No. WQ 99-05 (memorandum dated October 14, 1999)

25. California Water Code (CWC) § 13263(a) requires that waste discharge requirements issued by the Regional Board shall implement any relevant water quality control plans that have been adopted; shall take into consideration the beneficial uses to be protected and the water quality objectives reasonably required for that purpose; other waste discharges; the need to prevent nuisance; and provisions of CWC § 13241. The Regional Board has considered the requirements of § 13263 and § 13241, and applicable plans, policies, rules, and regulations in developing these waste discharge requirements.

26. CWC § 13370 *et seq.* requires that waste discharge requirements issued by the Regional Boards be consistent with provisions of the federal CWA and its amendments.

27. On March 12, 2001, the U.S. Court of Appeals ruled that it is necessary to obtain a NPDES permit for application of aquatic pesticides to waterways. (*Headwaters, Inc. vs. Talent Irrigation District,* 243 F.3d. 526 (9th Cir., 2001)) This decision is controlling in California for nonagricultural applications of pesticides to waterways. The State Board adopted a general NPDES permit (Order No. 2001-12-DWQ) on July 19, 2001, for public entities that discharge pollutants to waters of the U.S. associated with the application of aquatic pesticides for resource or pest management. Public entities that conduct such activities must seek coverage under the general permit.

F. Implementation

1. The California Environmental Quality Act (CEQA) (Cal. Pub. Resources Code § 21000 *et seq*.) requires that public agencies consider the environmental impacts of the projects they approve for development. CEQA applies to projects that are considered discretionary and does not apply to ministerial projects, which involve the use of established standards or objective measurements. A ministerial project may be made discretionary by adopting local ordinance provisions or imposing conditions to create decision-making discretion in approving the project. In the alternative, Permittees may establish standards and objective criteria administratively for storm water mitigation for ministerial projects. For water quality purposes, the Regional Board considers that all new development and significant redevelopment activity in specified categories, that receive approval or permits from a municipality, are subject to storm water mitigation requirements.

2. The objective of this Order is to protect the beneficial uses of receiving waters in Los Angeles County. To meet this objective, this Order requires that the SQMP specify BMPs that will be implemented to reduce the discharge of pollutants in storm water to the maximum extent practicable. Further, Permittees are to assure that storm water discharges from the MS4 shall neither cause nor contribute to the exceedance of water quality standards and objectives nor create conditions of nuisance in the receiving waters, and that the discharge of non-storm water to the MS4 has been effectively prohibited.

3. The SQMP required in this Order builds upon the programs established in Order Nos. 90-079, and 96-054, consists of the components recommended in the USEPA guidance manual, and was developed with the cooperation of representatives from the regulated community and environmental groups. The SQMP includes provisions that promote customized initiatives, both on a countywide and watershed basis, in developing and implementing cost-effective measures to minimize discharge of pollutants to the receiving water. The various components of the SQMP, taken as a whole rather than individually, are expected to reduce pollutants in storm water and urban runoff to the maximum extent practicable. Provisions of the SQMP are fully enforceable under provisions of this Order.

4. The emphasis of the SQMP is pollution prevention through education, public outreach, planning, and implementation as source control BMPs first and then Structural and Treatment Control BMPs next. Successful implementation of the provisions of the SQMP will require cooperation and coordination of all public agencies in each Permittee's organization, among Permittees, and with the regulated community.

5. The implementation of a Public Information and Participation Program is a critical component of a storm water management program. An informed and knowledgeable community is critical to the success of a storm water management program since it helps insure the following: (i) greater support for the program as the public gains a greater understanding of

the reasons why it is necessary and important, and (ii) greater compliance with the program as the public becomes aware of the personal responsibilities expected of them and others in the community, including the individual actions they can take to protect or improve the quality of area waters.

6. This Order includes a Monitoring Program that incorporates Minimum Levels (MLs) established under the SIP. The SIP's MLs represent the lowest quantifiable concentration for priority toxic pollutants that is measurable with the use of proper method-based analytical procedures and factoring out matrix interference. The SIP's MLs therefore represent the best available science for determining MLs and are appropriate for a storm water monitoring program. The use of MLs allows the detection of toxic priority pollutants at concentrations of concern using recent advances in chemical analytical methods.

7. This Order provides flexibility for Permittees to petition the Regional Board Executive Officer to substitute a BMP under the SQMP with an alternative BMP, if they can provide information and documentation on the effectiveness of the alternative, equal to or greater than the prescribed BMP in meeting the objectives of this Order.

8. This Order contemplates that the Permittees are responsible for considering potential storm water impacts when making planning decisions in order to fulfill the Permittees' CWA requirement to reduce the discharge of pollutants in municipal storm water to the MEP from new development and redevelopment activities. However, the Permittees retain authority to make the final land-use decisions and retain full statutory authority for deciding what land uses are appropriate at specific locations within each Permittee's jurisdiction. This Order and its requirements are not intended to restrict or control local land use decision-making authority.

9. This Order is not intended to prohibit the inspection for or abatement of vectors by the State Department of Health Services or local vector agencies in accordance with Cal. Health and Safety Code § 2270 *et seq*. and §116110 *et seq*. Certain Treatment Control BMPs if not properly designed, operated or maintained may create habitats for vectors (e.g. mosquito and rodents). This Order contemplates that the Permittees will closely cooperate and collaborate with local vector control agencies and the State Department of Health Services for the implementation, operation, and maintenance of Treatment Control BMPs in order to minimize the risk to public health from vector borne diseases.

G. Public Process

1. The Regional Board has notified the Permittees and interested agencies and persons of its intent to issue waste discharge requirements for this discharge, and has provided them with an opportunity to submit their written view and recommendations.

2. The Regional Board, in a public hearing, heard and considered all comments pertaining to the discharge and to the tentative requirements.

3. The Regional Board has conducted public workshops to discuss drafts of the permit. On April 24, 2001, Regional Board staff conducted a workshop outlining the reasoning behind the changes proposed for the new permit and received input from the Permittees and the public regarding those proposed changes. On July 26, 2001, a second public workshop was held at a special Regional Board meeting. The Permittees and the public had another opportunity to express their opinions regarding the proposed changes to the permit in front of the Regional Board members. A significant number of working meetings with the Permittees and other interested parties have occurred throughout the period from the submittal of the ROWD and completion of the tentative draft, in an attempt to incorporate and address all the comments presented.

4. The Los Angeles County Flood Control District, the County of Los Angeles and the other municipalities are co-permittees as defined in 40 CFR 122.26 (b)(1). Los Angeles County Flood Control District will coordinate with the other municipalities and facilitate program implementation. Each Permittee is responsible only for a discharge for which it is the operator.

5. This Order shall serve as a NPDES Permit, pursuant to CWA § 402, or amendments thereto, and shall take effect 50 days from Order adoption provided the Regional Administrator of the USEPA has no objections.

6. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA (Cal. Pub. Resources Code § 21100 *et seq*.), in accordance with CWC § 13389.

7. Pursuant to CWC §13320, any aggrieved party may seek review of this Order by filing a petition with the State Board. A petition must be sent to: State Water Resources Control Board, P.O. Box 100, Sacramento, California, 95812, within 30 days of adoption of the Order by the Regional Board.

8. This Order may be modified or alternatively revoked or reissued prior to its expiration date, in accordance with the procedural requirements of the NPDES program, and the CWC for the issuance of waste discharge requirements.

IT IS HEREBY ORDERED that the Los Angeles County Flood Control District, Los Angeles County, and the Cities of Agoura Hills, Alhambra, Arcadia, Artesia, Azusa, Baldwin Park, Bell, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach, Hidden Hills, Huntington Park, Industry, Inglewood, Irwindale, La Cañada Flintridge, La Habra Heights, Lakewood, La Mirada, La Puente, La Verne, Lawndale, Lomita, Los Angeles, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes,

Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Clarita, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, and Whittier, in order to meet the provisions contained in Division 7 of the CWC and regulations adopted thereunder, and the provisions of the CWA, as amended, and regulations and guidelines adopted thereunder, shall comply with the following:

Part 1. DISCHARGE PROHIBITIONS

The Permittees shall effectively prohibit non-storm water discharges into the MS4 and watercourses, except where such discharges:

1. Are covered by a separate individual or general NPDES permit for non-storm water discharges; or

2. Fall within one of the categories below, and meet all conditions when specified by the Regional Board Executive Officer:

   a) Category A - Natural flow:

      (1) Natural springs and rising ground water;

      (2) Flows from riparian habitats or wetlands;

      (3) Stream diversions, permitted by the State Board; and

      (4) Uncontaminated ground water infiltration [as defined by 40 CFR 35.2005(20)].

   b) Category B - Flows from emergency fire fighting activity.

   c) Category C - Flows incidental to urban activities:

      (1) Reclaimed and potable landscape irrigation runoff;

      (2) Potable drinking water supply and distribution system releases (consistent with American Water Works Association guidelines for dechlorination and suspended solids reduction practices);

      (3) Drains for foundations, footings, and crawl spaces;

      (4) Air conditioning condensate;

      (5) Dechlorinated/debrominated swimming pool discharges;

      (6) Dewatering of lakes and decorative fountains;

      (7) Non-commercial car washing by residents or by non-profit organizations; and

      (8) Sidewalk rinsing.

   The Regional Board Executive Officer may add or remove categories of non-storm water discharges above. Furthermore, in the event that any of

the above categories of non-storm water discharges are determined to be a source of pollutants by the Regional Board Executive Officer, the discharge will no longer be exempt from this prohibition unless the Permittee implements conditions approved by the Regional Board Executive Officer to ensure that the discharge is not a source of pollutants. Notwithstanding the above, the Regional Board Executive Officer may impose additional prohibitions of non-storm water discharges in consideration of anti-degradation policies and TMDLs.

Part 2. RECEIVING WATER LIMITATIONS

1. Discharges from the MS4 that cause or contribute to the violation of Water Quality Standards or water quality objectives are prohibited.

2. Discharges from the MS4 of storm water, or non-storm water, for which a Permittee is responsible for, shall not cause or contribute to a condition of nuisance.

3. The Permittees shall comply with Part 2.1. and 2.2. through timely implementation of control measures and other actions to reduce pollutants in the discharges in accordance with the SQMP and its components and other requirements of this Order including any modifications. The SQMP and its components shall be designed to achieve compliance with receiving water limitations. If exceedances of Water Quality Objectives or Water Quality Standards (collectively, Water Quality Standards) persist, notwithstanding implementation of the SQMP and its components and other requirements of this permit, the Permittee shall assure compliance with discharge prohibitions and receiving water limitations by complying with the following procedure:

   a) Upon a determination by either the Permittee or the Regional Board that discharges are causing or contributing to an exceedance of an applicable Water Quality Standard, the Permittee shall promptly notify and thereafter submit a Receiving Water Limitations (RWL) Compliance Report (as described in the Program Reporting Requirements, Section I of the Monitoring and Reporting Program) to the Regional Board that describes BMPs that are currently being implemented and additional BMPs that will be implemented to prevent or reduce any pollutants that are causing or contributing to the exceedances of Water Quality Standards. This RWL Compliance Report may be incorporated in the annual Storm Water Report and Assessment unless the Regional Board directs an earlier submittal. The RWL Compliance Report shall include an implementation schedule. The Regional Board may require modifications to the RWL Compliance Report.

   b) Submit any modifications to the RWL Compliance Report required by the Regional Board within 30 days of notification.

   c) Within 30 days following the approval of the RWL Compliance Report, the Permittee shall revise the SQMP and its components and monitoring program to incorporate the approved modified

BMPs that have been and will be implemented, an implementation schedule, and any additional monitoring required.

d) Implement the revised SQMP and its components and monitoring program according to the approved schedule.

4. So long as the Permittee has complied with the procedures set forth above and is implementing the revised SQMP and its components, the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same receiving water limitations unless directed by the Regional Board to develop additional BMPs.

Part 3. STORM WATER QUALITY MANAGEMENT PROGRAM (SQMP) IMPLEMENTATION

A. General Requirements

1. Each Permittee shall, at a minimum, implement the SQMP. The SQMP is an enforceable element of this Order. The SQMP shall be implemented no later than February 1, 2002, unless a later date has been specified for a particular provision in this Order.

2. The SQMP shall, at a minimum, comply with the applicable storm water program requirements of 40 CFR 122.26(d)(2). The SQMP and its components shall be implemented so as to reduce the discharges of pollutants in storm water to the MEP.

3. Each Permittee shall implement additional controls, where necessary, to reduce the discharges of pollutants in storm water to the MEP.

4. Permittees that modify the countywide SQMP (i.e., implement additional controls, implement different controls than described in the countywide SQMP, or determine that certain BMPs in the countywide SQMP are not applicable in the area under its jurisdiction), shall develop a local SQMP, no later than August 1, 2002. The local SQMP shall be customized to reflect the conditions in the area under the Permittee's jurisdiction and shall specify activities being implemented under the appropriate elements described in the countywide SQMP.

B. Best Management Practice Implementation

The Permittees shall implement or require the implementation of the most effective combination of BMPs for storm water/urban runoff pollution control. When implemented, BMPs are intended to result in the reduction of pollutants in storm water to the MEP.

C. Revision of the Storm Water Quality Management Program

The Permittees shall revise the SQMP, at the direction of the Regional Board Executive Officer, to incorporate program implementation amendments so as to comply with regional, watershed specific requirements, and/or waste load

allocations developed and approved pursuant to the process for the designation and implementation of Total Maximum Daily Loads (TMDLs) for impaired water bodies.

D. Designation and Responsibilities of the Principal Permittee

The Los Angeles County Flood Control District is hereby designated as the Principal Permittee. As such, the Principal Permittee shall:

1. Coordinate and facilitate activities necessary to comply with the requirements of this Order, but is not responsible for ensuring compliance of any individual Permittee;

2. Coordinate permit activities among Permittees and act as liaison between Permittees and the Regional Board on permitting issues;

3. Provide personnel and fiscal resources for the necessary updates of the SQMP and its components;

4. Provide technical and administrative support for committees that will be organized to implement the SQMP and its components;

5. Convene the Watershed Management Committees (WMCs) constituted pursuant to Part F, below, upon designation of representatives;

6. Implement the Countywide Monitoring Program required under this Order and evaluate, assess and synthesize the results of the monitoring program;

7. Provide personnel and fiscal resources for the collection, processing and submittal to the Regional Board of annual reports and summaries of other reports required under the SQMP; and

8. Comply with the "Responsibilities of the Permittees" in Part 3.E., below.

E. Responsibilities of the Permittees

Each Permittee is required to comply with the requirements of this Order applicable to discharges within its boundaries (see Findings D.1, D.2. and D.3.) and not for the implementation of the provisions applicable to the Principal Permittee or other Permittees. Each Permittee shall, within its geographic jurisdiction:

1. Comply with the requirements of the SQMP and any modifications thereto;

2. Coordinate among its internal departments and agencies, as appropriate, to facilitate the implementation of the requirements of the SQMP applicable to such Permittee in an efficient and cost-effective manner;

3. Designate a technically knowledgeable representative to the appropriate WMC;

4. Participate in intra-agency coordination (e.g. Fire Department, Building and Safety, Code Enforcement, Public Health, etc.) necessary to successfully implement the provisions of this Order and the SQMP.

5. Prepare an annual Budget Summary of expenditures applied to the storm water management program. This summary shall identify the storm water budget for the following year, using estimated percentages and written explanations where necessary, for the specific categories noted below:

   a) Program management
      - Administrative costs

   b) Program Implementation

      Where information is available, provide an estimated percent breakdown of expenditures for the categories below:
      - Illicit connection/illicit discharge
      - Development planning
      - Development construction
      - Construction inspection activities
      - Industrial/Commercial inspection activities
      - Public Agency Activities
        - Maintenance of Structural BMPs and Treatment Control BMPs
        - Municipal Street Sweeping
        - Catch basin clean-up
        - Trash collection
        - Capital costs

   c) Public Information and Participation

   d) Monitoring Program

   e) Miscellaneous Expenditures

6. Each Permittee, in addition to the Budget Summary, shall report any supplemental dedicated budgets for the same categories.

F. Watershed Management Committees (WMCs)

1. Each WMC shall be comprised of a voting representative from each Permittee in the WMA.

2. The WMC's chair and secretary shall be chosen by the WMC upon Order adoption and on an annual basis, thereafter. In the absence of volunteer Permittee(s) for the positions, the Principal Permittee shall assume those roles until the WMC chooses members of the committee for the positions.

3. Each WMC shall:

   a) Facilitate cooperation and exchange of information among Permittees;

b) Establish additional goals and objectives and associated deadlines for the WMA, as the program implementation progresses;

c) Prioritize pollution control efforts based on beneficial use impairment(s), watershed characteristics and analysis of results from studies and the monitoring program;

d) Develop and/or update and monitor the adequate implementation, on an annual basis, of the tasks identified for the WMA;

e) Assess the effectiveness of, prepare revisions for, and recommend appropriate changes to the SQMP and its components;

f) Continue to prioritize the Industrial/Commercial critical sources for investigation, outreach and follow-up; and

g) Meet four times per year and, as necessary.

G. Legal Authority

1. Permittees shall possess the necessary legal authority to prohibit non-storm water discharges to the storm drain system, including, but not limited to:

a) Illicit discharges and illicit connections and require removal of illicit connections;

b) The discharge of wash waters to the MS4 from the cleaning of gas stations, auto repair garages, or other types of automotive service facilities;

c) The discharge of runoff to the MS4 from mobile auto washing, steam cleaning, mobile carpet cleaning, and other such mobile commercial and industrial operations;

d) The discharge of runoff to the MS4 from areas where repair of machinery and equipment which are visibly leaking oil, fluid or antifreeze, is undertaken;

e) The discharge of runoff to the MS4 from storage areas of materials containing grease, oil, or other hazardous substances, and uncovered receptacles containing hazardous materials;

f) The discharge of chlorinated/ brominated swimming pool water and filter backwash to the MS4;

g) The discharge of runoff from the washing of toxic materials from paved or unpaved areas to the MS4;

h) Washing impervious surfaces in industrial/commercial areas that results in a discharge of runoff to the MS4;

i) The discharge of concrete or cement laden wash water from concrete trucks, pumps, tools, and equipment to the MS4; and

j) Dumping or disposal of materials into the MS4 other than storm water, such as:

(1) Litter, landscape debris and construction debris;

(2) Any state or federally banned or unregistered pesticides;

(3) Food and food processing wastes; and

(4) Fuel and chemical wastes, animal wastes, garbage, batteries, and other materials that have potential adverse impacts on water quality.

2. The Permittees shall possess adequate legal authority to:

a) Require persons within their jurisdiction to comply with conditions in Permittees' ordinances, permits, contracts, model programs, or orders (i.e. hold dischargers to its MS4 accountable for their contributions of pollutants and flows);

b) Utilize enforcement mechanisms to require compliance with Permittees ordinances, permits, contracts, or orders;

c) Control pollutants, including potential contribution, in discharges of storm water runoff associated with industrial activities (including construction activities) to its MS4 and control the quality of storm water runoff from industrial sites (including construction sites). This requirement applies to Source Control, and Treatment Control BMPs;

d) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and non-compliance with permit conditions, including the prohibition of illicit discharges to the MS4. Permittees must possess authority to enter, sample, inspect, review and copy records, and require regular reports from industrial facilities (including construction sites) discharging polluted or with the potential to discharge polluted storm water runoff into its MS4;

e) Require the use of BMPs to prevent or reduce the discharge of pollutants to MS4s to MEP; and

f) Require that Treatment Control BMPs be properly operated and maintained to prevent the breeding of vectors.

3. Each Permittee shall, no later than November 1, 2002, amend and adopt (if necessary), a Permittee-specific storm water and urban runoff ordinance to enforce all requirements of this permit.

4. Each Permittee shall submit no later than December 2, 2002, a new or updated statement by its legal counsel that the Permittee has obtained all

necessary legal authority to comply with this Order through adoption of ordinances and/or municipal code modifications.

Part 4. SPECIAL PROVISIONS

Maximum Extent Practicable Standard

This permit, and the provisions herein, are intended to develop, achieve, and implement a timely, comprehensive, cost-effective storm water pollution control program to reduce the discharge of pollutants in storm water to the MEP from the permitted areas in the County of Los Angeles to the waters of the State.

A. General Requirements

1. Best Management Practice Substitution

   The Regional Board Executive Officer may approve any site-specific BMP substitution upon petition by a Permittee(s), if the Permittee can document that:

   a) The proposed alternative BMP or program will meet or exceed the objective of the original BMP or program in the reduction of storm water pollutants; or

   b) The fiscal burden of the original BMP or program is substantially greater than the proposed alternative and does not achieve a substantially greater improvement in storm water quality; and,

   c) The proposed alternative BMP or program will be implemented within a similar period of time.

B. Public Information and Participation Program (PIPP)

The Principal Permittee shall implement a Public Information and Participation Program (PIPP) that includes, but is not limited to, the requirements listed in this section. The Principal Permittee shall be responsible for developing and implementing the Public Education Program, as described in the SQMP, and shall coordinate with Permittees to implement specific requirements.

The objectives of the PIPP are as follows:

- To measurably increase the knowledge of the target audiences regarding the MS4, the impacts of storm water pollution on receiving waters, and potential solutions to mitigate the problems caused;
- To measurably change the waste disposal and runoff pollution generation behavior of target audiences by encouraging implementation of appropriate solutions; and
- To involve and engage socio-economic groups and ethnic communities in Los Angeles County to participate in mitigating the impacts of storm water pollution.

The Principal Permittee shall convene an advisory committee to provide input and assistance in meeting the goals and objectives of the public education campaign. The advisory committee shall be consulted during the process of developing the PIPP campaign, and shall provide comments and advice during the process of preparing a Request For Proposals for a storm water public education contractor. The committee may participate as a part of a working group that evaluates contractor proposals and other tasks as appropriate. The committee shall be comprised of representatives of the environmental community, Permittee cities, Regional Board staff, and experts in the fields of public education and marketing. The Principal Permittee shall ensure that the committee meets at least once a year.

1. Residential Program

a) "No Dumping" Message

Each Permittee shall mark all storm drain inlets that they own with a legible “no dumping” message. In addition, signs with prohibitive language discouraging illegal dumping must be posted at designated public access points to creeks, other relevant water bodies, and channels no later than February 2, 2004. Signage and storm drain messages shall be legible and maintained as necessary during the term of the permit.

b) Countywide Hotline

The 888-CLEAN-LA hotline will serve as the general public reporting contact for reporting clogged catch basin inlets and illicit discharges/dumping, faded or lack of catch basin stencils, and general storm water management information. Each Permittee may establish its own hotline if preferred. Permittees shall include this information, updated when necessary, in public information, and the government pages of the telephone book, as they are developed or published. The Principal Permittee shall compile a list of the general public reporting contacts from all Permittees and make this information available on the web site (888CleanLA.com) and upon request. Permittees shall provide the Principal Permittee with their reporting contacts no later than March 1, 2002. Permittees are responsible for providing current, updated information to the Principal Permittee.

c) Outreach and Education

(1) The Principal Permittee shall continue to implement the following activities that were components of the first five-year PIPP:

(i) Advertising;

(ii) Media relations;

(iii) Public service announcements;

(iv) "How To" instructional material distributed in a targeted and activity-related manner;

(v) Corporate, community association, environmental organization and entertainment industry tie-ins; and

(vi) Events targeted to specific activities and population subgroups.

(2) The Principal Permittee shall develop a strategy to educate ethnic communities and businesses through culturally effective methods. Details of this strategy should be incorporated into the Public Education Program, and implemented, no later than February 3, 2003.

(3) The Principal Permittee shall enhance the existing outreach efforts to residents and businesses related to the proper disposal of cigarette butts.

(4) Each Permittee shall conduct educational activities within its jurisdiction and participate in countywide events.

(5) The Principal Permittee shall organize Public Outreach Strategy meetings for Permittees on a quarterly basis, beginning no later than May 1, 2002. The Principal Permittee shall provide guidance for Permittees to augment the countywide outreach and education program. Permittees shall coordinate regional and local outreach and education to reduce duplication of efforts. Permittees are encouraged to include other interested parties in the outreach strategy to strengthen and coordinate educational efforts.

(6) The Principal Permittee shall ensure that a minimum of 35 million impressions per year are made on the general public about storm water quality via print, local TV access, local radio, or other appropriate media.

(7) The Principal Permittee, in cooperation with the Permittees, shall provide schools within each School District in the County with materials, including, but not limited to, videos, live presentations, and other information necessary to educate a minimum of 50 percent of all school children (K-12) every 2 years on storm water pollution.

(8) Permittees shall provide the contact information for their appropriate staff responsible for storm water public education activities to the Principal Permittee no later than April 1, 2002, and changes to contact information no later than 30 days after a change occurs.

(9) The Principal Permittee shall develop a strategy to measure the effectiveness of in-school educational programs. The protocol shall include assessment of students' knowledge of storm water pollution problems and

solutions before and after educational efforts are conducted. The protocol shall be developed and submitted to the Regional Board Executive Officer for approval no later than May 1, 2002. It shall be implemented upon approval.

(10) In order to ensure that the PIPP is demonstrably effective in changing the behavior of the public, the Principal Permittee shall develop a behavioral change assessment strategy no later than May 1, 2002. The strategy shall be developed based on sociological data and studies (such as the County Segmentation Study). The Principal Permittee shall submit the assessment strategy to the Regional Board Executive Office for approval. It shall be implemented on approval.

d) Pollutant-Specific Outreach

The Principal Permittee, in cooperation with Permittees, shall coordinate to develop outreach programs that focus on the watershed-specific pollutants listed in Table 1 no later than February 3, 2003. Metals may be appropriately addressed through the Industrial/Commercial Facilities Program (e.g. distribute education materials on appropriate BMPs for metal waste management to facilities that have been identified as a potential source, such as metal fabricating facilities). Region-wide pollutants may be included in the Principal Permittee's mass media outreach efforts.

Table 1.	
Watershed	***Target Pollutants for Outreach***
Ballona Creek	Trash, Indicator Bacteria, Metals, PAHs
Malibu Creek	Trash, Nutrients (Nitrogen), Indicator Bacteria, Sediments
Los Angeles River	Trash, Nutrients (Nitrogen), Indicator Bacteria, Metals, Pesticides, PAHs
San Gabriel River	Trash, Nutrients (Nitrogen), Indicator Bacteria, Metals
Santa Clara River	Nutrients (Nitrogen), Coliform
Dominguez Channel	Trash, Indicator Bacteria, PAHs

Each Permittee shall make outreach materials available to the general public and target audiences, such as schools, community groups, contractors and developers, and at appropriate public counters and events. Outreach material shall include information on pollutants, sources of concern, and source abatement measures.

2. Businesses Program

a) Corporate Outreach

The Principal Permittee shall develop and implement a Corporate Outreach program to educate and inform corporate managers about storm water regulations. The program shall target RGOs and restaurant chains. At a minimum, this program shall include:

(1) Conferring with corporate management to explain storm water regulations;

(2) Distribution and discussion of educational material regarding storm water pollution and BMPs, and provide managers with suggestions to facilitate employee compliance with storm water regulations.

Corporate Outreach for all RGOs and restaurant chain corporations shall be conducted not less than twice during the permit term, with the first outreach contact to begin no later than February 3, 2003.

b) Business Assistance Program

The Principal Permittee and Permittees may implement a Business Assistance Program to provide technical resource assistance to small businesses to advise them on BMPs implementation to reduce the discharge of pollutants in storm water runoff. Programs may include:

(1) On-site technical assistance or consultation via telephone to identify and implement storm water pollution prevention methods and best management practices; and

(2) Making available, distributing, and discussing of applicable BMP and educational materials.

C. Industrial/Commercial Facilities Control Program

Each Permittee shall require implementation of pollutant reduction and control measures at industrial and commercial facilities, with the objective of reducing pollutants in storm water runoff. Except as specified in other sections of this Order, pollutant reduction and control measures can be used alone or in combination, and can include Structural and Source Control BMPs, and operation and maintenance procedures, which can be applied before, during, and/or after pollution generating activities. At a minimum, the Industrial/Commercial Facilities Control Program shall include requirements to: (1) track, (2) inspect, and (3) ensure compliance at industrial and commercial facilities that are critical sources of pollutants in storm water.

1. Track Critical Sources

a) Each Permittee shall maintain a watershed-based inventory or database of all facilities within its jurisdiction that are critical sources of storm water pollution. Critical sources to be tracked are summarized below, and also specified in Attachment B:

(1) Commercial Facilities

- restaurants;
- automotive service facilities; and
- RGOs and automotive dealerships.

(2) USEPA Phase I Facilities (Tier 1 and 2)

(3) Other Federally-mandated Facilities [as specified in 40 CFR 122.26(d)(2)(iv)(C)]

- municipal landfills;
- hazardous waste treatment, disposal, and recovery facilities; and
- facilities subject to SARA Title III (also known as EPCRA).

b) Each Permittee shall include the following minimum fields of information for each industrial and commercial facility:

- name of facility and name of owner/operator;
- address;
- coverage under the GIASP or other individual or general NPDES permits; and
- a narrative description including SIC codes that best reflects the industrial activities at and principal products of each facility.

The Regional Board encourages Permittees to add other fields of information, such as material usage and/or industrial output, and discrepancies between SIC Code designations (as reported by facility operators) and the actual type of industrial activity has the potential to pollute storm water. In addition, the Regional Board recommends use of an automated database system, such as a Geographical Information System (GIS) or Internet-based system; however, this is not required.

c) Each Permittee shall update its inventory of critical sources at least annually. The update may be accomplished through collection of new information obtained through field activities or through other readily available intra-agency informational databases (e.g. business licenses, pretreatment permits, sanitary sewer hook-up permits).

2. Inspect Critical Sources

Each Permittee shall inspect all facilities in the categories and at a level and frequency as specified in the following subsections.

a) Commercial Facilities

(1) Restaurants

Frequency of Inspections: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of inspections: Each Permittee, in cooperation with its appropriate department (such as health or public works), shall inspect all restaurants within its jurisdiction to confirm that storm water BMPs are being effectively implemented in compliance with State law, County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP. At each restaurant, inspectors shall verify that the restaurant operator:

- has received educational materials on storm water pollution prevention practices;
- does not pour oil and grease or oil and grease residue onto a parking lot, street or adjacent catch basin;
- keeps the trash bin area clean and trash bin lids closed, and does not fill trash bins with washout water or any other liquid;
- does not allow illicit discharges, such as discharge of washwater from floormats, floors, porches, parking lots, alleys, sidewalks and street areas (in the immediate vicinity of the establishment), filters or garbage/trash containers;
- removes food waste, rubbish or other materials from parking lot areas in a sanitary manner that does not create a nuisance or discharge to the storm drain.

(2) Automotive Service Facilities

Frequency of Inspections: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of inspections: Each Permittee shall inspect all automotive service facilities within its jurisdiction to confirm that storm water BMPs are effectively implemented in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP. At each

automotive service facility, inspectors shall verify that each operator:

- maintains the facility area so that it is clean and dry and without evidence of excessive staining;
- implements housekeeping BMPs to prevent spills and leaks;
- properly discharges wastewaters to a sanitary sewer and/or contains wastewaters for transfer to a legal point of disposal;
- is aware of the prohibition on discharge of non-storm water to the storm drain;
- properly manages raw and waste materials including proper disposal of hazardous waste;
- protects outdoor work and storage areas to prevent contact of pollutants with rainfall and runoff;
- labels, inspects, and routinely cleans storm drain inlets that are located on the facility's property; and
- trains employees to implement storm water pollution prevention practices.

(3) Retail Gasoline Outlets and Automotive Dealerships

Frequency of Inspection: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of Inspection: Each Permittee shall confirm that BMPs are being effectively implemented at each RGO and automotive dealership within its jurisdiction, in compliance with the SQMP, Regional Board Resolution 98-08, and the Stormwater Quality Task Force Best Management Practice Guide for RGOs. At each RGO and automotive dealership, inspectors shall verify that each operator:

- routinely sweeps fuel-dispensing areas for removal of litter and debris, and keeps rags and absorbents ready for use in case of leaks and spills;
- is aware that washdown of facility area to the storm drain is prohibited;
- is aware of design flaws (such as grading that doesn't prevent run-on, or inadequate roof covers and berms), and that equivalent BMPs are implemented;
- inspects and cleans storm drain inlets and catch basins within each facility's boundaries no later than October 1st of each year;

- posts signs close to fuel dispensers, which warn vehicle owners/operators against "topping off" of vehicle fuel tanks and installation of automatic shutoff fuel dispensing nozzles;
- routinely checks outdoor waste receptacle and air/water supply areas, cleans leaks and drips, and ensures that only watertight waste receptacles are used and that lids are closed; and
- trains employees to properly manage hazardous materials and wastes as well as to implement other storm water pollution prevention practices.

b) Phase I Facilities

Permittees need not inspect facilities that have been inspected by the Regional Board within the past 24 months. For the remaining Phase I facilities that the Regional Board has not inspected, each Permittee shall conduct compliance inspections as specified below.

Frequency of Inspection

Facilities in Tier 1 Categories: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Facilities in Tier 2 Categories: Twice during the 5-year term of the permit, provided that the first inspection occurs no later than August 1, 2004. Permittees need not perform additional inspections at those facilities determined to have no risk of exposure of industrial activity to storm water. For those facilities that do have exposure of industrial activities to storm water, a Permittee may reduce the frequency of additional compliance inspections to once every 5 years, provided that the Permittee inspects at least 20% of the facilities in Tier 2 each year.

Level of Inspection: Each Permittee shall confirm that each operator:

- has a current Waste Discharge Identification (WDID) number for facilities discharging storm water associated with industrial activity, and that a Storm Water Pollution Prevention Plan is available on-site, and
- is effectively implementing BMPs in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP.

c) Other Federally-mandated Facilities

Frequency of Inspection: Twice during the 5-year term of the Order, provided that the first inspection occurs no later than August 1, 2004, and that there is a minimum interval of one year in between the first compliance inspection and the second compliance inspection.

Level of Inspection: Each Permittee shall confirm that each operator:

- has a current Waste Discharge Identification (WDID) number for facilities discharging storm water associated with industrial activity, and that a Storm Water Pollution Prevention Plan is available on-site, and
- is effectively implementing BMPs in compliance with County and municipal ordinances, Regional Board Resolution 98-08, and the SQMP.

3. Ensure Compliance of Critical Sources

a) **BMP Implementation:** In the event that a Permittee determines that a BMP specified by the SQMP or Regional Board Resolution 98-08 is infeasible at any site, that Permittee shall require implementation of other BMPs that will achieve the equivalent reduction of pollutants in the storm water discharges. Likewise, for those BMPs that are not adequate to achieve water quality objectives, Permittees may require additional site-specific controls, such as Treatment Control BMPs.

b) **Environmentally Sensitive Areas and Impaired Waters:** For critical sources that are in ESAs or that are tributary to CWA § 303(d) impaired water bodies, Permittees shall consider requiring operators to implement additional controls to reduce pollutants in storm water runoff that are causing or contributing to the exceedences of Water Quality Objectives.

c) **Progressive Enforcement:** Each Permittee shall implement a progressive enforcement policy to ensure that facilities are brought into compliance with all storm water requirements within a reasonable time period as specified below.

(1) In the event that a Permittee determines, based on an inspection conducted above, that an operator has failed to adequately implement all necessary BMPs, that Permittee shall take progressive enforcement action which, at a minimum, shall include a follow-up inspection within 4 weeks from the date of the initial inspection.

(2) In the event that a Permittee determines that an operator has failed to adequately implement BMPs after a follow-up inspection, that Permittee shall take further enforcement action as established through authority in its municipal code and ordinances or through the judicial system.

(3) Each Permittee shall maintain records, including inspection reports, warning letters, notices of violations, and other enforcement records, demonstrating a good faith effort to bring facilities into compliance.

d) Interagency Coordination

(1) **Referral of Violations of the SQMP, Regional Board Resolution 98-08, and Municipal Storm Water Ordinances:** A Permittee may refer a violation(s) to the Regional Board provided that that Permittee has made a good faith effort of progressive enforcement. At a minimum, a Permittee's good faith effort must include documentation of:

- Two follow-up inspections, and
- Two warning letters or notices of violation.

(2) **Referral of Violations of the GIASP, including Requirements to File a Notice of Intent:** For those facilities in violation of the GIASP, Permittees may escalate referral of such violations to the Regional Board after one inspection and one written notice to the operator regarding the violation. In making such referrals, Permittees shall include, at a minimum, the following documentation:

- Name of the facility;
- Operator of the facility;
- Owner of the facility;
- Industrial activity being conducted at the facility that is subject to the GIASP; and
- Records of communication with the facility operator regarding the violation, which shall include at least an inspection report and one written notice of the violation.

Permittees shall, at a minimum, make such referrals on a quarterly basis.

(3) **Investigation of Complaints Regarding Facilities – Transmitted by the Regional Board Staff:** Each Permittee shall initiate, within one business day, investigation of complaints (other than non-storm water discharges) regarding facilities within its jurisdiction. The initial investigation shall include, at a minimum, a limited

inspection of the facility to confirm the complaint to determine if the facility is effectively complying with the SQMP and municipal storm water/urban runoff ordinances, and to oversee corrective action.

(4) **Support of Regional Board Enforcement Actions:** As directed by the Regional Board Executive Officer, Permittees shall support Regional Board enforcement actions by: assisting in identification of current owners, operators, and lessees of facilities; providing staff, when available, for joint inspections with Regional Board inspectors; appearing as witnesses in Regional Board enforcement hearings; and providing copies of inspection reports and other progressive enforcement documentation.

(5) **Participation in a Task Force:** The Permittees, Regional Board, and other stakeholders may form a Storm Water Task Force, the purpose of which is to communicate concerns regarding special cases of storm water violations by industrial and commercial facilities and to develop a coordinated approach to enforcement action.

D. Development Planning Program

The Permittees shall implement a development-planning program that will require all Planning Priority development and Redevelopment projects to:

- Minimize impacts from storm water and urban runoff on the biological integrity of Natural Drainage Systems and water bodies in accordance with requirements under CEQA (Cal. Pub. Resources Code § 21100), CWC § 13369, CWA § 319, CWA § 402(p), CWA § 404, CZARA § 6217(g), ESA § 7, and local government ordinances ;
- Maximize the percentage of pervious surfaces to allow percolation of storm water into the ground;
- Minimize the quantity of storm water directed to impervious surfaces and the MS4;
- Minimize pollution emanating from parking lots through the use of appropriate Treatment Control BMPs and good housekeeping practices;
- Properly design and maintain Treatment Control BMPs in a manner that does not promote the breeding of vectors; and
- Provide for appropriate permanent measures to reduce storm water pollutant loads in storm water from the development site.

1. Peak Flow Control

The Permittees shall control post-development peak storm water runoff discharge rates, velocities, and duration (peak flow control) in Natural

Drainage Systems (i.e., mimic pre-development hydrology) to prevent accelerated stream erosion and to protect stream habitat. Natural Drainage Systems are located in the following areas:

a) Malibu Creek;

b) Topanga Canyon Creek;

c) Upper Los Angeles River;

d) Upper San Gabriel River;

e) Santa Clara River; and

f) Los Angeles County Coastal streams (see Basin Plan Table 2-1).

The Principal Permittee in consultation with Permittees shall develop numerical criteria for peak flow control, based on the results of the Peak Discharge Impact Study (see Monitoring Program Section II.I).

Each Permittee shall, no later than February 1, 2005, implement numerical criteria for peak flow control.

A Permittee or group of Permittees may substitute for the countywide peak flow control criteria with a Hydromodification Control Plan (HCP), on approval by the Regional Board, in the following circumstances:

(1) Stream or watershed-specific conditions indicate the need for a different peak flow control criteria, and the alternative numerical criteria is developed through the application of hydrologic modeling and supporting field observations; or

(2) A watershed-wide plan has been developed for implementation of control measures to reduce erosion and stabilize drainage systems on a watershed basis.

2. Standard Urban Storm Water Mitigation Plans (SUSMPs)

a) Each Permittee shall amend codes and ordinances not later than August 1, 2002 to give legal effect to SUSMP changes contained in this Order. Changes to SUSMP requirements shall take effect not later than September 2, 2002.

b) Each Permittee shall require that a single-family hillside home:

(1) Conserve natural areas;

(2) Protect slopes and channels;

(3) Provide storm drain system stenciling and signage;

(4) Divert roof runoff to vegetated areas before discharge unless the diversion would result in slope instability; and

(5) Direct surface flow to vegetated areas before discharge unless the diversion would result in slope instability.

c) Each Permittee shall require that a SUSMP as approved by the Regional Board in Board Resolution No. R 00-02 be implemented for the following categories of developments:

(1) Ten or more unit homes (includes single family homes, multifamily homes, condominiums, and apartments);

(2) A 100,000 or more square feet of impervious surface area industrial/ commercial development;

(3) Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534, and 7536-7539);

(4) Retail gasoline outlets;

(5) Restaurants (SIC 5812);

(6) Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces; and

(7) Redevelopment projects in subject categories that meet Redevelopment thresholds.

d) Each Permittee shall submit an ESA Delineation Map for its jurisdictional boundary, based on the Regional Board's ESA Definition, no later than June 3, 2002, for approval by the Regional Board Executive Officer in consultation with the California Department of Fish and Game, and the California Coastal Commission.

e) Each Permittee shall require the implementation of SUSMP provisions no later than September 2, 2002, for all projects located in or directly adjacent to or discharging directly to an ESA, where the development will:

(1) Discharge storm water and urban runoff that is likely to impact a sensitive biological species or habitat; and

(2) Create 2,500 square feet or more of impervious surface area.

3. Numerical Design Criteria

The Permittees shall require that post-construction Treatment Control BMPs incorporate, at a minimum, either a volumetric or flow based treatment control design standard, or both, as identified below to mitigate (infiltrate, filter or treat) storm water runoff:

a) Volumetric Treatment Control BMP

(1) The 85th percentile 24-hour runoff event determined as the maximized capture storm water volume for the area, from

the formula recommended in *Urban Runoff Quality Management, WEF Manual of Practice No. 23/ ASCE Manual of Practice No. 87, (1998*); or

(2) The volume of annual runoff based on unit basin storage water quality volume, to achieve 80 percent or more volume treatment by the method recommended in *California Stormwater Best Management Practices Handbook – Industrial/ Commercial,* (1993); or

(3) The volume of runoff produced from a 0.75 inch storm event, prior to its discharge to a storm water conveyance system; or

(4) The volume of runoff produced from a historical-record based reference 24-hour rainfall criterion for "treatment" (0.75 inch average for the Los Angeles County area) that achieves approximately the same reduction in pollutant loads achieved by the 85th percentile 24-hour runoff event.

b) Flow Based Treatment Control BMP

(1) The flow of runoff produced from a rain event equal to at least 0.2 inches per hour intensity; or

(2) The flow of runoff produced from a rain event equal to at least two times the 85th percentile hourly rainfall intensity for Los Angeles County; or

(3) The flow of runoff produced from a rain event that will result in treatment of the same portion of runoff as treated using volumetric standards above.

4. Applicability of Numerical Design Criteria

The Permittees shall require the following categories of Planning Priority Projects to design and implement post-construction treatment controls to mitigate storm water pollution:

a) Single-family hillside residential developments of one acre or more of surface area;

b) Housing developments (includes single family homes, multifamily homes, condominiums, and apartments) of ten units or more;

c) A 100,000 square feet or more impervious surface area industrial/ commercial development;

d) Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534 and 7536-7539) [5,000 square feet or more of surface area];

e) Retail gasoline outlets [5,000 square feet or more of impervious surface area and with projected Average Daily Traffic (ADT) of 100 or more vehicles]. Subsurface Treatment Control BMPs

which may endanger public safety (i.e., create an explosive environment) are considered not appropriate;

f) Restaurants (SIC 5812) [5,000 square feet or more of surface area];

g) Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces;

h) Projects located in, adjacent to or discharging directly to an ESA that meet threshold conditions identified above in 2.e; and

i) Redevelopment projects in subject categories that meet Redevelopment thresholds.

5. Not later than March 10, 2003, each Permittee shall require the implementation of SUSMP and post-construction control requirements for the industrial/commercial development category to projects that disturb one acre or more of surface area.

6. Site Specific Mitigation

Each Permittee shall, no later than September 2, 2002, require the implementation of a site-specific plan to mitigate post-development storm water for new development and redevelopment not requiring a SUSMP but which may potentially have adverse impacts on post-development storm water quality, where one or more of the following project characteristics exist:

a) Vehicle or equipment fueling areas;

b) Vehicle or equipment maintenance areas, including washing and repair;

c) Commercial or industrial waste handling or storage;

d) Outdoor handling or storage of hazardous materials;

e) Outdoor manufacturing areas;

f) Outdoor food handling or processing;

g) Outdoor animal care, confinement, or slaughter; or

h) Outdoor horticulture activities.

7. Redevelopment Projects

The Permittees shall apply the SUSMP, or site specific requirements including post-construction storm water mitigation to all Planning Priority Projects that undergo significant Redevelopment in their respective categories.

a) Significant Redevelopment means land-disturbing activity that results in the creation or addition or replacement of 5,000 square

feet or more of impervious surface area on an already developed site.

Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, the entire project must be mitigated. Where Redevelopment results in an alteration to less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post development storm water quality control requirements, only the alteration must be mitigated, and not the entire development.

b) Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety.

c) Existing single family structures are exempt from the Redevelopment requirements.

8. Maintenance Agreement and Transfer

Each Permittee shall require that all developments subject to SUSMP and site specific plan requirements provide verification of maintenance provisions for Structural and Treatment Control BMPs, including but not limited to legal agreements, covenants, CEQA mitigation requirements, and or conditional use permits. Verification at a minimum shall include:

a) The developer's signed statement accepting responsibility for maintenance until the responsibility is legally transferred; and either

b) A signed statement from the public entity assuming responsibility for Structural or Treatment Control BMP maintenance and that it meets all local agency design standards; or

c) Written conditions in the sales or lease agreement, which requires the recipient to assume responsibility for maintenance and conduct a maintenance inspection at least once a year; or

d) Written text in project conditions, covenants and restrictions (CCRs) for residential properties assigning maintenance responsibilities to the Home Owners Association for maintenance of the Structural and Treatment Control BMPs; or

e) Any other legally enforceable agreement that assigns responsibility for the maintenance of post-construction Structural or Treatment Control BMPs.

9. Regional Storm Water Mitigation Program

A Permittee or Permittee group may apply to the Regional Board for approval of a regional or sub-regional storm water mitigation program to substitute in part or wholly SUSMP requirements. Upon review and a determination by the Regional Board Executive Officer that the proposal is technically valid and appropriate, the Regional Board may consider for approval such a program if its implementation will:

a) Result in equivalent or improved storm water quality;

b) Protect stream habitat;

c) Promote cooperative problem solving by diverse interests;

d) Be fiscally sustainable and has secure funding; and

e) Be completed in five years including the construction and start-up of treatment facilities.

Nothing in this provision shall be construed as to delay the implementation of SUSMP requirements, as approved in this Order.

10. Mitigation Funding

The Permittees may propose a management framework, for endorsement by the Regional Board Executive Officer, to support regional or sub-regional solutions to storm water pollution, where any of the following situations occur:

a) A waiver for impracticability is granted;

b) Legislative funds become available;

c) Off-site mitigation is required because of loss of environmental habitat; or

d) An approved watershed management plan or a regional storm water mitigation plan exists that incorporates an equivalent or improved strategy for storm water mitigation.

11. California Environmental Quality Act (CEQA) Document Update

Each Permittee shall incorporate into its CEQA process, with immediate effect, procedures for considering potential storm water quality impacts and providing for appropriate mitigation when preparing and reviewing CEQA documents. The procedures shall require consideration of the following:

a) Potential impact of project construction on storm water runoff;

b) Potential impact of project post-construction activity on storm water runoff;

c) Potential for discharge of storm water from areas from material storage, vehicle or equipment fueling, vehicle or equipment maintenance (including washing), waste handling, hazardous

materials handling or storage, delivery areas or loading docks, or other outdoor work areas;

d) Potential for discharge of storm water to impair the beneficial uses of the receiving waters or areas that provide water quality benefit;

e) Potential for the discharge of storm water to cause significant harm on the biological integrity of the waterways and water bodies;

f) Potential for significant changes in the flow velocity or volume of storm water runoff that can cause environmental harm; and

g) Potential for significant increases in erosion of the project site or surrounding areas.

12. General Plan Update

a) Each Permittee shall amend, revise or update its General Plan to include watershed and storm water quality and quantity management considerations and policies when any of the following General Plan elements are updated or amended: (i) Land Use, (ii) Housing, (iii) Conservation, and (iv) Open Space.

b) Each Permittee shall provide the Regional Board with the draft amendment or revision when a listed General Plan element or the General Plan is noticed for comment in accordance with Cal. Govt. Code § 65350 *et seq*.

13. Targeted Employee Training

Each Permittee shall train its employees in targeted positions (whose jobs or activities are engaged in development planning) regarding the development planning requirements on an annual basis beginning no later than August 1, 2002, and more frequently if necessary. For Permittees with a population of 250,000 or more (2000 U.S. Census), training shall be completed no later than February 3, 2003.

14. Developer Technical Guidance and Information

a) Each Permittee shall develop and make available to the developer community SUSMP (development planning) guidelines immediately.

b) The Principal Permittee in partnership with Permittees shall issue no later than February 2, 2004, a technical manual for the siting and design of BMPs for the development community in Los Angeles County. The technical manual may be adapted from the revised California Storm Water Quality Task Force Best Management Practices Handbooks scheduled for publication in September 2002. The technical manual shall at a minimum include:

(1) Treatment Control BMPs based on flow-based and volumetric water quality design criteria for the purposes of countywide consistency;

(2) Peak Flow Control criteria to control peak discharge rates, velocities and duration;

(3) Expected pollutant removal performance ranges obtained from national databases, technical reports and the scientific literature;

(4) Maintenance considerations; and

(5) Cost considerations.

E. Development Construction Program

1. Each Permittee shall implement a program to control runoff from construction activity at all construction sites within its jurisdiction. The program shall ensure the following minimum requirements are effectively implemented at all construction sites:

   a) Sediments generated on the project site shall be retained using adequate Treatment Control or Structural BMPs;

   b) Construction-related materials, wastes, spills, or residues shall be retained at the project site to avoid discharge to streets, drainage facilities, receiving waters, or adjacent properties by wind or runoff;

   c) Non-storm water runoff from equipment and vehicle washing and any other activity shall be contained at the project site; and

   d) Erosion from slopes and channels shall be controlled by implementing an effective combination of BMPs (as approved in Regional Board Resolution No. 99-03), such as the limiting of grading scheduled during the wet season; inspecting graded areas during rain events; planting and maintenance of vegetation on slopes; and covering erosion susceptible slopes.

2. For construction sites one acre and greater, each Permittee shall comply with all conditions in section E.1. above and shall:

   a) Require the preparation and submittal of a Local Storm Water Pollution Prevention Plan (Local SWPPP), for approval prior to issuance of a grading permit for construction projects.

   The Local SWPPP shall include appropriate construction site BMPs and maintenance schedules. (A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP). The Local SWPPP must include the rationale used for selecting or rejecting BMPs. The project architect, or engineer of record, or authorized

qualified designee, must sign a statement on the Local SWPPP to the effect:

"As the architect/engineer of record, I have selected appropriate BMPs to effectively minimize the negative impacts of this project's construction activities on storm water quality. The project owner and contractor are aware that the selected BMPs must be installed, monitored, and maintained to ensure their effectiveness. The BMPs not selected for implementation are redundant or deemed not applicable to the proposed construction activity."

The landowner or the landowner's agent shall sign a statement to the effect:

"I certify that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that submitting false and/or inaccurate information, failing to update the Local SWPPP to reflect current conditions, or failing to properly and/or adequately implement the Local SWPPP may result in revocation of grading and/or other permits or other sanctions provided by law."

The Local SWPPP certification shall be signed by the landowner as follows, for a corporation: by a responsible corporate officer which means (a) a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or (b) the manager of the construction activity if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures; for a partnership or sole proprietorship: by a general partner or the proprietor; or for a municipality or other public agency: by an elected official, a ranking management official (e.g., County Administrative Officer, City Manager, Director of Public Works, City Engineer, District Manager), or the manager of the construction activity if authority to sign Local SWPPPs has been assigned or delegated to the manager in accordance with established agency policy.

b) Inspect all construction sites for storm water quality requirements during routine inspections a minimum of once during the wet season. The Local SWPPP shall be reviewed for compliance with local codes, ordinances, and permits. For inspected sites that have not adequately implemented their Local SWPPP, a follow-up inspection to ensure compliance will take place within 2 weeks. If compliance has not been attained, the Permittee will take additional actions to achieve compliance (as specified in municipal

codes). If compliance has not been achieved, and the site is also covered under a statewide general construction storm water permit, each Permittee shall enforce their local ordinance requirements, and if non-compliance continues the Regional Board shall be notified for further joint enforcement actions.

c) Require, no later than March 10, 2003, prior to issuing a grading permit for all projects less than five acres requiring coverage under a statewide general construction storm water permit, proof of a Waste Discharger Identification (WDID) Number for filing a Notice of Intent (NOI) for permit coverage and a certification that a SWPPP has been prepared by the project developer. A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP.

3. For sites five acres and greater, each Permittee shall comply with all conditions in Sections E.1. and E.2. and shall:

a) Require, prior to issuing a grading permit for all projects requiring coverage under the state general permit, proof of a Waste Discharger Identification (WDID) Number for filing a Notice of Intent (NOI) for coverage under the GCASP and a certification that a SWPPP has been prepared by the project developer. A Local SWPPP may substitute for the State SWPPP if the Local SWPPP is at least as inclusive in controls and BMPs as the State SWPPP.

b) Require proof of an NOI and a copy of the SWPPP at any time a transfer of ownership takes place for the entire development or portions of the common plan of development where construction activities are still on-going.

c) Use an effective system to track grading permits issued by each Permittee. To satisfy this requirement, the use of a database or GIS system is encouraged, but not required.

4. GCASP Violation Referrals

a) Referral of Violations of the SQMP, Regional Board Resolution 98-08, and municipal storm water ordinances:

A Permittee may refer a violation(s) to the Regional Board provided that the Permittee has made a good faith effort of progressive enforcement. At a minimum, a Permittee's good faith effort must include documentation of:

- Two follow-up inspections within 3 months, and
- Two warning letters or notices of violation.

b) Referral of Violations of GCASP Filing Requirements:

For those projects subject to the GCASP, Permittees shall refer non-filers (i.e., those projects which cannot demonstrate that they have a WDID number) to the Regional Board, within 15 days of

making a determination. In making such referrals, Permittees shall include, at a minimum, the following documentation:

- Project location;
- Developer;
- Estimated project size; and
- Records of communication with the developer regarding filing requirements.

5. Each Permittee shall train employees in targeted positions (whose jobs or activities are engaged in construction activities including construction inspection staff) regarding the requirements of the storm water management program no later than August 1, 2002, and annually thereafter. For Permittees with a population of 250,000 or more (2000 U.S. Census), initial training shall be completed no later than February 3, 2003. Each Permittee shall maintain a list of trained employees.

F. Public Agency Activities Program

Each Permittee shall implement a Public Agency program to minimize storm water pollution impacts from public agency activities. Public Agency requirements consist of:

- Sewage Systems Maintenance, Overflow, and Spill Prevention
- Public Construction Activities Management
- Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management
- Landscape and Recreational Facilities Management
- Storm Drain Operation and Management
- Streets and Roads Maintenance
- Parking Facilities Management
- Public Industrial Activities Management
- Emergency Procedures
- Treatment Feasibility Study

1. Sewage System Maintenance, Overflow, and Spill Prevention

   a) Each Permittee shall implement a response plan for overflows of the sanitary sewer system within their respective jurisdiction, which shall consist at a minimum of the following:

      (1) Investigation of any complaints received;

      (2) Upon notification, immediate response to overflows for containment; and

      (3) Notification to appropriate sewer and public health agencies when a sewer overflows to the MS4.

   b) In addition to 1.a.1, 1.a.2, and 1.a.3 above, for those Permittees, which own and/or operate a sanitary sewer system, the Permittee shall also implement the following requirements:

(1) Procedures to prevent sewage spills or leaks from sewage facilities from entering the MS4; and

(2) Identify, repair, and remediate sanitary sewer blockages, exfiltration, overflow, and wet weather overflows from sanitary sewers to the MS4.

2. Public Construction Activities Management

a) Each Permittee shall implement the Development Planning Program requirements (Permit Part 4.D) at public construction projects.

b) Each Permittee shall implement the Development Construction Program requirements (Permit Part 4.E) at Permittee owned construction sites.

c) Each Permittee shall obtain coverage under the GCASP for public construction sites 5 acres or greater (or part of a larger area of development) except that a municipality under 100,000 in population (1990 U.S. Census) need not obtain coverage under a separate permit until March 10, 2003.

d) Each Permittee, no later than March 10, 2003, shall obtain coverage under a statewide general construction storm water permit for public construction sites for projects between one and five acres.

3. Vehicle Maintenance/Material Storage Facilities/Corporation Yards Management

a) Each Permittee, consistent with the SQMP, shall implement SWPPPs for public vehicle maintenance facilities, material storage facilities, and corporation yards which have the potential to discharge pollutants into storm water.

b) Each Permittee shall implement BMPs to minimize pollutant discharges in storm water including but not be limited to:

(1) Good housekeeping practices;

(2) Material storage control;

(3) Vehicle leaks and spill control; and

(4) Illicit discharge control.

c) Each Permittee shall implement the following measures to prevent the discharge of pollutants to the MS4:

(1) For existing facilities, that are not already plumbed to the sanitary sewer, all vehicle and equipment wash areas (except for fire stations) shall either be:

(i) Self-contained;

(ii) Equipped with a clarifier;

(iii) Equipped with an alternative pre-treatment device; or

(iv) Plumbed to the sanitary sewer.

(2) For new facilities, or during redevelopment of existing facilities (including fire stations), all vehicle and equipment wash areas shall be plumbed to the sanitary sewer and be equipped with a pre-treatment device in accordance with requirements of the sewer agency.

4. Landscape and Recreational Facilities Management

Each Permittee shall implement the following requirements:

a) A standardized protocol for the routine and non-routine application of pesticides, herbicides (including pre-emergents), and fertilizers;

b) Consistency with State Board's guidelines and monitoring requirements for application of aquatic pesticides to surface waters (WQ Order No. 2001-12 DWQ);

c) Ensure no application of pesticides or fertilizers immediately before, during, or immediately after a rain event or when water is flowing off the area to be applied;

d) Ensure that no banned or unregistered pesticides are stored or applied;

e) Ensure that staff applying pesticides are certified by the California Department of Food and Agriculture, or are under the direct supervision of a certified pesticide applicator;

f) Implement procedures to encourage retention and planting of native vegetation and to reduce water, fertilizer, and pesticide needs;

g) Store fertilizers and pesticides indoors or under cover on paved surfaces or use secondary containment;

h) Reduce the use, storage, and handling of hazardous materials to reduce the potential for spills; and

i) Regularly inspect storage areas.

5. Storm Drain Operation and Management

a) Each Permittee shall designate catch basin inlets within its jurisdiction as one of the following:

Priority A: Catch basins that are designated as consistently generating the highest volumes of trash and/or debris.

Priority B: Catch basins that are designated as consistently generating moderate volumes of trash and/or debris.

Priority C: Catch basins that are designated as generating low volumes of trash and/or debris.

b) Permittees subject to a trash TMDL (Los Angeles River and Ballona Creek WMAs) shall continue to implement the requirements listed below until trash TMDL implementation measures are adopted. Thereafter, the subject Permittees shall implement programs in conformance with the TMDL implementation schedule, which shall include an effective combination of measures such as street sweeping, catch basin cleaning, installation of treatment devices and trash receptacles, or other BMPs. Default requirements include:

(1) Inspection and cleaning of catch basins between May 1 and September 30 of each year;

(2) Additional cleaning of any catch basin that is at least 40% full of trash and/or debris;

(3) Record keeping of catch basins cleaned; and

(4) Recording of the overall quantity of catch basin waste collected.

If the implementation phase for the Los Angeles River and Ballona Creek Trash TMDLs has not begun by October 2003, subject Permittees shall implement the requirements described below in subsection 5(c), until such time programs in conformance with the subject Trash TMDLs are being implemented.

c) Permittees not subject to a trash TMDL shall:

(1) Clean catch basins according to the following schedule:

Priority A: A minimum of three times during the wet season and once during the dry season every year.

Priority B: A minimum of once during the wet season and once during the dry season every year.

Priority C: A minimum of once per year.

In addition to the schedule above, between February 1, 2002 and July 1, 2003, Permittees shall ensure that any catch basin that is at least 40% full of trash and/or debris shall be cleaned out. After July 1, 2003, Permittees shall ensure that any catch basin that is at least 25% full of trash and debris shall be cleaned out.

(2) For any special event that can be reasonably expected to generate substantial quantities of trash and litter, include provisions that require for the proper management of trash and litter generated, as a condition of the special use permit issued for that event. At a minimum, the municipality who issues the permit for the special event shall arrange for either temporary screens to be placed on catch basins or for catch basins in that area to be cleaned out subsequent to the event and prior to any rain event.

(3) Place trash receptacles at all transit stops within its jurisdiction that have shelters no later than August 1, 2002, and at all other transit stops within its jurisdiction no later than February 3, 2003. All trash receptacles shall be maintained as necessary.

d) Each Permittee shall inspect the legibility of the catch basin stencil or label nearest the inlet. Catch basins with illegible stencils shall be recorded and re-stenciled or re-labeled within 180 days of inspection.

e) Each Permittee shall implement BMPs for Storm Drain Maintenance that include:

(1) A program to visually monitor Permittee-owned open channels and other drainage structures for debris at least annually and identify and prioritize problem areas of illicit discharge for regular inspection;

(2) A review of current maintenance activities to assure that appropriate storm water BMPs are being utilized to protect water quality;

(3) Removal of trash and debris from open channel storm drains shall occur a minimum of once per year before the storm season;

(4) Minimize the discharge of contaminants during MS4 maintenance and clean outs; and

(5) Proper disposal of material removed.

6. Streets and Roads Maintenance

a) Each Permittee shall designate streets and/or street segments within its jurisdiction as one of the following:

Priority A: Streets and/or street segments that are designated as consistently generating the highest volumes of trash and/or debris.

Priority B: Streets and/or street segments that are designated as consistently generating moderate volumes of trash and/or debris.

Priority C: Streets and/or street segments that are designated as generating low volumes of trash and/or debris.

b) Each Permittee shall perform street sweeping of curbed streets according to the following schedule:

Priority A: These streets and/or street segments shall be swept at least two times per month.

Priority B: Each Permittee shall ensure that each street and/or street segments is swept at least once per month.

Priority C: These streets and/or street segments shall be swept as necessary but in no case less than once per year.

c) Each Permittee shall require that:

(1) Sawcutting wastes be recovered and disposed of properly and that in no case shall waste be left on a roadway or allowed to enter the storm drain;

(2) Concrete and other street and road maintenance materials and wastes shall be managed to prevent discharge to the MS4; and

(3) The washout of concrete trucks and chutes shall only occur in designated areas and never discharged to storm drains, open ditches, streets, or catch basins.

d) Each Permittee shall, no later than August 1, 2002, train their employees in targeted positions (whose interactions, jobs, and activities affect storm water quality) regarding the requirements of the storm water management program to:

(1) Promote a clear understanding of the potential for maintenance activities to pollute storm water; and

(2) Identify and select appropriate BMPs.

For Permittees with a population of 250,000 or more (2000 U.S. Census) training shall be completed no later than February 1, 2003.

7. Parking Facilities Management

Permittee-owned parking lots exposed to storm water shall be kept clear of debris and excessive oil buildup and cleaned no less than 2 times per month and/or inspected no less than 2 times per month to determine if cleaning is necessary. In no case shall a Permittee-owned parking lot be cleaned less than once a month.

8. Public Industrial Activities Management

Each Permittee shall, for any municipal activity considered a discharge of storm water associated with industrial activity, obtain separate coverage under the GIASP except that a municipality under 100,000 in population (1990 U.S. Census) need not file the Notice Of Intent to be covered by said permit until March 10, 2003 (with the exception of power plants, airports, and uncontrolled sanitary landfills).

9. Emergency Procedures

Each Permittee shall repair essential public services and infrastructure in a manner to minimize environmental damage in emergency situations such as: earthquakes; fires; floods; landslides; or windstorms. BMPs shall be implemented to the extent that measures do not compromise public health and safety. After initial emergency response or emergency repair activities have been completed, each Permittee shall implement BMPs and programs as required under this Order.

10. Treatment Feasibility Study

The Permittees in cooperation with the County Sanitation Districts of Los Angeles County shall conduct a study to investigate the possible diversion of dry weather discharges or the use of alternative Treatment Control BMPs to treat flows from their jurisdiction which may impact public health and safety and/or the environment. The Permittees shall collectively review their individual prioritized lists and create a watershed based priority list of drains for potential diversion or treatment and submit the priority listing to the Regional Board Executive Officer, no later than July 1, 2003.

G. Illicit Connections and Illicit Discharges Elimination Program

Permittees shall eliminate all illicit connections and illicit discharges to the storm drain system, and shall document, track, and report all such cases in accordance

with the elements and performance measures specified in the following subsections.

1. General

   a) Implementation: Each Permittee must develop an Implementation Program which specifies how each Permittee is implementing revisions to the IC/ID Program of the SQMP. This Implementation Program must be documented, and available for review and approval by the Regional Board Executive Officer, upon request.

   b) Tracking: All Permittees shall, no later than February 3, 2003, develop and maintain a listing of all permitted connections to their storm drain system. All Permittees shall map at a scale and in a format specified by the Principal Permittee all illicit connections and discharges on their baseline maps, and shall transmit this information to the Principal Permittee. No later than February 3, 2003, the Principal Permittee shall use this information as well as results of baseline and priority screening for illicit connections (as set forth in subsection 2 below) to start an annual evaluation of patterns and trends of illicit connections and illicit discharges, with the objectives of identifying priority areas for elimination of illicit connections and illicit discharges.

   c) Training: All Permittees shall train all targeted employees who are responsible for identification, investigation, termination, cleanup, and reporting of illicit connections and discharges. For Permittees with a population of less than 250,000 (2000 U.S. Census), training shall be completed no later than August 1, 2002. For Permittees with a population of 250,000 or more (2000 U.S. Census), training shall be completed no later than February 3, 2003. Furthermore, all Permittees shall conduct refresher training on an annual basis thereafter.

2. Illicit Connections

   a) Screening for Illicit Connections

      (1) Field Screening: All Permittees shall field Screen the storm drain system for illicit connections in accordance with the following schedule:

         (i) Open channels: No later than February 3, 2003;

         (ii) Underground pipes in priority areas: No later than February 1, 2005; and

         (iii) Underground pipes with a diameter of 36 inches or greater: No later than December 12, 2006.

      Permittees shall report, to the Principal Permittee, on the location and length of open channels or underground pipes that have been Screened *vis a vis* the entire storm drain

network, and on the status of suspected, confirmed, and terminated illicit connections. Permittees shall maintain a list containing all permitted connections and the status of connections under investigation for possible illicit connection.

(2) Permit Screening: No later than December 12, 2006, Permittees shall complete a review of all permitted connections to the storm drain system, to confirm compliance with Part 1 (Discharge Prohibition).

b) Response to Illicit Connections

(1) Investigation: Upon discovery or upon receiving a report of a suspected illicit connection, Permittees shall initiate an investigation within 21 days, to determine the source of the connection, the nature and volume of discharge through the connection, and the responsible party for the connection.

(2) Termination: Upon confirmation of the illicit nature of a storm drain connection, Permittees shall ensure termination of the connection within 180 days, using enforcement authority as needed.

3. Illicit Discharges

a) Abatement and Cleanup: Permittees shall respond, within one business day of discovery or a report of a suspected illicit discharge, with activities to abate, contain, and clean up all illicit discharges, including hazardous substances.

b) Investigation: Permittees shall investigate illicit discharges as soon as practicable (during or immediately following containment and cleanup activities), and shall take enforcement action as appropriate.

Part 5. DEFINITIONS

The following are definitions for terms applicable to this Order:

"Adverse Impact" means a detrimental effect upon water quality or beneficial uses caused by a discharge or loading of a pollutant or pollutants.

"Anti-degradation policies" means the *Statement of Policy with Respect to Maintaining High Quality Water in California* (State Board Resolution No. 68-16) which protects surface and ground waters from degradation. In particular, this policy protects waterbodies where existing quality is higher than that necessary for the protection of beneficial uses including the protection of fish and wildlife propagation and recreation on and in the water.

"Applicable Standards and Limitations" means all State, interstate, and federal standards and limitations to which a “discharge” or a related activity is subject under the CWA, including

"effluent limitations, "water quality standards, standards of performance, toxic effluent standards or prohibitions, "best management practices," and pretreatment standards under sections 301, 302, 303, 304, 306, 307, 308, 403 and 404 of CWA.

"**Areas of Special Biological Significance (ASBS)**" means all those areas of this state as ASBS, listed specifically within the California Ocean Plan or so designated by the State Board which, among other areas, includes the area from Mugu Lagoon to Latigo Point: Oceanwater within a line originating from Laguna Point at 34° 5' 40" north, 119° 6'30" west, thence southeasterly following the mean high tideline to a point at Latigo Point defined by the intersection of the meanhigh tide line and a line extending due south of Benchmark 24; thence due south to a distance of 1000 feet offshore or to the 100 foot isobath, whichever distance is greater; thence northwesterly following the 100 foot isobath or maintaining a 1,000-foot distance from shore, whichever maintains the greater distance from shore, to a point lying due south of Laguna Point, thence due north to Laguna Point.

"Authorized Discharge" means any discharge that is authorized pursuant to an NPDES permit or meets the conditions set forth in this Order.

"Automotive Service Facilities" means a facility that is categorized in any one of the following Standard Industrial Classification (SIC) codes: 5013, 5014, 5541, 5511, 7532-7534, or 7536-7539. For inspection purposes, Permittees need not inspect facilities with SIC codes 5013, 5014, 5541, 5511, provided that these facilities have no outside activities or materials that may be exposed to storm water.

"Basin Plan" means the Water Quality Control Plan, Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties, adopted by the Regional Board on June 13, 1994 and subsequent amendments.

"Beneficial Uses" means the existing or potential uses of receiving waters in the permit area as designated by the Regional Board in the Basin Plan.

"Best Management Practices (BMPs)" means methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from point and nonpoint source discharges including storm water. BMPs include structural and nonstructural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.

"Commercial Development" means any development on private land that is not heavy industrial or residential. The category includes, but is not limited to: hospitals, laboratories and other medical facilities, educational institutions, recreational facilities, plant nurseries, car wash facilities, mini-malls and other business complexes, shopping malls, hotels, office buildings, public warehouses and other light industrial complexes.

"Construction" means constructing, clearing, grading, or excavation that results in soil disturbance. Construction includes structure teardown. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility; emergency construction activities required to immediately protect public health and safety; interior remodeling with no outside exposure of construction material or construction waste to storm water; mechanical permit work; or sign permit work.

"Control" means to minimize, reduce, eliminate, or prohibit by technological, legal, contractual or other means, the discharge of pollutants from an activity or activities.

"Dechlorinated/Debrominated Swimming Pool Discharge" means swimming pool discharges which have no measurable chlorine or bromine and do not contain any detergents, wastes, or additional chemicals not typically found in swimming pool water. The term does not include swimming pool filter backwash.

"Development" means any construction, rehabilitation, redevelopment or reconstruction of any public or private residential project (whether single-family, multi-unit or planned unit development); industrial, commercial, retail and other non-residential projects, including public agency projects; or mass grading for future construction. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Directly Adjacent" means situated within 200 feet of the contiguous zone required for the continued maintenance, function, and structural stability of the environmentally sensitive area.

"Director" means the Director of a municipality and Person(s) designated by and under the Director's instruction and supervision.

"Discharge" means when used without qualification the "discharge of a pollutant."

"**Discharging Directly**" means outflow from a drainage conveyance system that is composed entirely or predominantly of flows from the subject, property, development, subdivision, or industrial facility, and not commingled with the flows from adjacent lands.

"Discharge of a Pollutant" means: any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or, any addition of any pollutant or combination of pollutants to the waters of the "contiguous zone" or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation. The term discharge includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works.

"Disturbed Area" means an area that is altered as a result of clearing, grading, and/or excavation.

"Environmentally Sensitive Areas (ESAs)" means an area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments (California Public Resources Code § 30107.5). Areas subject to storm water mitigation requirements are: areas designated as Significant Ecological Areas by the County of Los Angeles (*Los Angeles County Significant Areas Study, Los Angeles County Department of Regional Planning (1976)* and amendments); an area designated as a Significant Natural Area by the California Department of Fish and Game's Significant Natural Areas Program, provided that area has been field verified by the Department of Fish and Game; an area listed in the

Basin Plan as supporting the "Rare, Threatened, or Endangered Species (RARE)" beneficial use; and an area identified by a Permittee as environmentally sensitive.

"General Construction Activities Storm Water Permit (GCASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from construction activities under certain conditions.

"General Industrial Activities Storm Water Permit (GIASP)" means the general NPDES permit adopted by the State Board which authorizes the discharge of storm water from certain industrial activities under certain conditions.

"Hillside" means property located in an area with known erosive soil conditions, where the development contemplates grading on any natural slope that is 25% or greater and where grading contemplates cut or fill slopes.

"Illicit Connection" means any man-made conveyance that is connected to the storm drain system without a permit, excluding roof drains and other similar type connections. Examples include channels, pipelines, conduits, inlets, or outlets that are connected directly to the storm drain system.

"Illicit Discharge" means any discharge to the storm drain system that is prohibited under local, state, or federal statutes, ordinances, codes, or regulations. The term illicit discharge includes all non storm-water discharges except discharges pursuant to an NPDES permit, discharges that are identified in Part 1, "Discharge Prohibitions" of this order, and discharges authorized by the Regional Board Executive Officer.

"Illicit Disposal" means any disposal, either intentionally or unintentionally, of material(s) or waste(s) that can pollute storm water.

"Industrial/Commercial Facility" means any facility involved and/or used in the production, manufacture, storage, transportation, distribution, exchange or sale of goods and/or commodities, and any facility involved and/or used in providing professional and non-professional services. This category of facilities includes, but is not limited to, any facility defined by the Standard Industrial Classifications (SIC). Facility ownership (federal, state, municipal, private) and profit motive of the facility are not factors in this definition.

"Infiltration" means the downward entry of water into the surface of the soil.

"Inspection" means entry and the conduct of an on-site review of a facility and its operations, at reasonable times, to determine compliance with specific municipal or other legal requirements. The steps involved in performing an inspection, include, but are not limited to:

1. Pre-inspection documentation research.;
2. Request for entry;
3. Interview of facility personnel;
4. Facility walk-through.
5. Visual observation of the condition of facility premises;
6. Examination and copying of records as required;
7. Sample collection (if necessary or required);

8. Exit conference (to discuss preliminary evaluation); and,
9. Report preparation, and if appropriate, recommendations for coming into compliance.

In the case of restaurants, a Permittee may conduct an inspection from the curbside, provided that such "curbside" inspection provides the Permittee with adequate information to determine an operator's compliance with BMPs that must be implemented per requirements of this Order, Regional Board Resolution 98-08, County and municipal ordinances, and the SQMP.

"Large Municipal Separate Storm Sewer System (MS4)" means all MS4s that serve a population greater than 250,000 (1990 Census) as defined in 40 CFR 122.26 (b)(4). The Regional Board designated Los Angeles County as a large MS4 in 1990, based on: (i) the U.S. Census Bureau 1990 population count of 8.9 million, and (ii) the interconnectivity of the MS4s in the incorporated and unincorporated areas within the County.

"Local SWPPP" means the Storm Water Pollution Prevention Plan required by the local agency for a project that disturbs one or more acres of land.

"Maximum Extent Practicable (MEP)" means the standard for implementation of storm water management programs to reduce pollutants in storm water. CWA § 402(p)(3)(B)(iii) requires that municipal permits "shall require controls to reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants. See also State Board Order WQ 2000-11 at page 20.

"Method Detection Limit (MDL)" means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR 136, Appendix B.

"Minimum Level (ML)" means the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

“Municipal Separate Storm Sewer System (MS4)” means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, alleys, catch basins, curbs, gutters, ditches, manmade channels, or storm drains) owned by a State, city, county, town or other public body, that is designed or used for collecting or conveying storm water, which is not a combined sewer, and which is not part of a publicly owned treatment works, and which discharges to Waters of the United States.

“National Pollutant Discharge Elimination System (NPDES)” means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under CWA §307, 402, 318, and 405. The term includes an “approved program.”

"Natural Drainage Systems" means unlined or unimproved (not engineered) creeks, streams, rivers or similar waterways.

“New Development” means land disturbing activities; structural development, including construction or installation of a building or structure, creation of impervious surfaces; and land subdivision.

“Non-Storm Water Discharge” means any discharge to a storm drain that is not composed entirely of storm water.

"Nuisance" means anything that meets all of the following requirements: (1) is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property; (2) affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.; (3) occurs during, or as a result of, the treatment or disposal of wastes.

“Parking Lot” means land area or facility for the parking or storage of motor vehicles used for businesses, commerce, industry, or personal use, with a lot size of 5,000 square feet or more of surface area, or with 25 or more parking spaces.

"Permittee(s)" means Co-Permittees and any agency named in this Order as being responsible for permit conditions within its jurisdiction. Permittees to this Order include the Los Angeles County Flood Control District, Los Angeles County, and the cities of Agoura Hills, Alhambra, Arcadia, Artesia, Azusa, Baldwin Park, Bellflower, Bell Gardens, Beverly Hills, Bradbury, Burbank, Calabasas, Carson, Cerritos, Claremont, Commerce, Compton, Covina, Cudahy, Culver City, Diamond Bar, Downey, Duarte, El Monte, El Segundo, Gardena, Glendale, Glendora, Hawaiian Gardens, Hawthorne, Hermosa Beach, Hidden Hills, Huntington Park, Industry, Inglewood, Irwindale, La Canada Flintridge, La Habra Heights, Lakewood, La Mirada, La Puente, La Verne, Lawndale, Lomita, Los Angeles, Lynwood, Malibu, Manhattan Beach, Maywood, Monrovia, Montebello, Monterey Park, Norwalk, Palos Verdes Estates, Paramount, Pasadena, Pico Rivera, Pomona, Rancho Palos Verdes, Redondo Beach, Rolling Hills, Rolling Hills Estates, Rosemead, San Dimas, San Fernando, San Gabriel, San Marino, Santa Clarita, Santa Fe Springs, Santa Monica, Sierra Madre, Signal Hill, South El Monte, South Gate, South Pasadena, Temple City, Torrance, Vernon, Walnut, West Covina, West Hollywood, Westlake Village, and Whittier.

“Planning Priority Projects” means those projects that are required to incorporate appropriate storm water mitigation measures into the design plan for their respective project. These types of projects include:

1. Ten or more unit homes (includes single family homes, multifamily homes, condominiums, and apartments)
2. A 100,000 or more square feet of impervious surface area industrial/ commercial development (1 ac starting March 2003)
3. Automotive service facilities (SIC 5013, 5014, 5541, 7532-7534, and 7536-7539)
4. Retail gasoline outlets
5. Restaurants (SIC 5812)
6. Parking lots 5,000 square feet or more of surface area or with 25 or more parking spaces

7. Redevelopment projects in subject categories that meet Redevelopment thresholds
8. Projects located in or directly adjacent to or discharging directly to an ESA, which meet thresholds; and
9. Those projects that require the implementation of a site-specific plan to mitigate post-development storm water for new development not requiring a SUSMP but which may potentially have adverse impacts on post-development storm water quality, where the following project characteristics exist:

    a) Vehicle or equipment fueling areas;
    b) Vehicle or equipment maintenance areas, including washing and repair;
    c) Commercial or industrial waste handling or storage;
    d) Outdoor handling or storage of hazardous materials;
    e) Outdoor manufacturing areas;
    f) Outdoor food handling or processing;
    g) Outdoor animal care, confinement, or slaughter; or
    h) Outdoor horticulture activities.

"Pollutants" means those "pollutants" defined in CWA §502(6) (33.U.S.C.§1362(6)), and incorporated by reference into California Water Code §13373.

"Potable Water Distribution Systems Releases" means sources of flows from drinking water storage, supply and distribution systems including flows from system failures, pressure releases, system maintenance, distribution line testing, fire hydrant flow testing; and flushing and dewatering of pipes, reservoirs, vaults, and minor non-invasive well maintenance activities not involving chemical addition(s). It does not include wastewater discharges from activities that occur at wellheads, such as well construction, well development (i.e., aquifer pumping tests, well purging, etc.), or major well maintenance.

"Project" means all development, redevelopment, and land disturbing activities. The term is not limited to "Project" as defined under CEQA (Pub. Resources Code §21065).

“Rain Event” means any rain event greater than 0.1 inch in 24 hours except where specifically stated otherwise.

"Rare, Threatened, or Endangered Species (RARE)" means a beneficial use for waterbodies in the Los Angeles Region, as designated in the Basin Plan (Table 2-1), that supports habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened, or endangered.

"Receiving Waters" means all surface water bodies in the Los Angeles Region that are identified in the Basin Plan.

“Redevelopment” means land-disturbing activity that results in the creation, addition, or replacement of 5,000 square feet or more of impervious surface area on an already developed site. Redevelopment includes, but is not limited to: the expansion of a building footprint;

addition or replacement of a structure; replacement of impervious surface area that is not part of a routine maintenance activity; and land disturbing activities related to structural or impervious surfaces. It does not include routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of facility, nor does it include emergency construction activities required to immediately protect public health and safety.

"Regional Administrator" means the Regional Administrator of the Regional Office of the USEPA or the authorized representative of the Regional Administrator.

"Restaurant" means a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC Code 5812).

"Retail Gasoline Outlet" means any facility engaged in selling gasoline and lubricating oils.

"Runoff" means any runoff including storm water and dry weather flows from a drainage area that reaches a receiving water body or subsurface. During dry weather it is typically comprised of base flow either contaminated with pollutants or uncontaminated, and nuisance flows.

"Screening" means using proactive methods to identify illicit connections through a continuously narrowing process. The methods may include: performing baseline monitoring of open channels, conducting special investigations using a prioritization approach, analyzing maintenance records for catch basin and storm drain cleaning and operation, and verifying all permitted connections into the storm drains. Special investigation techniques may include: dye testing, visual inspection, smoke testing, flow monitoring, infrared, aerial and thermal photography, and remote control camera operation.

"Sidewalk Rinsing" means pressure washing of paved pedestrian walkways with average water usage of 0.006 gallons per square foot, with no cleaning agents, and properly disposing of all debris collected, as authorized under Regional Board Resolution No. 98-08.

"Significant Ecological Area (SEA)" means an area that is determined to possess an example of biotic resources that cumulatively represent biological diversity, for the purposes of protecting biotic diversity, as part of the Los Angeles County General Plan.[1]
Areas are designated as SEAs, if they possess one or more of the following criteria:

1. The habitat of rare, endangered, and threatened plant and animal species.
2. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind, or are restricted in distribution on a regional basis.
3. Biotic communities, vegetative associations, and habitat of plant and animal species that are either one of a kind or are restricted in distribution in Los Angeles County.

[1] The 61 existing SEAs represent the findings of a study that was completed in 1976 by England and Nelson, Environmental Consultants, as amended through the adoption of a revised Los Angeles County General Plan in 1980. The results of an update study to evaluate existing SEAs within unincorporated Los Angeles County is currently being proposed to the Los Angeles County Planning Commission (*Los Angeles County Significant Ecological Area Update Study 2000, Background Report*, PCR Services Corporation). The *Update Study 2000*, which contains existing and proposed SEA boundaries, can be downloaded from the Los Angeles County Department of Planning website at http://planning.co.la.ca.us/drp_revw.html#SEA

4. Habitat that at some point in the life cycle of a species or group of species, serves as a concentrated breeding, feeding, resting, migrating grounds and is limited in availability either regionally or within Los Angeles County.
5. Biotic resources that are of scientific interest because they are either an extreme in physical/geographical limitations, or represent an unusual variation in a population or community.
6. Areas important as game species habitat or as fisheries.
7. Areas that would provide for the preservation of relatively undisturbed examples of natural biotic communities in Los Angeles County.
8. Special areas.[2]

"Significant Natural Area (SNA)" means an area defined by the California Department of Fish and Game (DFG), Significant Natural Areas Program, as an area that contains an important example of California's biological diversity. The most current SNA maps, reports, and descriptions can be downloaded from the DFG website at ftp://maphost.dfg.ca.gov/outgoing/whdab/sna/. These areas are identified using the following biological criteria only, irrespective of any administrative or jurisdictional considerations:

1. Areas supporting extremely rare species or habitats.
2. Areas supporting associations or concentrations of rare species or habitats.
3. Areas exhibiting the best examples of rare species and habitats in the state.

"Site" means the land or water area where any "facility or activity" is physically located or conducted, including adjacent land used in connection with the facility or activity.

"Source Control BMP" means any schedules of activities, prohibitions of practices, maintenance procedures, managerial practices or operational practices that aim to prevent storm water pollution by reducing the potential for contamination at the source of pollution.

"SQMP" means the Los Angeles Countywide Stormwater Quality Management Program.

"State Storm Water Pollution Prevention Plan (State SWPPP)" means a plan, as required by a State General Permit, identifying potential pollutant sources and describing the design, placement and implementation of BMPs, to effectively prevent non-stormwater Discharges and reduce Pollutants in Stormwater Discharges during activities covered by the General Permit.

"Storm Water" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"Storm Water Discharge Associated with Industrial Activity" means industrial discharge as defined in 40 CFR 122.26(b)(14)

"Stormwater Quality Management Program" means the Los Angeles Countywide Stormwater Quality Management Program, which includes descriptions of programs, collectively developed by the Permittees in accordance with provisions of the NPDES Permit, to comply with applicable federal and state law, as the same is amended from time to time.

[2] These criteria from the 1976 study have been modified in the *Update Study 2000*.

“Structural BMP” means any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution (e.g. canopy, structural enclosure). The category may include both Treatment Control BMPs and Source Control BMPs.

"SUSMP" means the Los Angeles Countywide Standard Urban Stormwater Mitigation Plan. The SUSMP shall address conditions and requirements of new development.

“Total Maximum Daily Load (TMDL)” means the sum of the individual waste load allocations for point sources and load allocations for nonpoint sources and natural background.

"Toxicity Identification Evaluation (TIE)" means a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.

"Toxicity Reduction Evaluation (TRE)" means a study conducted in a step-wise process to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity.

“Treatment” means the application of engineered systems that use physical, chemical, or biological processes to remove pollutants. Such processes include, but are not limited to, filtration, gravity settling, media absorption, biodegradation, biological uptake, chemical oxidation and UV radiation.

“Treatment Control BMP” means any engineered system designed to remove pollutants by simple gravity settling of particulate pollutants, filtration, biological uptake, media absorption or any other physical, biological, or chemical process.

"USEPA Phase I Facilities" means facilities in specified industrial categories that are required to obtain an NPDES permit for storm water discharges, as required by 40 CFR 122.26(c). These categories include:

i. facilities subject to storm water effluent limitation guidelines, new source performance standards, or toxic pollutant effluent standards (40 CFR N)
ii. manufacturing facilities
iii. oil and gas/mining facilities
iv. hazardous waste treatment, storage, or disposal facilities
v. landfills, land application sites, and open dumps
vi. recycling facilities
vii. steam electric power generating facilities
viii. transportation facilities
ix. sewage of wastewater treatment works
x. light manufacturing facilities

"Vehicle Maintenance/Material Storage Facilities/Corporation Yards" means any Permittee owned or operated facility or portion thereof that:

i. Conducts industrial activity, operates equipment, handles materials, and provides services similar to Federal Phase I facilities;
ii. Performs fleet vehicle service/maintenance on ten or more vehicles per day including repair, maintenance, washing, and fueling;

iii. Performs maintenance and/or repair of heavy industrial machinery/equipment ; and
iv. Stores chemicals, raw materials, or waste materials in quantities that require a hazardous materials business plan or a Spill Prevention, Control , and Counter-measures (SPCC) plan.

"Water Quality Standards and Water Quality Objectives" means water quality criteria contained in the Basin Plan, the California Ocean Plan, the National Toxics Rule, the California Toxics Rule, and other state or federally approved surface water quality plans. Such plans are used by the Regional Board to regulate all discharges, including storm water discharges.

"Waters of the State" means any surface water or groundwater, including saline waters, within boundaries of the state.

"Waters of the United States" or "Waters of the U.S." means:

a. All waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
b. All interstate waters, including interstate "wetlands";
c. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, "wetlands," sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

    1. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
    2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
    3. Which are used or could be used for industrial purposes by industries in interstate commerce;
d. All impoundments of waters otherwise defined as waters of the United States under this definition;
e. Tributaries of waters identified in paragraphs (a) through (d) of this definition;
f. The territorial sea; and
g. "Wetlands" adjacent to waters (other than waters that are themselves wetlands) identified in paragraph (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.22(m), which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to man-made bodies of water, which neither were originally created in waters of the United States (such as disposal area in wetlands) nor resulted from the impoundment of waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with USEPA.

"Wet Season" means the calendar period beginning October 1 through April 15.

Part 6. STANDARD PROVISIONS

A. Standard Requirements

1. Each Permittee shall comply with all provisions and requirements of this permit.

2. Should a Permittee discover a failure to submit any relevant facts or that it submitted incorrect information in a report, it shall promptly submit the missing or correct information.

3. Each Permittee shall report all instances of non-compliance not otherwise reported at the time monitoring reports are submitted.

4. This Order includes the attached Monitoring and Reporting Program, and SUSMP(Regional Board Resolution No. R00-02), which are a part of the permit and must be complied with in the same manner as with the rest of the requirements in the permit.

B. Regional Board Review

Any formal determination or approval made by the Regional Board Executive Officer pursuant to the provisions of this Order may be reviewed by the Regional Board. A Permittee(s) or a member of the public may request such review upon petition within 30 days of the effective date of the notification of such decision to the Permittee(s) and interested parties on file at the Regional Board.

C. Public Review

1. All documents submitted to the Regional Board in compliance with the terms and conditions of this Order shall be made available to members of the public pursuant to the Freedom of Information Act (5 U.S.C. § 552 (as amended) and the Public Records Act (Cal. Government Code § 6250 *et seq.*).

2. All documents submitted to the Regional Board Executive Officer for approval shall be made available to the public for a 30-day period to allow for public comment.

D. Duty to Comply

1. Each Permittee must comply with all of the terms, requirements, and conditions of this Order. Any violation of this order constitutes a violation of the Clean Water Act, its regulations and the California Water Code, and is grounds for enforcement action, Order termination, Order revocation and reissuance, denial of an application for reissuance; or a combination thereof [40 CFR 122.41(a), CWC § 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350].

2. A copy of these waste discharge specifications shall be maintained by each Permittee so as to be available during normal business hours to Permittee employees and members of the public.

3. Any discharge of wastes at any point(s) other than specifically described in this Order is prohibited, and constitutes a violation of the Order.

E. Duty to Mitigate [40 CFR 122.41 (d)]

Each Permittee shall take all reasonable steps to minimize or prevent any discharge that has a reasonable likelihood of adversely affecting human health or the environment.

F. Inspection and Entry [40 CFR 122.41(i), CWC § 13267]

The Regional Board, USEPA, and other authorized representatives shall be allowed:

1. Entry upon premises where a regulated facility is located or conducted, or where records are kept under conditions of this Order;

2. Access to copy any records, at reasonable times, that are kept under the conditions of this Order;

3. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and,

4. To photograph, sample, and monitor at reasonable times for the purpose of assuring compliance with this Order, or as otherwise authorized by the CWA and the CWC.

G. Proper Operation and Maintenance [40 CFR 122.41 (e), CWC § 13263(f)]

The Permittees shall at all times properly operate and maintain all facilities and systems of treatment (and related appurtenances) that are installed or used by the Permittees to achieve compliance with this Order. Proper operation and maintenance includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar system that are installed by a Permittee only when necessary to achieve compliance with the conditions of this Order.

H. Signatory Requirements [40 CFR 122.41(k) & 122.22]

Except as otherwise provided in this Order, all applications, reports, or information submitted to the Regional Board shall be signed by the Director of Public Works, City Engineer, or authorized designee and certified as set forth in 40 CFR 122.22.

I. Reopener and Modification [40 CFR 122.41(f) & 122.62]

1. This Order may only be modified, revoked, or reissued, prior to the expiration date, by the Regional Board, in accordance with the procedural requirements of the CWC and CCR Title 23 for the issuance of waste

discharge requirements, 40 CFR 122.62, and upon prior notice and hearing, to:

a) Address changed conditions identified in the required reports or other sources deemed significant by the Regional Board;

b) Incorporate applicable requirements or statewide water quality control plans adopted by the State Board or amendments to the Basin Plan;

c) Comply with any applicable requirements, guidelines, and/or regulations issued or approved pursuant to CWA Section 402(p); and/or,

d) Consider any other federal, or state laws or regulations that became effective after adoption of this Order.

2. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:

a) Violation of any term or condition contained in this Order;

b) Obtaining this Order by misrepresentation, or failure to disclose all relevant facts; or,

c) A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.

3. The filing of a request by the Principal Permittee or Permittees for a modification, revocation and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

4. This Order may be modified to make corrections or allowances for changes in the permitted activity listed in this section, following the procedures at 40 CFR 122.63, if processed as a minor modification. Minor modifications may only:

a) Correct typographical errors, or

b) Require more frequent monitoring or reporting by the Permittee.

J. Severability

The provisions of this permit are severable; and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected.

K. Duty to Provide Information [40 CFR 122.41(h)]

The Permittees shall furnish, within a reasonable time, any information the Regional Board or USEPA may request to determine whether cause exists for

modifying, revoking and reissuing, or terminating this Order. The Permittees shall also furnish to the Regional Board, upon request, copies of records required to be kept by this Order.

L. Twenty-four Hour Reporting [40 CFR 122.41(l)(6)][3]

1. The Permittees shall report to the Regional Board any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time any Permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times and, if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

2. The Regional Board may waive the required written report on a case-by-case basis.

M. Bypass [40 CFR 122.41(m)][4]

Bypass (the intentional diversion of waste streams from any portion of a treatment facility) is prohibited. The Regional Board may take enforcement action against Permittees for bypass unless:

1. Bypass was unavoidable to prevent loss of life, personal injury or severe property damage. (Severe property damage means substantial physical damage to property, damage to the treatment facilities that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.);

2. There were no feasible alternatives to bypass, such as the use of auxiliary treatment facilities, retention of untreated waste, or maintenance during normal periods of equipment down time. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that could occur during normal periods of equipment downtime or preventive maintenance;

3. The Permittee submitted a notice at least ten days in advance of the need for a bypass to the Regional Board; or,

4. Permittees may allow a bypass to occur that does not cause effluent limitations to be exceeded, but only if it is for essential maintenance to

[3] This provision applies to incidents where effluent limitations (numerical or narrative) as provided in this Order or in the Los Angeles County SQMP are exceeded, and which endanger public health or the environment.

[4] This provision applies to the operation and maintenance of storm water controls and BMPs as provided in this Order or in the SQMP.

assure efficient operation. In such a case, the above bypass conditions are not applicable. The Permittee shall submit notice of an unanticipated bypass as required.

N. Upset [40 CFR 122.41(n)][5]

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

1. A Permittee that wishes to establish the affirmative defense of an upset in an action brought for non compliance shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

   a) An upset occurred and that the Permittee can identify the cause(s) of the upset;

   b) The permitted facility was being properly operated by the time of the upset;

   c) The Permittee submitted notice of the upset as required; and,

   d) The Permittee complied with any remedial measures required.

2. No determination made before an action for noncompliance, such as during administrative review of claims that non-compliance was caused by an upset, is final administrative action subject to judicial review.

3. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof.

O. Property Rights [40 CFR 122.41(g)]

This Order does not convey any property rights of any sort, or any exclusive privilege.

P. Enforcement

1. Violation of any of the provisions of the NPDES permit or any of the provisions of this Order may subject the violator to any of the penalties described herein, or any combination thereof, at the discretion of the prosecuting authority; except that only one kind of penalties may be applied for each kind of violation. The CWA provides the following:

   a) Criminal Penalties for:

[5] *Supra*. See footnote number 3.

(1) Negligent Violations:

The CWA provides that any person who negligently violates permit conditions implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than $2,500 nor more than $25,000 per day for each violation, or by imprisonment for not more than 1 year, or both.

(2) Knowing Violations:

The CWA provides that any person who knowingly violates permit conditions implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a fine of not less than $5,000 nor more than $50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

(3) Knowing Endangerment:

The CWA provides that any person who knowingly violates permit conditions implementing § 301, 302, 307, 308, 318, or 405 and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than $250,000, or by imprisonment for not more than 15 years, or both.

(4) False Statement:

The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than $10,000 or by imprisonment for not more than two years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than $20,000 per day of violation, or by imprisonment of not more than four years, or by both. (See CWA § 309(c)(4))

b) Civil Penalties

The CWA provides that any person who violates a permit condition implementing § 301, 302, 306, 307, 308, 318, or 405 is subject to a civil penalty not to exceed $27,500 per day for each violation.

2. The CWC provides that any person who violates a waste discharge requirement provision of the CWC is subject to civil penalties of up to $5,000 per day, $10,000 per day, or $25,000 per day of violation; or when the violation involves the discharge of pollutants, is subject to civil penalties of up to $10 per gallon per day or $25 per gallon per day of violation; or some combination thereof, depending on the violation or combination of violations.

Q. Need to Halt or Reduce Activity not a Defense [40 CFR 122.41(c)]

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order.

R. Rescission

Regional Board Order No. 96-054 is hereby rescinded.

S. Expiration

This Order expires on December 12, 2006. The Permittees must submit a Report of Waste Discharges and a proposed Storm Water Quality Management Program in accordance with CCR Title 23 as application for reissuance of waste discharge requirements no later than June 12, 2006.

I, Dennis A. Dickerson, Regional Board Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Los Angeles Region, on December 13, 2001.

Dennis A. Dickerson
Executive Officer

December 13, 2001

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

APR 10 2008

Ms. Tam M. Doduc, Chair
Ms. Dorothy R. Rice, Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Dear Ms. Doduc and Ms. Rice:

I understand that certain specific provisions of the 2001 Municipal Separate Storm Sewer System ("MS4") permit for the County of Los Angeles have been called into question as going beyond what is required under section 402(p) of the CWA. (Commission on State Mandates, File Nos. 03-TC-04, 03-TC-19, 03-TC-20, and 03-TC-21.) The permit conditions at issue are: 1) the requirements for conducting inspections at industrial and commercial facilities including, restaurants and automobile servicing, [Parts 4.C.2.a. and b.] and, 2) the requirement for permittees not subject to the Trash TMDL to locate and maintain trash receptacles at transit stops [Part 4.F.5.c.3.]. California RWQCB, Los Angeles Region, Order No. 01-182, NPDES No. CAS004001 (Dec. 13, 2001). This letter discusses these permit conditions in the context of EPA's expectations for MS4 permits.

Section 402(p) of the Clean Water Act, 33 U.S.C. 1342(p), requires EPA (or authorized states) to issue National Pollutant Discharge Elimination System ("NPDES") permits to regulate the discharge of stormwater from MS4s. Typically, these MS4s are owned and operated by cities and counties. Pursuant to the Clean Water Act, these permits must require the MS4 to: 1) "effectively prohibit" non-stormwater discharges, and 2)"reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." 33 U.S.C. 1342(p)(3)(B)(ii) and (iii).

The NPDES regulations require medium and large MS4s to develop stormwater management programs that the permitting authority will consider when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Stormwater permitting has generally relied on the use of best management practices ("BMPs"), including both structural and non-structural controls, for achieving compliance with these requirements. The EPA also expects stormwater permits to follow an iterative process whereby each successive permit becomes more refined, detailed, and expanded as needed, based on experience under the previous permit. See, 55 Fed. Reg. 47990, 48052 ("EPA anticipates that storm water management programs will evolve and mature over time."); 64 Fed. Reg. 68722, 68754 (Dec. 8, 1999) ("EPA envisions application of the MEP standard as an iterative process."); Interim Permitting Approach for Water Quality-Based Effluent Limitations in Stormwater Permits (Sept. 1, 1996) ("The interim permitting approach uses BMPs in first-round storm water permits, and

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expanded or better-tailored BMPs in subsequent permits, where necessary, to provide for the attainment of water quality standards"). See also, "Evaluating the Effectiveness of Municipal Stormwater Programs" (January 2008) (http://www.epa.gov/npdes/pubs/region3_factsheet_swmp.pdf). While the standard of "maximum extent practicable" (MEP) allows for flexibility, that flexibility is not boundless and requires some level of vigor. EPA has created a national menu of stormwater BMPs to provide additional guidance concerning appropriate BMPs for stormwater management plans. Other factors to consider in ensuring appropriate controls include "technical feasibility, cost, public acceptance, regulatory compliance, and effectiveness." Building Indus. Ass'n v. State Water Res. Control Bd., 124 Cal. App. 4th 866, 889 (2004). See also "In re Cities of Bellflower, et al.", SWRCB 2000-11.

At the outset, I note the Los Angeles MS4 permit is a third generation Phase I MS4 permit that should be building upon the experiences from previous permits. Both of the provisions at issue here seem well within a reasonable expectation of controls that reduce pollutants to the "maximum extent practicable." EPA regulations at 40 C.F.R. §122.26(d)(2)(iv) set forth the basic elements to be included in a Phase I MS4's stormwater management program. Subparagraph (A) requires a description of "source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the [MS4] that are to be implemented during the life of the permit." Subparagraph (B) requires a program for detection and removal of illicit discharges and improper disposal into the storm sewer, including a program for inspections and enforcement. A program for commercial and industrial facility inspection and enforcement that includes restaurants and automobile facilities, would appear to be both practicable and effective. Such an inspection program ensures that stormwater discharges from such facilities are reducing their contribution of pollutants and that there are no non-stormwater discharges or illicit connections. Thus these programs are founded in both 402(p)(3)(B)(ii) and (iii) and are well within the scope of 40 C.F.R. §122.26(d)(2)(iv)(A) and (B).[1]

Similarly, maintaining trash receptacles at all public transit stops is well within the scope of these regulations. Among the minimum controls required to reduce pollutants from runoff from commercial and residential areas are practices for "operating and maintaining public streets, roads, and highways . . . ." §122.26(d)(2)(iv)(A)(3). I believe these requirements are also practical and effective.[2] Moreover, this permit provision is consistent with EPA's national menu

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[1]EPA's "MS4 Program Evaluation Guidance" (January 2007) envisions that an MS4 permit would include a requirement for an inspection program for common industrial/commercial businesses, such as restaurants and gas stations, within the jurisdiction of the MS4. Id. at 76 - 77, 81. The inspection requirements of the LA MS4 permit are consistent with the recommended activities in the Guide.

[2]The provision applicable to the TMDL permittees is also clearly consistent with EPA's 2002 guidance on TMDLs and storm water permitting. "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit

of BMPs for stormwater management programs, which recommends a number of BMPs to reduce trash discharges. See http://cfpub.epa.gov/npdes/stormwater/menuofbmps/index.cfm?action=browse&Rbutton=detail&bmp=5. Among the recommendations is "improved infrastructure" for trash management when necessary, which includes the placement of trash receptacles at appropriate locations based on expected need. The requirements of the Los Angeles County MS4 permit are consistent with this recommendation. See also, "MS4 Program Evaluation Guidance" (January 2007) at pp. 50, 79. EPA's expectations of the programs to reduce pollutants to the maximum extent practicable specifically refer to control of litter and trash, regardless of whether the particular receiving water is already impaired for trash.

I hope that this explanation helps clarify EPA's expectations for MS4 permit requirements under the Clean Water Act. I look forward to continuing to work with the State on our shared goal of ensuring consistency and effectiveness in storm water permitting as a vital tool in protecting the quality of our waters. Should you have further questions about these issues, please have your staff contact Douglas Eberhardt of my staff at (415) 972-3420 or have your counsel's office contact Laurie Kermish of the Office of Regional Counsel at (415) 972-3917.

Sincerely,

Alexis Strauss 10 April 2008

Alexis Strauss
Director, Water Division

cc: Mr. Michael Lauffer, Chief Counsel
State Water Resources Control Board

Ms. Paula Higashi, Executive Director
Commission on State Mandates

Requirements Based on Those WLAs" (November 22, 2002) which is available at: http://cfpub.epa.gov/npdes/pubs.cfm?program_id=6

ATTACHMENT
47

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX Southern California Field Office
600 Wilshire Blvd. Suite 1460
Los Angeles, CA 90017

July 31, 2008

Mark A Grey
Director of Environmental Affairs
Building Industry Association of Southern California
1330 South Valley Vista Drive
Diamond Bar, CA 91765

Andrew R. Henderson
Vice President and General Counsel
Building Industry Association of Southern California
1330 South Valley Vista Drive
Diamond Bar, CA 91765

Dear Dr. Grey and Mr. Henderson:

This is in response to your July 1, 2008 letter to Alexis Strauss regarding the incorporation of Low Impact Development (LID) provisions into Municipal Separate Storm Sewer System (MS4) permits in southern California.

Your letter refers to your email communications with Ms. Strauss, as well as to testimony provided at the February 13, 2008 San Diego Regional Water Quality Control Board Hearing by Dr. Cindy Lin and to the April 1, 2008 comments to the Colorado River Basin Regional Water Quality Control Board by Mr. Doug Eberhardt. Your letter asks several questions about the U.S. EPA Region 9 Water Division's positions regarding the incorporation of LID provisions into southern California MS4 permits.

Nationally, U.S. EPA has formally recognized the benefits of LID (also termed "Green Infrastructure") in several policy documents. EPA is advocating green infrastructure as an approach to wet weather management that is cost-effective, sustainable, and environmentally-sound. On April 19, 2007, EPA and four national groups signed an agreement to promote green infrastructure as an environmentally preferable approach to storm water management, and on August 16, 2007 EPA issued a memo encouraging the incorporation of Green Infrastructure into NPDES storm water permits. Ongoing efforts are described in the January 17, 2008 Action Strategy for Managing Wet Weather with Green Infrastructure. All of these materials regarding EPA's policy on green infrastructure can be found at:
http://cfpub.epa.gov/npdes/greeninfrastructure/information.cfm#greenpolicy.

In EPA Region 9, we are promoting LID strategies that infiltrate, evapotranspire, capture, and reuse storm water to maintain or restore natural hydrologies and improve water

quality. We are encouraging permitting agencies across Region 9 to incorporate LID provisions into MS4 permits as clear, measurable and enforceable requirements.

The next round of MS4 permits in the coastal Regions of southern California will be the fourth generation of these permits. It is our expectation that these latest permits be strengthened to take advantage of lessons learned from previous permits, and to contribute to the restoration of impaired waters impacted by MS4s. These new MS4 permits should include quantitative requirements to enable all parties to clearly identify performance expectations for LID implementation.

Your letter asks several questions about our position regarding permit provisions which call for LID implementation to attain a standard of no more than 5% Effective Impervious Area (EIA). Such provisions are included in the current draft (April 29, 2008) MS4 permit for Ventura County proposed by the Los Angeles Regional Water Quality Control Board, and the February 15, 2008 guidelines provided by the Central Coast Regional Water Quality Control Board to those in the Central Coast Region enrolling under the State's Phase II general MS4 permit. We support the inclusion of the 5% EIA provisions for new development and redevelopment projects in both of these examples as clear, measurable, and enforceable requirements. Use of the 5% EIA requirement is not the only acceptable, quantitative approach for incorporating LID into renewed MS4 permits in southern California. As noted in Mr. Eberhardt's April 1, 2008 letter, and his May 13, 2008 follow-up letter to the Colorado River Basin Regional Water Quality Control Board, we are open to other quantitative means for measuring how LID tools reduce storm water discharges.

Your letter asks about our use of a paper by Dr. Richard Horner concluding that the achievement of a 3% EIA standard for development in Ventura County is feasible. Dr. Horner's paper is one of many we have before us. Our positions have been informed by many documents germane to the management of municipal storm water, including the January 21, 2008 paper by your organization entitled "Integration of Low Impact Development Measures and CEQA Approvals." EPA has also considered numerous publications, case studies and guidance manuals in its consideration of LID/Green Infrastructure as a cost-effective, preferable alternative to storm water management. A partial list of these materials may be found at http://cfpub.epa.gov/npdes/greeninfrastructure/research.cfm.

While we cannot attribute our position on future MS4 permits to a single report or analysis, our views on these permits have been most comprehensively informed by the nearly 50 audits of Region 9 MS4 permits we have conducted over the past seven years. These audit reports can be found on our website at http://epa.gov/region09/water/npdes/ms4audits.html#report. Twenty of our audits have been conducted in southern California. These audits have highlighted the need for quantitative, measurable requirements in MS4 permits to ensure effective implementation of storm water controls.

I hope this has answered the questions in your July 1, 2008 letter. If you would like to discuss this further, please call me, here in EPA's Southern California Field Office, at 213-244-1832

Sincerely,

John Kemmerer
Associate Director,
Water Division

cc: Executive Officers, RWQCBs Regions 1-9
Tam Doduc, Chair SWRCB
Dorothy Rice, Executive Director, SWRCB
(all cc's transmitted electronically)

ATTACHMENT
48

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JUN 2 0 2014

Adam Fischer
Santa Ana Regional Water Quality Control Board
3737 Main Street, Suite 500
Riverside, CA 92501.

Re: Draft MS4 Permit for Orange County (Permit No. CAS618030)

Dear Mr. Fischer:

The following are EPA Region 9's comments on the draft NPDES permit (permit No. CAS618030) for discharges from the municipal separate storm sewer system (MS4) serving the portion of Orange County under the jurisdiction of the Santa Ana Regional Water Quality Control Board (Regional Board), which the Regional Board released for public comment on May 2, 2014. In an email dated January 31, 2014, we provided comments on an earlier "administrative draft" of this permit. We appreciate the opportunity to provide early input during the permit development process. However, we are disappointed that the May 2, 2014 draft permit contains problematic new provisions allowing for compliance with water-quality provisions based on Permittee submittal of draft plans (or providing a notice of intent to submit a plan) to the Executive Officer. Following below are our comments on the latest draft permit.

A. Total Maximum Daily Load (TMDL) Requirements

We have concerns with the draft permit's new options for complying with permit requirements associated with approved TMDLs upon the Permittees' written notification to the Executive Officer of their intent to develop a plan to comply with applicable wasteload allocations (WLAs). Each of the TMDLs listed in Appendices B through H of the draft permit was incorporated into the Santa Ana Regional Board's 2009 Orange County MS4 Permit (R8-2009-0030), so implementation of these TMDLs should be ongoing. We'd prefer that the draft permit be revised to retain the same approach for compliance with WLAs as the 2009 permit, and as is incorporated into the San Diego Regional Board's 2013 Regional MS4 permit (NPDES Permit No.CAS0109266). It's our conclusion that basing TMDL compliance on plans limits enforceability and makes it difficult to confirm that the TMDL water quality targets are being attained. If a plan-based compliance approach is to be included, it's important for the draft permit to be revised to include a more rigorous analysis including how specifically identified BMPs will directly result in achievement of WLAs, and the expectations that interim milestones be provided to track progress towards achieving WLAs. Also, contrary to the draft permit, this option for compliance should only be available upon approval of the plan (following opportunity for public comment) by the Executive Officer.

Per Clean Water Act and federal regulations at 40 CFR 122.44 regarding TMDLs, permit language must be modified in several places to accurately describe that Permittee's discharges must comply with water quality-based effluent limits (WQBELs), not the TMDL WLAs. Specifically, we recommend/request these language changes be made within permit section XVIII – TMDL Implementation and in each of the TMDL Appendices B-H. For example, the responsible Permittees must comply with WQBELs established in this permit; those WQBELs are consistent with WLAs within approved TMDLs.

In our emailed comments of January 31, 2014, we expressed concern that compliance with WLAs (established as WQBELs in the permit as noted above) would be determined in accordance with a schedule (yet-to-be determined) where such determinations could be as infrequent as once every five years. We had recommended WLA compliance determinations at least once/year; we noted this would consistent with the implementation language in at least one TMDL adopted by the Regional Board (organochlorine compounds TMDL). The monitoring requirements of the latest draft permit (Attachment A) have been revised to require monitoring consistent with TMDL assessment periods, but do not specify in detail the monitoring frequency that would be necessary for consistency. To clarify the requirements and to avoid any misunderstandings of the TMDL requirements, we recommend that the permit either include the monitoring frequency that would be required for consistency with each TMDL, or direct the Permittee to a specific document where it could be found.

Furthermore, the permit should be revised to include action levels as part of the permits monitoring and reporting program and, if appropriate, the Permittees' water quality improvement plans. The goal of including both non-stormwater and stormwater action levels is to guide implementation efforts and measure progress towards the protection of water quality and designed beneficial uses of the state from adverse impacts caused or contributed to by MS4 discharges. Notably, action levels were included in the Riverside County MS4 permit (2010, Santa Ana Regional Board) and the San Diego Regional permit (2013).

Section XVIII.B.4 of the draft permit would allow exceedances of a WLA at a frequency that is less than or equal to a site-specific exceedance frequency found in the State's policy guide for developing the CWA section 303(d) list. If retained, this provision should be further discussed and supported in the fact sheet. Our understanding is that the exceedance frequency in the section 303(d) listing guide does not affect the applicability of approved WLAs, and would not justify the proposed exceedances that would be allowed under the permit. Absent adequate justification for section XVIII.B.4, we recommend it be removed from the permit.

The draft permit does not currently include any requirements related to TMDLs that may be approved during the term of the permit. To expedite implementation of additional controls that may be necessary for compliance with such TMDLs, we recommend the permit include a provision similar to section O of the 2012 MS4 permit

for the City of Salinas (permit No. CA0049981) issued by the Central Coast Regional Board. The Salinas permit requires development and submittal within one year of final TMDL approval of a plan for complying with newly approved TMDLs. This is preferable to waiting for the next permit renewal to incorporate newly approved TMDLs. We understand that the Santa Ana Regional Board is currently developing a TMDL for selenium for the Newport Bay Watershed; our recommended provision would expedite compliance with the selenium TMDL and any others that may be approved during the term of the permit.

In Appendix G, we recommend that the second paragraph be modified to clarify that the metals and selenium TMDLs were only promulgated by EPA, and were not developed nor adopted by the Santa Ana Regional Board. We recommend the following edits to the paragraph:

> "The WLAs in this Appendix are based on the Toxic Pollutants (Metals and Se) TMDLs. ~~The Toxic Pollutants TMDL has been approved by Santa Ana Regional Water Quality Control Board, the State Water Resources Control Board, the Office of Administrative Law ("OAL") and USEPA. The Toxic Pollutants TMDL was adopted by the Santa Ana Regional Water Quality Control Board in Resolution No. R8-2003-0039.~~ The metals and Se TMDLs were promulgated by USEPA on June 17, 2002."

B. New Development (Including Significant Redevelopment)

Section XII.A.7 requires the Principal Permittee to submit retrofit studies. While this is a step in the right direction, it falls far short of the retrofit provisions included in the San Diego Regional Board's Regional MS4 permit (CAS019266). We recommend incorporation of the San Diego permit's section II.E.5.(e)(1) "Retrofitting and Rehabilitating Areas of Existing Development." The San Diego permit requires each Co-permittee to identify areas of existing development as candidates for retrofitting, focusing on areas where retrofitting will address pollutants and/or stressors that contribute to the highest priority water quality conditions. This more comprehensive approach will better identify areas within the built environment where retrofits would result in water quality improvements. The San Diego permit also requires a strategy to facilitate implementation of projects identified as potential candidates for retrofits, which is lacking in the draft Orange County permit. Moreover, many of the potential retrofit BMPs (such as bioretention) would provide additional benefits such as groundwater recharge which would help alleviate current and future drought conditions; this factor increases the importance of an effective retrofit program.

Section XII.K discusses off-site treatment controls. We recognize that in some cases off-site projects can effectively address the post-construction control requirements for new development and significant redevelopment projects. This is particularly the case where off-site controls are located to optimize infiltration to replenish groundwater

supplies. However, it is necessary that water quality protections are in place at the site of the triggering development/redevelopment project, and the draft permit should be revised to make this explicitly clear. We recommend the Los Angeles County MS4 permit (CAS004001), which effectively addresses this issue in section VI.D.7.c.iii(7) by specifying Water Quality Mitigation Criteria that must be met for New and Redevelopment Projects that have been approved for offsite projects.

It is not clear whether regional or sub-regional biotreatment facilities would be required to treat 1½ times the capture volume required for retention facilities, as would be the case when on-site biotreatment replaces on-site retention. This requirement should be included in the permit. We further recommend that in situations where there may be a choice in using off-site retention or off-site biotreatment that the permit include a preference for retention (similar to the preference for retention over biotreatmemt for on-site controls).

The draft permit appears to lack any requirements for off-site mitigation when on-site LID is determined to be infeasible and regional or sub-regional facilities are not being used. We recommend that mitigation using off-site LID be required for any portion of the design capture volume for which retention or biotreatment is determined to be infeasible onsite. Such a requirement would be consistent with the 2012 Los Angeles County permit.

Finally, section XII.L of the draft permit provides for a waiver of structural controls under certain circumstances. For example, a waiver could be available if the costs are shown to disproportionately outweigh the benefits. The waiver provisions are not explained in the fact sheet and further explanation and justification should be included. Given the experience throughout California implementing LID controls pursuant to MS4 permits, which has shown the widespread feasibility of implementing LID measures in connection with new development and redevelopment projects, we're very skeptical that this waiver provision is necessary.

C. Receiving Water Limitations

In our emailed comments of January 31, 2014, we expressed support for the receiving water limitations (RWLs) language that had been included in the administrative draft. At the time, this language closely tracked State Water Board WQ Order 99-05 and the Regional Board's 2009 MS4 permit for Orange County. Unfortunately, the May 2, 2014 draft permit (section IV) includes a new provision under which a Permittee would be deemed in compliance with RWLs upon submittal of a draft plan for compliance to the Executive Officer. As an alternative to this new draft permit language, it's our preference that the permit retain the same RWLs language contained in your 2009 Orange County MS4 permit. As you are no doubt aware, at a November 2012 workshop, the State Water Board indicated it may consider revising WQ Order 99-05. The State Board has recommended that MS4 permits include a permit reopener to address potential revisions

to WQ Order 99-05. We suggest incorporation of such a reopener in the Orange County permit; section II.H.4.a of the San Diego permit provides appropriate language.

We are aware that while the State Board considers revisions to WQ Order 99-05, some stakeholders have been urging Regional Boards to develop new approaches for determining how RWLs compliance is determined. While our strong preference is to stick with the approach used in your 2009 permit, we have reviewed one alternative that we could support. During the development of the San Diego Regional Board's Regional MS4 permit, RB9 staff developed an option (referred to as Option 2) that would have made use of detailed Water Quality Improvement Plans to demonstrate measurable progress to achieve RWLs (included in the RB9 staff's Revised Tentative Order posted March 27, 2013). Under Option 2, after Water Quality Improvement Plan approval, its implementation would be the vehicle for achievement of RWLs. Ultimately at its May, 2013 hearing, the San Diego Regional Board chose not to adopt Option 2, and instead, with EPA's full support, adopted its Regional MS4 permit with RWLs language consistent with WQ Order 99-05. The Los Angeles MS4 permit also lays out a thorough, rigorous planning process for determining compliance with RWLs. However, we have gone on record as opposing this approach used by the Los Angeles Regional Board, given that the alternative compliance approach is available before the Plans are approved.

Unlike the San Diego Regional Board's staff proposal (Option 2) or the Los Angeles County MS4 permit, the draft Orange County permit does not provide necessary details on Permittee programs to demonstrate rigorous efforts to achieve RWLs. The deficiencies in the draft permit include the absence of measurable interim milestones and modeling efforts supporting assurances that BMPs will achieve RWLs. Again, our preference is to retain the RWLs language of the 2009 permit, but if a plan-based compliance approach is being seriously considered it should use the methodology developed by the San Diego and Los Angeles Regional Board staff, and should be available for compliance purposes only after plan approval.

D. Other Comments

1. Whole Effluent Toxicity (WET) Requirements

In our emailed comments of January 31, 2014, we had recommended that the Orange County MS4 permit include WET requirements (using EPA's Test for Significant Toxicity (TST) procedure) modeled after those in the 2012 Los Angeles County MS4 permit. The Los Angeles County permit requires tests using 100% effluent and 100% receiving water. However, the Orange County permit requires tests on a series of dilutions (section F.3 of Attachment A), and the selection of these dilutions should be explained in the fact sheet. We note the dilution series in the draft permit was commonly used in the WET data analysis methods used prior to the TST and may have been inadvertently carried over from previous permits.

2. Monitoring Program

The list of parameters in the monitoring program for pesticides appears incomplete (Table 4 of Attachment A), in that only a limited number of organophosphate pesticides would be sampled. We recommend the list be broadened to include a wider variety of pesticide compounds in current use, such as pyrethroids (e.g., bifenthrin, cypermithrin, esfenvalerate, gamma cyhalothrin, permithrin, etc.) and neonicotinoides (e.g., clothianidin, imidocloprid, thiamethoxam).

Section II.D of Attachment A requires monitoring at representative "MS4 outfalls" but does not provide any guidance concerning the required number of locations to be sampled, or the specific locations themselves. We recommend the permit at least clarify that representative sampling locations must be selected that would allow a compliance determination with each applicable WLA. The fact sheet also notes that the intent of the permit is largely to continue the existing monitoring program, and it appears the Regional Board has generally been satisfied with the program in previous years. Nevertheless, we recommend the fact sheet further describe the program (e.g., number and location of sampling sites, frequency of sampling) to provide the public with a better sense of the scope of the program.

Based on information contained in Orange County's 2011-2012 Unified Annual Report, the County did not adequately compare dry weather receiving water composite sample results against the California Toxics Rule (CTR), specifically the chronic criteria, as required by section III.1(a) of the monitoring and reporting program requirements of the 2009 permit. Sampling results reported by Orange County were compared to the CTR acute toxicity criteria only. The lack of adequate sampling and/or analysis of dry weather composite samples against the chronic CTR criteria limits the County's ability to identify trends, potential sources, and appropriate responses to exceedances of applicable water quality standards. For the new permit, the Regional Board should ensure that the County clearly understands it responsibilities on this matter.

Finally, we note that bacteria sampling (section II.I.1.c of Attachment A) is not allowed on days when rain has occurred. The basis for this condition should be explained in the fact sheet.

3. Public Review of Updated Monitoring Program

Section II.B.6 of Attachment A provides that the Executive Officer wlll provide the opportunity for public comment on changes to the initial monitoring program which is submitted, but this opportunity seems missing for the initial submittal itself. We recommend the Executive Officer ensure such an opportunity for the initial submittal as well since it will likely be of greater interest than any changes in subsequent years.

We appreciate the opportunity to provide our views on the draft permit. If you have any questions regarding this matter, please contact Eugene Bromley of the NPDES Permits Office at (415) 972-3510.

Sincerely,

Eugene Bromley

for David Smith, Manager
NPDES Permits Office (WTR-5)

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

JAN 15 2014

Mr. Ivar Ridgeway
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200
Los Angeles, CA 90013

Re: Draft MS4 Permit for the City of Long Beach (Permit No. CAS004003)

Dear Mr. Ridgeway:

The following are EPA Region 9's comments on the draft NPDES permit (permit No. CAS004003) for discharges from the municipal separate storm sewer system (MS4) serving the City of Long Beach, which the Los Angeles Regional Board released for public comment on November 22, 2013.

We are supportive of many aspects of the draft permit. For example, the draft permit's Planning and Land Development Program (section VII.J) contains valuable provisions for ensuring that when new development and redevelopment activities are planned there are efforts to reduce pollutant impacts from impervious surfaces and make beneficial use of stormwater. We also strongly endorse the Public Agency Activities Program, which incorporates a requirement to develop an Inventory of Existing Development for Retrofitting Opportunities (section VII.K.4). We're also supportive of the draft permit's incorporation of TMDL Waste Load Allocations (WLAs) as numeric effluent limits (section VIII). In addition, we support the monitoring program (Attachment E), particularly the requirement for outfall monitoring in addition to instream monitoring since this will help identify which outfalls may be contributing to exceedances of WLAs or receiving water limitations. Finally, we support the watershed-based approach used in the permit (section VII.C) which we believe will maximize water quality improvement overall by ensuring that best management practices are appropriately customized to the needs of individual watersheds.

Although we're strongly supportive of much of the draft permit, we have concerns with three areas, each of which we raised in testimony at the November 8, 2012 adoption hearing for the Los Angeles County MS4 permit. These concerns, and our recommendations to address them, are discussed below:

A. ***Compliance with TMDL-based Water Quality-Based Effluent Limits Via Retention of the 85th percentile, 24-Hour Storm***

Section VIII.F.1.d of the draft permit provides that a permittee implementing an enhanced watershed management plan (EWMP) will be deemed in compliance with applicable water quality-based effluent limits associated with TMDLs if the runoff from

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Administrative Record Page No. 022948

November 18, 2015
Item No. 11
Supporting Document No. 10d
Public Comment
LA MS4 Permit- A-2236(a)-(kk)
Deadline: 01/21/15 by 12:00 noon

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

RECEIVED
1-20-15
SWRCB Clerk

JAN 2 0 2015

Ms. Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street, 24th Floor (95814)
P.O. Box 100
Sacramento, CA 95812-0100

Re: Comments to A-2236(a)-(kk)

Dear Ms. Townsend:

The following are EPA Region 9's comments on the State Water Board's draft WQ Order released on November 21, 2014, responding to the petitions (SWRCB/OCC files A-2236(a) through (kk)) submitted challenging NPDES permit No. CAS004001. This permit was issued in November 2012 by the Los Angeles Regional Board and authorizes discharges from the municipal separate storm sewer system (MS4) serving most of Los Angeles County. Region 9 offers the following comments on certain aspects of the Order.

A. "Safe Harbor" During the Planning Phase for a WMP/EWMP

Section VI.C.3.b of the LA MS4 permit provides that permittees are deemed in compliance with receiving water limitations (RWLs) upon notification to the Regional Board of their intent to develop a watershed management program (WMP) or enhanced watershed management program (EWMP). In our testimony at the November 2012 adoption hearing for the permit (and in a subsequent August 14, 2013 letter to the State Water Board), we recommended a change in the timing of when a permittee would be deemed in compliance. Rather than being deemed in compliance upon notification of intent to prepare a WMP/EWMP, we recommended that a permittee be deemed in compliance only after approval of a WMP/EWMP.

Section II.B.6 of the draft WQ Order supports the LA MS4 permit with regards to the timing of when the "safe harbor" period would begin. Establishing a safe harbor during this planning phase is not warranted. The requirement that LA County permittees meet RWLs was in place for over eleven years prior to the issuance of this permit. We disagree that permittees should be considered in compliance with these limits solely based on a notification of intent to prepare a plan.

A provision consistent with our recommendation was drafted as one option for the draft Regional MS4 permit (NPDES permit No. CAS0109266) proposed by the San Diego Regional Board in April 2013. The San Diego Regional Board chose to stick with

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an approach for compliance with RWLs that closely aligned with State Board Order WQ 99-05 (i.e., not this draft WQ Order's proposed option). In conclusion, the San Diego Board's option for finding permittees in compliance with RWLs only when a plan is approved should be incorporated into the State Water Board's final WQ Order responding to the LA MS4 permit petitions.

B. Compliance with RWLs Via Retention of the 85%, 24-Hour Storm for Drainage Areas with EWMPs

Section VI.E.2.e.i.4 of the LA MS4 permit provides that for drainage areas where a EWMP is developed, retention of the runoff from the 85%, 24-hour storm would constitute compliance with applicable Water Quality Based Effluent Limits (WQBELs) and RWLs for pollutants associated with TMDL Waste Load Allocations (WLAs). We raised concerns with this provision in our testimony at the November 2012 adoption hearing. It has been a long-standing EPA policy that where a MS4 permit does not incorporate TMDL WLAs as numeric limits, the permit's administrative record must demonstrate that specified control measures will be sufficient to ensure compliance with WLAs. In a December 4, 2012 letter, we requested that the Los Angeles Regional Board identify documents in the permit's administrative record which are the basis for the conclusion that the specified retention would result in achieving WLAs. Based on the Regional Board's April 11, 2013 response, we do not believe that the permit's record supports the conclusion that this retention will result in achievement of WLAs.

The draft WQ Order in section II.B.5 recognizes that the LA MS4 permit does not verify that TMDL-specific limitations will be met as a result of retention of the 85%, 24-hour storm. The draft WQ Order addresses this issue by requiring the submittal of a plan of additional control measures if the specified volume is retained, but water quality monitoring shows that RWLs and WQBELs associated with TMDLs are not in fact being achieved. While this is a step in the right direction, we are concerned that only requiring submittal of a plan could lead to an ineffective iterative process without any assurance that water quality will be protected. We recommend that the provision be strengthened to specify that the expectations for this plan must include: (1) a quantitative analysis demonstrating that proposed additional control measures will result in attainment of WLAs, and (2) a provision for the Executive Officer to have the option to require strict compliance with numeric WLAs if continued progress is not being made towards achieving these water quality limitations.

C. Applicability of the WQ Order to All Regional Boards

We note that some commenters on the draft WQ Order recommended that the State Water Board require that all Regional Boards follow the WMP/EWMP approach in the LA MS4 permit when issuing MS4 permits. As drafted, the proposed WQ Order (section II.B.7) directs all Regional Boards to consider the approach in the LA MS4 permit, but does not require its use. We believe it would be premature and inappropriate

to require the LA MS4 permit approach throughout the State, especially considering the previous two issues we've identified in this letter.

We appreciate the opportunity to provide our views on the draft WQ Order. If you have any questions regarding this matter, please contact Eugene Bromley of the NPDES Permits Section at (415) 972-3510.

Sincerely,

David Smith, Manager
NPDES Permits Section (WTR-2-3)

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 22 2002

OFFICE OF
WATER

MEMORANDUM

SUBJECT: Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs

FROM: Robert H. Wayland, III, Director
Office of Wetlands, Oceans and Watersheds

James A. Hanlon, Director
Office of Wastewater Management

TO: Water Division Directors
Regions 1 - 10

This memorandum clarifies existing EPA regulatory requirements for, and provides guidance on, establishing wasteload allocations (WLAs) for storm water discharges in total maximum daily loads (TMDLs) approved or established by EPA. It also addresses the establishment of water quality-based effluent limits (WQBELs) and conditions in National Pollutant Discharge Elimination System (NPDES) permits based on the WLAs for storm water discharges in TMDLs. The key points presented in this memorandum are as follows:

NPDES-regulated storm water discharges must be addressed by the wasteload allocation component of a TMDL. See 40 C.F.R. § 130.2(h).

NPDES-regulated storm water discharges may not be addressed by the load allocation (LA) component of a TMDL. See 40 C.F.R. § 130.2 (g) & (h).

Storm water discharges from sources that are not currently subject to NPDES regulation may be addressed by the load allocation component of a TMDL. See 40 C.F.R. § 130.2(g).

It may be reasonable to express allocations for NPDES-regulated storm water discharges from multiple point sources as a single categorical wasteload allocation when data and information are insufficient to assign each source or outfall individual WLAs. See 40 C.F.R. § 130.2(i). In cases where wasteload allocations

are developed for categories of discharges, these categories should be defined as narrowly as available information allows.

The WLAs and LAs are to be expressed in numeric form in the TMDL. See 40 C.F.R. § 130.2(h) & (i). EPA expects TMDL authorities to make separate allocations to NPDES- regulated storm water discharges (in the form of WLAs) and unregulated storm water (in the form of LAs). EPA recognizes that these allocations might be fairly rudimentary because of data limitations and variability in the system.

NPDES permit conditions must be consistent with the assumptions and requirements of available WLAs. See 40 C.F.R. § 122.44(d)(1)(vii)(B).

WQBELs for NPDES-regulated storm water discharges that implement WLAs in TMDLs may be expressed in the form of best management practices (BMPs) under specified circumstances. See 33 U.S.C. §1342(p)(3)(B)(iii); 40 C.F.R. §122.44(k)(2)&(3). If BMPs alone adequately implement the WLAs, then additional controls are not necessary.

EPA expects that most WQBELs for NPDES-regulated municipal and small construction storm water discharges will be in the form of BMPs, and that numeric limits will be used only in rare instances.

When a non-numeric water quality-based effluent limit is imposed, the permit's administrative record, including the fact sheet when one is required, needs to support that the BMPs are expected to be sufficient to implement the WLA in the TMDL. See 40 C.F.R. §§ 124.8, 124.9 & 124.18.

The NPDES permit must also specify the monitoring necessary to determine compliance with effluent limitations. See 40 C.F.R. § 122.44(i). Where effluent limits are specified as BMPs, the permit should also specify the monitoring necessary to assess if the expected load reductions attributed to BMP implementation are achieved (e.g., BMP performance data).

The permit should also provide a mechanism to make adjustments to the required BMPs as necessary to ensure their adequate performance.

This memorandum is organized as follows:

(I). Regulatory basis for including NPDES-regulated storm water discharges in WLAs in TMDLs;

(II). Options for addressing storm water in TMDLs; and

(III). Determining effluent limits in NPDES permits for storm water discharges consistent with the WLA

(I). Regulatory Basis for Including NPDES-regulated Storm Water Discharges in WLAs in TMDLs

As part of the 1987 amendments to the CWA, Congress added Section 402(p) to the Act to cover discharges composed entirely of storm water. Section 402(p)(2) of the Act requires permit coverage for discharges associated with industrial activity and discharges from large and medium municipal separate storm sewer systems (MS4), i.e., systems serving a population over 250,000 or systems serving a population between 100,000 and 250,000, respectively. These discharges are referred to as Phase I MS4 discharges.

In addition, the Administrator was directed to study and issue regulations that designate additional storm water discharges, other than those regulated under Phase I, to be regulated in order to protect water quality. EPA issued regulations on December 8, 1999 (64 FR 68722), expanding the NPDES storm water program to include discharges from smaller MS4s (including all systems within "urbanized areas" and other systems serving populations less than 100,000) and storm water discharges from construction sites that disturb one to five acres, with opportunities for area-specific exclusions. This program expansion is referred to as Phase II.

Section 402(p) also specifies the levels of control to be incorporated into NPDES storm water permits depending on the source (industrial versus municipal storm water). Permits for storm water discharges associated with industrial activity are to require compliance with all applicable provisions of Sections 301 and 402 of the CWA, i.e., all technology-based and water quality-based requirements. See 33 U.S.C. §1342(p)(3)(A). Permits for discharges from MS4s, however, "shall require controls to reduce the discharge of pollutants to the maximum extent practicable ... and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." See 33 U.S.C. §1342(p)(3)(B)(iii).

Storm water discharges that are regulated under Phase I or Phase II of the NPDES storm water program are point sources that must be included in the WLA portion of a TMDL. See 40 C.F.R. § 130.2(h). Storm water discharges that are not currently subject to Phase I or Phase II of the NPDES storm water program are not required to obtain NPDES permits. 33 U.S.C. §1342(p)(1) & (p)(6). Therefore, for regulatory purposes, they are analogous to nonpoint sources and may be included in the LA portion of a TMDL. See 40 C.F.R. § 130.2(g).

(II). Options for Addressing Storm Water in TMDLs

Decisions about allocations of pollutant loads within a TMDL are driven by the quantity and quality of existing and readily available water quality data. The amount of storm water data available for a TMDL varies from location to location. Nevertheless, EPA expects TMDL authorities will make separate aggregate allocations to NPDES-regulated storm water discharges

(in the form of WLAs) and unregulated storm water (in the form of LAs). It may be reasonable to quantify the allocations through estimates or extrapolations, based either on knowledge of land use patterns and associated literature values for pollutant loadings or on actual, albeit limited, loading information. EPA recognizes that these allocations might be fairly rudimentary because of data limitations.

EPA also recognizes that the available data and information usually are not detailed enough to determine waste load allocations for NPDES-regulated storm water discharges on an outfall-specific basis. In this situation, EPA recommends expressing the wasteload allocation in the TMDL as either a single number for all NPDES-regulated storm water discharges, or when information allows, as different WLAs for different identifiable categories, e.g., municipal storm water as distinguished from storm water discharges from construction sites or municipal storm water discharges from City A as distinguished from City B. These categories should be defined as narrowly as available information allows (e.g., for municipalities, separate WLAs for each municipality and for industrial sources, separate WLAs for different types of industrial storm water sources or dischargers).

(III). Determining Effluent Limits in NPDES Permits for Storm Water Discharges Consistent with the WLA

Where a TMDL has been approved, NPDES permits must contain effluent limits and conditions consistent with the requirements and assumptions of the wasteload allocations in the TMDL. See 40 CFR § 122.44(d)(1)(vii)(B). Effluent limitations to control the discharge of pollutants generally are expressed in numerical form. However, in light of 33 U.S.C. §1342(p)(3)(B)(iii), EPA recommends that for NPDES-regulated municipal and small construction storm water discharges effluent limits should be expressed as best management practices (BMPs) or other similar requirements, rather than as numeric effluent limits. See *Interim Permitting Approach for Water Quality-Based Effluent Limitations in Storm Water Permits*, 61 FR 43761 (Aug. 26, 1996). The Interim Permitting Approach Policy recognizes the need for an iterative approach to control pollutants in storm water discharges. Specifically, the policy anticipates that a suite of BMPs will be used in the initial rounds of permits and that these BMPs will be tailored in subsequent rounds.

EPA's policy recognizes that because storm water discharges are due to storm events that are highly variable in frequency and duration and are not easily characterized, only in rare cases will it be feasible or appropriate to establish numeric limits for municipal and small construction storm water discharges. The variability in the system and minimal data generally available make it difficult to determine with precision or certainty actual and projected loadings for individual dischargers or groups of dischargers. Therefore, EPA believes that in these situations, permit limits typically can be expressed as BMPs, and that numeric limits will be used only in rare instances.

Under certain circumstances, BMPs are an appropriate form of effluent limits to control pollutants in storm water. See 40 CFR § 122.44(k)(2) & (3). If it is determined that a BMP approach (including an iterative BMP approach) is appropriate to meet the storm water component of the TMDL, EPA recommends that the TMDL reflect this.

EPA expects that the NPDES permitting authority will review the information provided by the TMDL, see 40 C.F.R. § 122.44(d)(1)(vii)(B), and determine whether the effluent limit is appropriately expressed using a BMP approach (including an iterative BMP approach) or a numeric limit. Where BMPs are used, EPA recommends that the permit provide a mechanism to require use of expanded or better-tailored BMPs when monitoring demonstrates they are necessary to implement the WLA and protect water quality.

Where the NPDES permitting authority allows for a choice of BMPs, a discussion of the BMP selection and assumptions needs to be included in the permit's administrative record, including the fact sheet when one is required. 40 C.F.R.§§ 124.8, 124.9 & 124.18. For general permits, this may be included in the storm water pollution prevention plan required by the permit. See 40 C.F.R. § 122.28. Permitting authorities may require the permittee to provide supporting information, such as how the permittee designed its management plan to address the WLA(s). See 40 C.F.R. § 122.28. The NPDES permit must require the monitoring necessary to assure compliance with permit limitations, although the permitting authority has the discretion under EPA's regulations to decide the frequency of such monitoring. See 40 CFR § 122.44(i). EPA recommends that such permits require collecting data on the actual performance of the BMPs. These additional data may provide a basis for revised management measures. The monitoring data are likely to have other uses as well. For example, the monitoring data might indicate if it is necessary to adjust the BMPs. Any monitoring for storm water required as part of the permit should be consistent with the state's overall assessment and monitoring strategy.

The policy outlined in this memorandum affirms the appropriateness of an iterative, adaptive management BMP approach, whereby permits include effluent limits (e.g., a combination of structural and non-structural BMPs) that address storm water discharges, implement mechanisms to evaluate the performance of such controls, and make adjustments (i.e., more stringent controls or specific BMPs) as necessary to protect water quality. This approach is further supported by the recent report from the National Research Council (NRC), *Assessing the TMDL Approach to Water Quality Management* (National Academy Press, 2001). The NRC report recommends an approach that includes "adaptive implementation," i.e., "a cyclical process in which TMDL plans are periodically assessed for their achievement of water quality standards" . . . and adjustments made as necessary. *NRC Report* at ES-5.

This memorandum discusses existing requirements of the Clean Water Act (CWA) and codified in the TMDL and NPDES implementing regulations. Those CWA provisions and regulations contain legally binding requirements. This document describes these requirements; it does not substitute for those provisions or regulations. The recommendations in this memorandum are not binding; indeed, there may be other approaches that would be appropriate

in particular situations. When EPA makes a TMDL or permitting decision, it will make each decision on a case-by-case basis and will be guided by the applicable requirements of the CWA and implementing regulations, taking into account comments and information presented at that time by interested persons regarding the appropriateness of applying these recommendations to the particular situation. EPA may change this guidance in the future.

If you have any questions please feel free to contact us or Linda Boornazian, Director of the Water Permits Division or Charles Sutfin, Director of the Assessment and Watershed Protection Division.

cc:
Water Quality Branch Chiefs
Regions 1 - 10

Permit Branch Chiefs
Regions 1 - 10

ATTACHMENT
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

NOV 26 2014

OFFICE OF WATER

MEMORANDUM

SUBJECT: Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs"

FROM: Andrew D. Sawyers, Director
Office of Wastewater Management

Benita Best-Wong, Director
Office of Wetlands, Oceans and Watersheds

TO: Water Division Directors
Regions 1 - 10

This memorandum updates aspects of EPA's November 22, 2002 memorandum from Robert H. Wayland, III, Director of the Office of Wetlands, Oceans and Watersheds, and James A. Hanlon, Director of the Office of Wastewater Management, on the subject of "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs" (hereafter "2002 memorandum"). Today's memorandum replaces the November 12, 2010, memorandum on the same subject; the Water Division Directors should no longer refer to that memorandum for guidance.

This memorandum is guidance. It is not a regulation and does not impose legally binding requirements on EPA or States. EPA and state regulatory authorities should continue to make permitting and TMDL decisions on a case-by-case basis considering the particular facts and circumstances and consistent with applicable statutes, regulations, and case law. The recommendations in this guidance may not be applicable to a particular situation. EPA may change or revoke this guidance at any time.

Background

Stormwater discharges are a significant contributor to water quality impairment in this country, and the challenges from these discharges are growing as more land is developed and more impervious surface is created. Stormwater discharges cause beach closures and contaminate shellfish and surface drinking water supplies. The increased volume and velocity of stormwater discharges causes streambank erosion, flooding, sewer overflows, and basement backups. The decreased natural infiltration of rainwater reduces groundwater recharge, depleting

our underground sources of drinking water.[1] There are stormwater management solutions, such as green infrastructure, that can protect our waterbodies from stormwater discharges and, at the same time, offer many other benefits to communities.

Section III of the 2002 memorandum recommended that for NPDES-regulated municipal and small construction stormwater discharges, effluent limits be expressed as best management practices (BMPs) or other similar requirements, rather than as numeric effluent limits. The 2002 memorandum went on to provide guidance on using "an iterative, adaptive management BMP approach" for improving stormwater management over time as permitting agencies, the regulated community, and other involved stakeholders gain more experience and knowledge. EPA continues to support use of an iterative approach, but with greater emphasis on clear, specific, and measurable permit requirements and, where feasible, numeric NPDES permit provisions, as discussed below.

Since 2002, States and EPA have obtained considerable experience in developing TMDLs and WLAs that address stormwater sources (see Box 1 in the attachment for specific examples). Monitoring of the impacts of stormwater discharges on water quality has become more sophisticated and widespread.[2] The experience gained during this time has provided better information on the effectiveness of stormwater controls to reduce pollutant loadings and address water quality impairments. In many parts of the country, permitting agencies have issued several rounds of stormwater permits. Notwithstanding these developments, stormwater discharges remain a significant cause of water quality impairment in many places, highlighting a continuing need for more meaningful WLAs and more clear, specific, and measurable NPDES permit provisions to help restore impaired waters to their beneficial uses.

With this additional experience in mind, on November 12, 2010, EPA issued a memorandum updating and revising elements of the 2002 memorandum to better reflect current practices and trends in permits and WLAs for stormwater discharges. On March 17, 2011, EPA sought public comment on the November 2010 memorandum and, earlier this year, completed a nationwide review of current practices used in MS4 permits[3] and industrial and construction stormwater discharge permits. As a result of comments received and informed by the reviews of EPA and state-issued stormwater permits, EPA is in this memorandum replacing the

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[1] See generally Urban Stormwater Management in the United States (National Research Council, 2009), particularly the discussion in Chapter 3, *Hydrologic, Geomorphic, and Biological Effects of Urbanization on Watersheds*.

[2] Stormwater discharge monitoring programs have expanded the types pollutants and other indices (e.g., biologic integrity) being evaluated. This information is being used to help target priority areas for cleanup and to assess the effectiveness of stormwater BMPs. There are a number of noteworthy monitoring programs that are ongoing, including for example those being carried out by Duluth, MN, Capitol Region Watershed District, MN, Honolulu, HI, Baltimore or Montgomery County, MD, Puget Sound, WA, Los Angeles County, CA, and the Alabama Dept. of Transportation, among many others. See also Section 4.2 (Monitoring/Modeling Requirements) of EPA's *Municipal Separate Storm Sewer System Permits: Post-Construction Performance Standards & Water Quality-Based Requirements – A Compendium of Permitting Approaches* (EPA, June 2014), or "MS4 Compendium" available at http://water.epa.gov/polwaste/npdes/stormwater/upload/sw_ms4_compendium.pdf, for other examples of note.

[3] See EPA's MS4 Permit Compendium, referenced in the above footnote.

November 2010 memorandum, updating aspects of the 2002 memorandum and providing additional information in the following areas:

- Including clear, specific, and measurable permit requirements and, where feasible, numeric effluent limitations in NPDES permits for stormwater discharges;
- Disaggregating stormwater sources in a WLA; and
- Designating additional stormwater sources to regulate and developing permit limits for such sources.

Including Clear, Specific, and Measurable Permit Requirements and, Where Feasible, Numeric Effluent Limitations in NPDES Permits for Stormwater Discharges

At the outset of both the Phase I and Phase II stormwater permit programs, EPA provided guidance on the type of water quality-based effluent limits (WQBELs) that were considered most appropriate for stormwater permits. See Interim Permitting Policy for Water Quality-Based Limitations in Storm Water Permits [61 FR 43761 (August 26, 1996) and 61 FR 57425 (November 6, 1996)] and the Phase II rulemaking preamble 64 FR 68753 (December 8, 1999). Under the approach discussed in these documents, EPA envisioned that in the first two to three rounds of permit issuance, stormwater permits typically would require implementation of increasingly more effective best management practices (BMPs). In subsequent stormwater permit terms, if the BMPs used during prior years were shown to be inadequate to meet the requirements of the Clean Water Act (CWA), including attainment of applicable water quality standards, the permit would need to contain more specific conditions or limitations.

There are many ways to include more effective WQBELs in permits. In the spring of 2014, EPA published the results of a nationwide review of current practices used in MS4 permits in *Municipal Separate Storm Sewer Systems Permits: Post-Construction Performance Standards & Water Quality-Based Requirements – A Compendium of Permitting Approaches* (June 2014). This MS4 Compendium demonstrates how NPDES authorities have been able to effectively establish permit requirements that are more specifically tied to a measurable water quality target, and includes examples of permit requirements expressed in both numeric and non-numeric form. These approaches, while appropriately permit-specific, each share the attribute of being expressed in a clear, specific, and measurable way. For example, EPA found a number of permits that employ numeric, retention-based performance standards for post-construction discharges, as well as instances where permits have effectively incorporated numeric effluent limits or other quantifiable measures to address water quality impairment (see the attachment to this memorandum).

EPA has also found examples where the applicable WLAs have been translated into BMPs, which are required to be implemented during the permit term to reflect reasonable further progress towards meeting the applicable water quality standard (WQS). Incorporating greater specificity and clarity echoes the approach first advanced by EPA in the 1996 Interim Permitting Policy, which anticipated that where necessary to address water quality concerns, permits would be modified in subsequent terms to include "more specific conditions or limitations [which] may include an integrated suite of BMPs, performance objectives, narrative standards, monitoring triggers, numeric WQBELs, action levels, etc."

EPA also recently completed a review of state-issued NPDES industrial and construction permits, which also revealed a number of examples where WQBELs are expressed using clear, specific, and measurable terms. Permits are exhibiting a number of different approaches, not unlike the types of provisions shown in the MS4 Compendium. For example, some permits are requiring as an effluent limitation compliance with a numeric or narrative WQS, while others require the implementation of specific BMPs that reduce the discharge of the pollutant of concern as necessary to meet applicable WQS or to implement a WLA and/or are requiring their permittees to conduct stormwater monitoring to ensure the effectiveness of those BMPs. EPA intends to publish a compendium of permitting approaches in state-issued industrial and construction stormwater permits in early 2015.

Permits for MS4 Discharges

The CWA provides that stormwater permits for MS4 discharges "shall require controls to reduce the discharge of pollutants to the maximum extent practicable … and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." CWA section 402(p)(3)(B)(iii). Under this provision, the NPDES permitting authority has the discretion to include requirements for reducing pollutants in stormwater discharges as necessary for compliance with water quality standards. *Defenders of Wildlife v. Browner*, 191 F.3d 1159, 1166 (9th Cir. 1999).

The 2002 memorandum stated "EPA expects that most WQBELs for NPDES-regulated municipal and small construction stormwater discharges will be in the form of BMPs, and that numeric limitations will be used only in rare instances." As demonstrated in the MS4 Compendium, NPDES permitting authorities are using various forms of clear, specific, and measurable requirements, and, where feasible, numeric effluent limitations in order to establish a more objective and accountable means for reducing pollutant discharges that contribute to water quality problems.[4] Where the NPDES authority determines that MS4 discharges have the reasonable potential to cause or contribute to a water quality standard excursion, EPA recommends that the NPDES permitting authority exercise its discretion to include clear, specific, and measurable permit requirements and, where feasible, numeric effluent limitations[5] as necessary to meet water quality standards.

NPDES authorities have significant flexibility in how they express WQBELs in MS4 permits (see examples in Box 1 of the attachment). WQBELs in MS4 permits can be expressed as system-wide requirements rather than as individual discharge location requirements such as

[4] The MS4 Compendium presents examples of different permitting approaches that EPA has found during a nationwide review of state MS4 permits. Examples of different WQBEL approaches in the MS4 Compendium include permits that have (1) a list of applicable TMDLs, WLAs, and the affected MS4s; (2) numeric limits and other quantifiable approaches for specific pollutants of concern; (3) requirements to implement specific stormwater controls or management measures to meet the applicable WLA; (4) permitting authority review and approval of TMDL plans; (5) specific impaired waters monitoring and modeling requirements; and (6) requirements for discharges to impaired waters prior to TMDL approval.

[5] For the purpose of this memorandum, and in the context of NPDES permits for stormwater discharges, "numeric" effluent limitations refer to limitations with a quantifiable or measurable parameter related to a pollutant (or pollutants). Numeric WQBELs may include other types of numeric limits in addition to end-of-pipe limits. Numeric WQBELs may include, among others, limits on pollutant discharges by specifying parameters such as on-site stormwater retention volume or percentage or amount of effective impervious cover, as well as the more traditional pollutant concentration limits and pollutant loads in the discharge.

effluent limitations on discharges from individual outfalls. Moreover, the inclusion of numeric limitations in an MS4 permit does not, by itself, mandate the type of controls that a permittee will use to meet the limitation.

EPA recommends that NPDES permitting authorities establish clear, specific, and measurable permit requirements to implement the minimum control measures in MS4 permits. With respect to requirements for post-construction stormwater management, consistent with guidance in the 1999 Phase II Rule, EPA recommends, where feasible and appropriate, numeric requirements that attempt to maintain pre-development runoff conditions (40 CFR § 122.34(b)(5)) be incorporated into MS4 permits. EPA's MS4 Compendium features examples from 17 states and the District of Columbia that have already implemented retention performance standards for newly developed and redeveloped sites. See Box 2 of the attachment for examples.

Permits for Industrial Stormwater Discharges

The CWA requires that permits for stormwater discharges associated with industrial activity comply with section 301 of the Act, including the requirement under section 301(b)(1)(C) to contain WQBELs to achieve water quality standards for any discharge that the permitting authority determines has the reasonable potential to cause or contribute to a water quality standard excursion. CWA section 402(p)(3)(A), 40 CFR § 122.44(d)(1)(iii). When the permitting authority determines, using the procedures specified at 40 CFR § 122.44(d)(1)(ii), that the discharge causes or has the reasonable potential to cause or contribute to an in-stream excursion of the water quality standards, the permit must contain WQBELs as stringent as necessary to meet any applicable water quality standard for that pollutant. EPA recommends that NPDES permitting authorities use the experience gained in developing WQBELs to design effective permit conditions to create objective and accountable means for controlling stormwater discharges. See box 3 in the attachment for examples.

Permits should contain clear, specific, and measurable elements associated with BMP implementation (*e.g.*, schedule for BMP installation, frequency of a practice, or level of BMP performance), as appropriate, and should be supported by documentation that implementation of selected BMPs will result in achievement of water quality standards. Permitting authorities should also consider including numeric benchmarks for BMPs and associated monitoring protocols for estimating BMP effectiveness in stormwater permits. Benchmarks can support an adaptive approach to meeting applicable water quality standards. While exceeding the benchmark is not generally a permit violation, exceeding the benchmark would typically require the permittee to take additional action, such as evaluating the effectiveness of the BMPs, implementing and/or modifying BMPs, or providing additional measures to protect water quality.[6] Permitting authorities should consider structuring the permit to clarify that failure to implement required corrective action, including a corrective action for exceeding a benchmark, is a permit violation. EPA notes that, as many stormwater discharges are authorized under a general

[6] For example, Part 6.2.1 of EPA's 2008 MSGP provides: "This permit stipulates pollutant benchmark concentrations that may be applicable to your discharge. The benchmark concentrations are not effluent limitations; a benchmark exceedance, therefore, is not a permit violation. Benchmark monitoring data are primarily for your use to determine the overall effectiveness of your control measures and to assist you in knowing when additional corrective action(s) may be necessary to comply with the effluent limitations …"

permit, NPDES authorities may find it more appropriate where resources allow to issue individual permits that are better tailored to meeting water quality standards for large industrial stormwater discharges with more complex stormwater management features, such as multiple outfalls and multiple entities responsible for permit compliance.

All Permitted Stormwater Discharges

As stated in the 2002 memorandum, where a State or EPA has established a TMDL, NPDES permits must contain effluent limits and conditions consistent with the assumptions and requirements of the WLAs in the TMDL. See 40 CFR § 122.44(d)(1)(vii)(B). Where the TMDL includes WLAs for stormwater sources that provide numeric pollutant loads, the WLA should, where feasible, be translated into effective, measurable WQBELs that will achieve this objective. This could take the form of a numeric limit, or of a measurable, objective BMP-based limit that is projected to achieve the WLA. For MS4 discharges, CWA section 402(p)(3)(B)(iii) provides flexibility for NPDES authorities to set appropriate deadlines for meeting WQBELs consistent with the requirements for compliance schedules in NPDES permits set forth in 40 CFR § 122.47.

The permitting authority's decision as to how to express the WQBEL(s), either as numeric effluent limitations or as BMPs, with clear, specific, and measurable elements, should be based on an analysis of the specific facts and circumstances surrounding the permit, and/or the underlying WLA, including the nature of the stormwater discharge, available data, modeling results, and other relevant information. As discussed in the 2002 memorandum, the permit's administrative record needs to provide an adequate demonstration that, where a BMP-based approach to permit limitations is selected, the BMPs required by the permit will be sufficient to implement applicable WLAs. Permits should also include milestones or other mechanisms where needed to ensure that the progress of implementing BMPs can be tracked. Improved knowledge of BMP effectiveness gained since 2002[7] should be reflected in the demonstration and supporting rationale that implementation of the BMPs will attain water quality standards and be consistent with WLAs.

EPA's regulations at 40 CFR § 122.47 govern the use of compliance schedules in NPDES permits. Central among the requirements is that the effluent limitation(s) must be met "as soon as possible." 40 CFR § 122.47(a)(1). As previously discussed, by providing discretion to include "such other provisions" as deemed appropriate, CWA section 402(p)(3)(B)(iii) provides flexibility for NPDES authorities to set appropriate deadlines towards meeting WQBELs in MS4 permits consistent with the requirements for compliance schedules in NPDES permits set forth in 40 CFR § 122.47. See *Defenders of Wildlife v Browner*, 191 F.3d at 1166. EPA expects the permitting authority to document in the permit record the basis for determining that the compliance schedule is "appropriate" and consistent with the CWA and 40 CFR § 122.47. Where a TMDL has been established and there is an accompanying implementation plan that provides a schedule for an MS4 to implement the TMDL, or where a comprehensive, integrated plan addressing a municipal government's wastewater and stormwater obligations under the NPDES program has been developed, the permitting authority should consider such

[7] See compilation of current BMP databases and summary reports available at http://water.epa.gov/infrastructure/greeninfrastructure/gi_performance.cfm, which has compiled current BMP databases and summary reports.

schedules as it decides whether and how to establish enforceable interim requirements and interim dates in the permit.

EPA notes that many permitted stormwater discharges are covered by general permits. Permitting authorities should consider and build into general permits requirements to ensure that permittees take actions necessary to meet the WLAs in approved TMDLs and address impaired waters. A general permit can, for example, identify permittees subject to applicable TMDLs in an appendix, and prescribe the activities that are required to meet an applicable WLA.

Lastly, NPDES permits must specify monitoring requirements necessary to determine compliance with effluent limitations. See CWA section 402(a)(2); 40 CFR 122.44(i). The permit could specify actions that the permittee must take if the BMPs are not performing properly or meeting expected load reductions. When developing monitoring requirements, the NPDES authority should consider the variable nature of stormwater as well as the availability of reliable and applicable field data describing the treatment efficiencies of the BMPs required and supporting modeling analysis.

Disaggregating Stormwater Sources in a WLA

In the 2002 memorandum, EPA said it "may be reasonable to express allocations for NPDES-regulated stormwater discharges from multiple point sources as a single categorical wasteload allocation when data and information are insufficient to assign each source or outfall individual WLAs." EPA also said that, "[i]n cases where wasteload allocations are developed for categories of discharges, these categories should be defined as narrowly as available information allows." Furthermore, EPA said it "recognizes that the available data and information usually are not detailed enough to determine waste load allocations for NPDES-regulated stormwater discharges on an outfall-specific basis."

EPA still recognizes that "[d]ecisions about allocations of pollutant loads within a TMDL are driven by the quantity and quality of existing and readily available water quality data," but has noted the difficulty of establishing clear, specific, and measurable NPDES permit limitations for sources covered by WLAs that are expressed as single categorical or aggregated wasteload allocations. Today, TMDL writers may have more information—such as more ambient monitoring data, better spatial and temporal representation of stormwater sources, and/or more permit-generated data—than they did in 2002 to develop more disaggregated TMDL WLAs.

Accordingly, for all these reasons, EPA is again recommending that, "when information allows," WLAs for NPDES-regulated stormwater discharges be expressed "as different WLAs for different identifiable categories" (*e.g.*, separate WLAs for MS4 and industrial stormwater discharges). In addition, as EPA said in 2002, "[t]hese categories should be defined as narrowly as available information allows (*e.g.*, for municipalities, separate WLAs for each municipality and for industrial sources, separate WLAs for different types of industrial stormwater sources or dischargers)." EPA does not expect states to assign WLAs to individual MS4 outfalls; however, some states may choose to do so to support their implementation efforts. These recommendations are consistent with the decision in *Anacostia Riverkeeper, Inc. v. Jackson*, 2011 U.S. Dist. Lexis 80316 (July 25, 2011).

In general, states are encouraged to disaggregate the WLA when circumstances allow to facilitate implementation. TMDL writers may want to consult with permit writers and local authorities to collect additional information such as sewer locations, MS4 jurisdictional boundaries, land use and growth projections, and locations of stormwater controls and infrastructure, to facilitate disaggregation. TMDLs have used different approaches to disaggregate stormwater to facilitate MS4 permit development that is consistent with the assumptions and requirements of the WLA. For example, some TMDLs have used a geographic approach and developed individual WLAs by subwatershed[8] or MS4 boundary (*i.e.*, the WLA is subdivided by the relative estimated load contribution to the subwatershed or the area served by the MS4). TMDLs have also assigned percent reductions[9] of the loading based on the estimated wasteload contribution from each MS4 permit holder. Where appropriate, EPA encourages permit writers to identify specific shares of an applicable wasteload allocation for specific permittees during the permitting process, as permit writers may have more detailed information than TMDL writers to effectively identify reductions for specific sources.

Designating Additional Stormwater Sources to Regulate and Developing Permit Limits for Such Sources

The 2002 memorandum states that "stormwater discharges from sources that are not currently subject to NPDES regulation may be addressed by the load allocation component of a TMDL." Section 402(p)(2) of the Clean Water Act (CWA) requires industrial stormwater sources, certain municipal separate storm sewer systems, and other designated sources to be subject to NPDES permits. Section 402(p)(6) provides EPA with authority to identify additional stormwater discharges as needing a permit.

In addition to the stormwater discharges specifically identified as needing an NPDES permit, the CWA and the NPDES regulations allow for EPA and NPDES authorized States to designate additional stormwater discharges for regulation. See:
40 CFR §§122.26 (a)(9)(i)(C), (a)(9)(i)(D), (b)(4)(iii), (b)(7)(iii), (b)(15)(ii) and 122.32(a)(2). Accordingly, EPA encourages permitting authorities to consider designation of stormwater sources in situations where coverage under NPDES permits would, in the reasonable judgment of the permitting authority and, considering the facts and circumstances in the waterbody, provide the most appropriate mechanism for implementing the pollution controls needed within a watershed to attain and maintain applicable water quality standards.

If a TMDL had previously included a newly permitted source as part of a single aggregated or gross load allocation for all unregulated stormwater sources, or all unregulated sources in a specific category, the NPDES permit authority could identify an appropriate allocation share and include a corresponding limitation specific to the newly permitted stormwater source. EPA recommends that any additional analysis used to identify that share and develop the corresponding limit be included in the administrative record for the permit. The

[8] Wissahickon Creek Siltation TMDL (Pennsylvania) www.epa.gov/reg3wapd/tmdl/pa_tmdl/wissahickon/index.htm.
[9] Liberty Bay Watershed Fecal Coliform Bacteria TMDL (Washington). https://fortress.wa.gov/ecy/publications/SummaryPages/1310014.html and Upper Minnehaha Creek Watershed Nutrients and Bacteria TMDL (Minnesota) http://www.pca.state.mn.us/index.php/view-document.html?gid=20792

permit writer's additional analysis would not change the TMDL, including its overall loading cap.

In situations where a stormwater source addressed in a TMDL's load allocation is not currently regulated by an NPDES permit but may be required to obtain an NPDES permit in the future, the TMDL writer should consider including language in the TMDL explaining that the allocation for the stormwater source is expressed in the TMDL as a "load allocation" contingent on the source remaining unpermitted, but that the "load allocation" would later be deemed a "wasteload allocation" if the stormwater discharge from the source were required to obtain NPDES permit coverage. Such language would help ensure that the allocation is properly characterized by the permit writer should the source's regulatory status change. This will help the permit writer develop limitations for the NPDES permit applicable to the newly permitted source that are consistent with the assumptions and requirements of the TMDL's allocation to that source.

If you have any questions please feel free to contact us or Deborah Nagle, Director of the Water Permits Division, or Tom Wall, Director of the Assessment and Watershed Protection Division.

cc: Association of Clean Water Administrators
TMDL Program Branch Chiefs, Regions 1 – 10
NPDES Permits Branch Chiefs, Regions 1 – 10

Attachment: MS4 and Industrial Stormwater Permit Examples

ATTACHMENT: MS4 and Industrial Stormwater Permit Examples

BOX 1. Examples of WQBELs in MS4 Permits:

1. Numeric expression of the WQBEL: The MS4 Permit includes a specific, quantifiable performance requirement that must be achieved within a set timeframe. For example:
   - Reduce fine sediment particles, total phosphorus, and total nitrogen loads by 10 percent, 7 percent, and 8 percent, respectively, by September 30, 2016 (2011 Lake Tahoe, CA MS4 permit)
   - Restore within the 5-year permit term 20 percent of the previously developed impervious land (2014 Prince George's County, MD MS4 permit)
   - Achieve a minimum net annual planting rate of 4,150 planting annually within the MS4 area, with the objective of an MS4-wide urban tree canopy of 40 percent by 2035 (2011 Washington, DC MS4 permit)
   - Discharges from the MS4 must not cause or contribute to exceedances of receiving water limits for Diazinon of 0.08µg/L for acute exposure (1 hr averaging period) or 0.05µg/L for chronic exposure (4-day averaging period), OR must not exceed Diazinon discharge limits of 0.072 µg/L for acute exposure or 0.045µg/L for chronic exposure (2013 San Diego, CA Regional MS4 permit)

2. Non-numeric expressions of the WQBEL: The MS4 Permit establishes individualized, watershed-based requirements that require each affected MS4 to implement specific BMPs within the permit term, which will ensure reasonable further progress towards meeting applicable water quality standards.
   - To implement the corrective action recommendations of the Issaquah Creek Basin Water Cleanup Plan for Fecal Coliform Bacteria (part of the approved Fecal Coliform Bacteria TMDL for the Issaquah Creek Basin), King County is required during the permit term to install and maintain animal waste education and/or collection stations at municipal parks and other permittee owned and operated lands reasonably expected to have substantial domestic animal use and the potential for stormwater pollution. The County is also required to complete IDDE screening for bacteria sources in 50 percent of the MS4 subbasins, including rural MS4 subbasins, by February 2, 2017 and implement the activities identified in the Phase I permit for responding to any illicit discharges found (2013 Western Washington Small MS4 General Permit)
   - For discharges to Segment 14 of the Upper South Platte River Basin associated with WLAs from the approved *E. coli* TMDL, the MS4 must identify outfalls with dry weather flows; monitor priority outfalls for flow rates and *E. coli* densities; implement a system maintenance program for listed priority basins (which includes storm sewer cleaning and sanitary sewer investigations); install markers on at least 90% of storm drain inlets in areas with public access; and conduct a public outreach program focused on sources that contribute *E. coli* loads to the MS4. By November 30, 2018, dry weather discharges from MS4 outfalls of concern must not contribute to an exceedance of the *E. coli* standard (126 cfu per 100 ml for a geometric mean of all samples collected at a specific outfall in a 30-day period) (2009 Denver, CO MS4 Permit)

3. Hybrid approach with both numeric and non-numeric expressions of the WQBEL:
   - Discharges of trash from the MS4 to the LA River must be reduced to zero by Sept. 2016. Permittees also have the option of complying via the installation of defined "full capture systems" to prevent trash from entering the MS4 (2012 Los Angeles County, CA MS4 Permit).
   - To attain the shared, load allocation of 27,000 metric tons/year of sediment in the Napa River sediment TMDL, municipalities shall determine opportunities to retrofit and/or reconstruction of road crossings to minimize road-related sediment delivery (≤ 500 cubic yards/mile per 20-year period) to stream channels (2013 CA Small MS4 General Permit).

Box 2. Examples of Retention Post Construction Standards for New and Redevelopment in MS4 Permits

- 2009 WV small MS4 permit: Keep and manage on site the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation.
- 2011 DC Phase I MS4 permit: Achieve on-site retention of 1.2" of stormwater from a 24-hour storm with a 72-hour antecedent dry period through evapotranspiration, infiltration and/or stormwater harvesting.
- 2012 Albuquerque, NM Phase I MS4 permit: Capture the 90th percentile storm event runoff to mimic the predevelopment hydrology of the previously undeveloped site.
- 2010 Anchorage, AK Phase I MS4 permit: Keep and manage the runoff generated from the first 0.52 inches of rainfall from a 24 hour event preceded by 48 hours of no measureable precipitation.
- 2013 Western WA small MS4 permit: Implement low impact development performance standards to match developed discharge durations to pre-developed durations for the range of pre-developed discharge rates from 8% of the 2-year flow to 50% of the 2-year flow.

BOX 3. Examples of WQBELs in Industrial (including Construction) Stormwater Permits:

1. Numeric expression of the WQBEL: The permit includes a specific, quantifiable performance requirement that must be achieved:
   - Pollutant concentrations shall not exceed the stormwater discharge limits specified in the permit (based on state WQS), including (for example): Cadmium-0.003 mg/l; Mercury-0.0024 mg/l; Selenium-0.02 mg/l (2013 Hawaii MSGP)
   - Beginning July 1, 2010, permittees discharging to impaired waters without an EPA-approved TMDL shall comply with the following effluent limits (based on state WQS), including (for example): Turbidity-25 NTU; TSS-30 mg/l; Mercury-0.0021 mg/l; Phosphorus, Ammonia, Lead, Copper, Zinc-site-specific limits to be determined at time of permit coverage (2010 Washington MSGP)
   - If discharging to waters on the 303(d) list (Category 5) impaired for turbidity, fine sediment, or phosphorus, the discharge must comply with the following effluent limit for turbidity: 25 NTU (at the point of discharge from the site), or no more than 5 NTU above background turbidity when the background turbidity is 50 NTU or less, or no more than a 10% increase in turbidity when background turbidity is more than 50 NTU. Discharges to waterbodies on the 303(d) list (Category 5) for high pH must comply with the numeric effluent limit of pH 6.5 to 8.5 su (2010 Washington CGP) (2010 Washington CGP)

2. Narrative expression of the WQBEL: The permit includes narrative effluent limits based on applicable WQS:
   - New discharges or new dischargers to an impaired water are not eligible for permit coverage, unless documentation or data exists to show that (1) all exposure of the pollutant(s) of concern to stormwater is prevented; or (2) the pollutant(s) of concern are not present at the facility; or (3) the discharge of the pollutant(s) of concern will meet instream water quality criteria at the point of discharge (for waters without an EPA-approved TMDL), or there is sufficient remaining WLAs in an EPA-approved TMDL to allow the discharge and that existing dischargers are subject to compliance schedules to bring the waterbody into attainment with WQS (2011 Vermont MSGP; similar requirements in RI, NY, MD, VA, WV, SC, AR, TX, KS, NE, AZ, CA, AK, OR, and WA permits)
   - In addition to other applicable WQBELs, there shall be no discharge that causes visible oil sheen, and no discharge of floating solids or persistent foam in other than trace amounts. Persistent foam is foam that does not dissipate within one half hour of point of discharge (2014 Maryland MSGP)

3. Requirement to implement additional practices or procedures for discharges to impaired waters:
   - For sediment-impaired waters (without an approved TMDL), the permittee is required to maintain a minimum 50-foot buffer zone between any disturbance and all edges of the receiving water (2009 Kentucky CGP)
   - For discharges to impaired waters, implement the following: (1) stabilization of all exposed soil areas immediately, but in no case later than 7 days after the construction activity in that portion of the site has temporarily or permanently ceased (as compared to 14 days for no-impaired waters); (2) temporary sediment basins must meet specified design standards if they will serve an area of 5 or more acres (as compared to 10 or more acres for other sites); (3) retain a water quality volume of 1 inch of runoff from the new impervious surfaces created by the project (though this volume reduction requirement is for discharges to all waters, not just impaired waters) (2013 Minnesota CGP).
   - If the site discharges to a water impaired for sediment or turbidity, or to a water subject to an EPA-approved TMDL, the permittee must implement one or more of the following practices: (1) compost berms, compost blankets, or compost socks; (2) erosion control mats; (3) tackifiers used with a perimeter control BMP; (4) a natural buffer of 50 feet (horizontally) plus 25 feet (horizontally) for 5 degrees of slope; (5) water treatment by electro-coagulation, flocculation, or filtration; and/or (6) other substantially equivalent sediment or turbidity BMP approved by the state (2010 Oregon CGP)

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Administrative Record Page No. 036447

EPA
United States Environmental Protection Agency and the EPA Region III states of Pennsylvania, Maryland, Delaware, District of Columbia, Virginia and West Virginia

Evaluating the Effectiveness of Municipal Stormwater Programs

EPA 833-F-07-010

January 2008

Introduction

NPDES Stormwater Management Programs

EPA stormwater regulations require National Pollutant Discharge Elimination Program (NPDES) permits for stormwater discharges from many municipal separate storm sewer systems (MS4s). Phase I of the stormwater permit program generally addresses municipalities with greater than 100,000 in population, while Phase II addresses smaller jurisdictions within urban areas. Additional information on EPA's stormwater program is available at www.epa.gov/npdes/stormwater.

Stormwater Phase II programs address the following program components:

- Public education and outreach
- Public involvement
- Illicit discharge detection and elimination
- Construction Site Runoff Control
- Post-Construction Runoff Control
- Pollution Prevention/Good Housekeeping for Municipal Operations

In addition to the programs above, Stormwater Phase I programs also must address stormwater runoff from industrial facilities.

Operators of regulated MS4s are required to develop a stormwater management plan (SWMP) that includes measurable goals and to implement needed stormwater management controls (BMPs). The process of developing a plan, implementing the plan, and evaluating the plan is a dynamic, iterative process that helps move communities toward achievement of their goals (Figure 1).

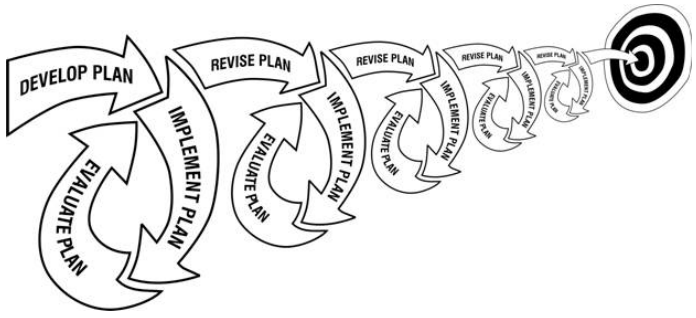

Figure 1. The iterative process of stormwater management (Develop, implement, evaluate, repeat).

40 CFR 122.26(d)(2)(v) and 122.34(g) requires MS4s to assess controls and the effectiveness of their stormwater programs. Municipal stormwater programs are also required to reduce the discharge of pollutants to the "maximum extent practicable" and satisfy the water quality requirements of the Clean Water Act. In addition, a number of government and scientific reports have found that better water quality data is needed if MS4s are to evaluate the effectiveness of their program in meeting water quality goals (NRC, 2004; Schwarzenback, et. al, 2006; Vaux, 2005).

This document discusses three approaches to evaluation of municipal SWMP effectiveness:

- Assessing program operations;
- Evaluating social indicators; and
- Monitoring water quality.

Other guidance is available to assist managers in evaluating overall implementation of the SWMP to the maximum extent practicable, e.g., EPA's MS4 *Program Evaluation Guidance* (www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf).

Purposes of Program Evaluation

- **Meet regulatory requirements.** EPA stormwater regulations require that the effectiveness of the SWMP be evaluated, including assessment of SWMP implementation, evaluation of BMP effectiveness, and the extent to which improvements in stormwater outfall discharge quality have occurred.
- **Document progress toward water quality goals.** Evaluation of SWMP effectiveness is essential to measure progress toward meeting benchmark conditions, complying with water quality standards, or restoring beneficial uses.
- **Justify commitment of resources.** Knowledge of program effectiveness can help justify SWMP expenditures to decision-makers and to the public, and help improve cost-effective implementation and management of the SWMP.
- **Provide feedback to the management program.** Stormwater management is an iterative process and knowledge of program effectiveness is essential for the permit renewal process and for mid-course corrections to improve the program.
- **Assess reductions in pollutants of concern.** If a waterbody is impaired, it may be helpful to assess the effectiveness of the SWMP in reducing the pollutants of concern.

Stormwater Management Goals

Setting Goals for SWMPs

Stormwater management plans must be guided by specific measurable water quality-based goals, but also typically include, programmatic, BMP-implementation, and social goals. NPDES permit conditions often serve as minimum goals for a SWMP, but an MS4 may have other goals for restoration or protection of water quality that go beyond minimum permit conditions and reflect local understanding of the storm drain system and receiving water conditions. Guidance on setting measurable goals for SWMPs can be found in EPA's *Measurable Goals Guidance for Phase II Small MS4s* (**www.epa.gov/npdes/pubs/measurablegoals.pdf**).

Programmatic goals might address education and outreach to a range of audiences, establishment of partnerships with business owners, or adoption of ordinances. BMP implementation goals may call for some number of practices to be installed in key locations according to a certain schedule. Goals for public involvement could include targets for number of participants in clean-up or tree-planting activities, number and quality of responses to attitude surveys, or changes in the use of lawn fertilizer.

The ultimate goal of any NPDES stormwater management program is to reduce pollutant discharges to the maximum extent practical, prohibit illicit discharges to the MS4, and protect water quality. Water quality goals may pertain to pollution prevention (reduction of potential pollutants at the source), improvements in stormwater outfall discharge quality, reduction of pollutant loads to receiving waters (e.g., a TMDL), restoration of aquatic resources (e.g., stream channel stabilization, fishery restoration), compliance with water quality standards, or restoration of beneficial uses. Intermediate benchmarks that indicate progress toward meeting water quality standards are important elements of successful long-term SWMPs.

Matching Evaluation to Management Goals

Evaluation of the effectiveness of a SWMP must relate directly to its goals. Two central questions are: *Are we meeting the municipal SWMP goals?* and *Are we meeting NPDES stormwater regulatory requirements?* If a goal is to keep a swimming beach open, it is often necessary to determine the extent to which water quality criteria for bacteria are being met. If a goal is to reduce nutrient loads by 40% from a watershed, it is then necessary to measure nutrient loads and compare measured loads against the goal. Meeting your water quality goals is the ultimate sign of program success, however, meeting programmatic or social goals can also be indicators of a successful program. Information on how these goals are met will serve as critical feedback in the iterative process of stormwater management.

Evaluating Stormwater Management Program Effectiveness

Stormwater program evaluation must be more than an exercise in collecting and tabulating data; evaluation data must be analyzed, interpreted, and reported so that results can be applied to such purposes as documenting effectiveness of BMPs, reporting information to government or the public, and planning future management activities.

Stormwater programs address multiple objectives and program evaluation can focus on a variety of desired outcomes that parallel these objectives. Approaches to the evaluation of stormwater program effectiveness may therefore fall on a continuum from basic verification of compliance with regulatory requirements to assessing changes in knowledge and behavior to detecting changes in receiving water quality (Figure 2). The NPDES stormwater evaluation program in Baltimore County, Maryland (**www.baltimorecountymd.gov/Agencies/environment/watersheds/epnpdesmain.html**) is a good example of effective evaluation of an MS4 program.

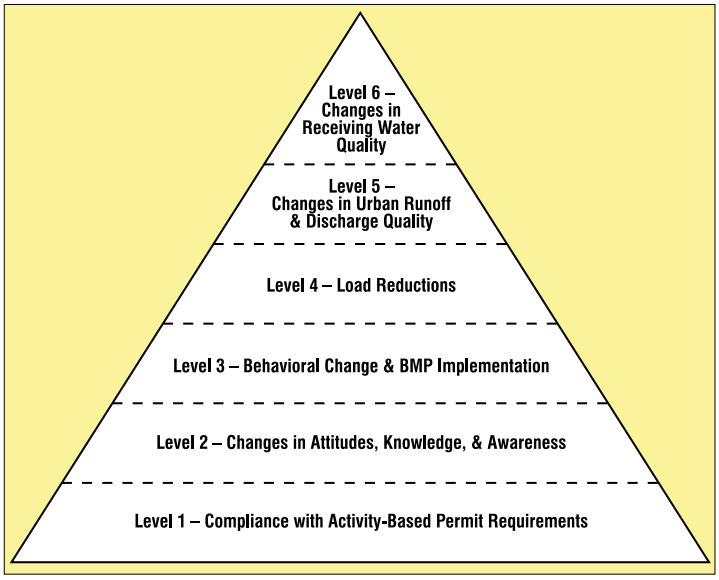

Figure 2. Approaches to evaluation of stormwater program effectiveness. (Source: CASQA, 2007)

In this document, we consider the range of evaluation approaches in three groups: program operations, social indicators, and water quality. Every evaluation approach must contain appropriate water quality measures to be meaningful.

Assess program operations

Assessment of stormwater program operations and activities verifies basic compliance with permit requirements and, more importantly, documents that tangible efforts have been made to reduce the impacts of urban stormwater. This approach to program evaluation can be applied to all of the components of a SWMP.

Administrative Record Page No. 036449

Track structural BMP implementation. Tracking the type and number of structural BMPs installed provides managers with direct feedback on how implementation is progressing and whether goals set forth in the permit are being achieved. Data on BMP specifications, location, date of completion, compliance with permit conditions, and ongoing operation and maintenance may be important to record. See USEPA **Techniques for Tracking, Evaluating, and Reporting the Implementation of Nonpoint Source Control Measures: Urban (www.epa.gov/owow/nps/urban.pdf)** for more information on the topic of tracking BMPs implemented in your jurisdiction.

Document management activities. Documenting management activities and pollutant source reduction efforts can be as important as tracking structural BMPs. How much material has been collected through street-sweeping and parking lot maintenance? How many site inspections were conducted and what were the results? How many and what type of illicit discharges were identified and eliminated? How many trainings and outreach activities were conducted, and how many people were reached? Baltimore City, Maryland, focuses limited stormwater management resources in a small highly urbanized watershed to demonstrate how making communities more livable can improve water quality. An important part of this effort is to document management activities so that both managers and residents can easily follow progress.

Evaluate social indicators

Social indicators—changes in knowledge, attitudes, and behavior of people—are important for two reasons. First, some SWMPs may have goals for increasing knowledge and awareness and changing attitudes among groups such as residents, business owners, and municipal employees. Second, social indicators—especially behavior changes—are important intermediate benchmarks in a successful SWMP when many years are needed to measure a water quality response. For more information, see *Developing a Social Component for the NPS Evaluation Framework* (**www.uwex.edu/ces/regionalwaterquality/Flagships/Indicators.htm**). This approach to program evaluation is typically applied to the public education and public participation components of a SWMP.

Gauge the effects of public education efforts. Changes in awareness, knowledge, and attitudes can be measured effectively using statistically valid surveys or questionnaires; for example see *Stormwater Knowledge, Attitude and Behaviors: A 2005 Survey of North Carolina Residents* (**www.ncstormwater.org/pdfs/stormwater_survey_12506.pdf**). Other approaches include monitoring attendance at public meetings, tracking requests for information, and counting hits on web sites. Keep in mind that simply reporting the number of meetings held or the number of brochures printed is not an effective method to document changes in stormwater knowledge.

Assess behavior changes. Measurement of change in pollution-generating behavior in a watershed can be an important indicator of progress toward achieving SWMP goals. Examples include: changes in lawn fertilizer sales in response to a publicity campaign, pounds of hazardous waste turned in at collection events, participation in streambank clean-up events, and sign-ups for environmental action pledges.

Monitor water quality

Water quality monitoring is the most direct—and usually the best—approach to evaluating the effectiveness of a SWMP. Program evaluation through water quality monitoring can apply to several of the SWMP components, including illicit discharge detection, construction site runoff control and post-construction runoff control. The collection of water quality data (along with BMP performance data) would be especially useful for discharges to an impaired water body with an approved TMDL. (For more information about the TMDL program, visit **www.epa.gov/owow/tmdl**). Detailed guidance on design and operation of monitoring is available elsewhere, e.g., *USDA-NRCS National Handbook of Water Quality Monitoring* **(ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/wqm1.pdf)** and *EPA Monitoring Guidance for Determining the Effectiveness of Nonpoint Source Controls* (Sept. 1997, EPA 841-B-96-004).

Water quality monitoring approaches range from qualitative observations to highly quantitative measurements, covering areas as small as individual BMPs to large receiving waters such as lakes or estuaries. A good monitoring program for evaluation of SWMP effectiveness will probably contain several elements at various levels of detail and scale. Before embarking on new monitoring, however, it is important to collect and evaluate historic and current data from existing monitoring activities. Data from state 305(b) assessments, 303(d) lists, and published TMDLs, ongoing state and federal agency monitoring programs, water supply intake testing, and watershed volunteer groups, for example, can be useful both in designing a monitoring program and in supplementing program results.

Monitoring can focus on **biological** (e.g., *E. coli*, fish), **physical** (e.g., flow, suspended sediment, streambank stability), or **chemical** (e.g., phosphorus, trace metals) dimensions of the water resource. Measured water quality variables should be directly linked to both the pollutant sources and the BMPs being implemented. In general, a monitoring program should focus on selecting a few good water quality variables to measure well, rather than trying to track a long list of indicators. For example, for a swimming beach impaired by bacteria, it would be appropriate to monitor the swimming area, nearby storm drain outfalls, and tributary flows for *E. coli*. If stream channel blow-outs are an issue and BMPs addressing excessive flows are implemented, monitoring of streamflow and channel cross-section conditions would be a good choice. For algal blooms, monitoring of nutrient concentrations and loads to the receiving water might be appropriate.

Water quality monitoring must take hydrologic variation into account. Most stormwater pollution processes are driven by rainfall that varies from year to year. If several dry years follow

implementation of a SWMP, the program may appear to be highly effective in reducing pollutant loads simply because runoff is unusually low. Conversely, several years of wet weather could result in higher pollutant loads simply because of increased runoff volume despite BMP implementation. Consequently, it is important to monitor precipitation and streamflow to help interpret results from all but a few highly qualitative monitoring approaches.

MS4s can take a variety of monitoring approaches to evaluate their SWMP effectiveness. Several common approaches that can be implemented for physical, chemical, and biological dimensions of water quality are listed at the end of this document.

Feedback: The Iterative Approach to Stormwater Management

Management of stormwater programs is an iterative process, beginning with planning, progressing through implementation and program evaluation, and then returning to the beginning of the cycle with feedback to further program planning. Effectiveness evaluation assesses how well implementation is working and estimates benefits derived from the program for the primary purpose of assessing progress toward program goals and compliance with regulatory requirements. Results can also be used to make practical changes in management strategies. Effective program feedback will enable local governments to guide decisions on shifting priorities to achieve goals more cost-effectively, including modification of activities that need improvement, expansion of effective activities, and cessation of efforts that are no longer productive. Results of SWMP evaluation should be presented to decision-makers in a clear manner that addresses the questions formulated when the evaluation plan was designed.

Reporting

Annual reports are a good place to summarize evaluation results and to take stock of what is working and what is not. Data gathered throughout the year should be used to answer critical questions such as:

- What is the current status in meeting stormwater goals and NPDES regulatory requirements?
- What are the estimated load reductions and other benefits of BMP implementation?
- What are the costs associated with program implementation?
- How do the costs of program implementation relate to water quality changes?
- What stormwater program changes are necessary to meet the stated goals?

The Baltimore City, Maryland MS4 2005 NPDES permit, for example, requires the permittee to provide an annual narrative summary describing the results and analyses of program data, including monitoring data accumulated throughout the reporting year. Identification of water quality improvements or degradation is a key part of this requirement.

Fourth-year reports are a good opportunity to use data gathered under the entire permit period to guide future management direction. Continuation of a NPDES permit typically requires the permittee to submit with its permit renewal application a summary of its SWMP describing how water quality goals are being achieved. Information in the application would include measured pollutant load reductions resulting from SWMP implementation and achievement of other benchmarks or water quality standards. Analysis of evaluation data is also used to justify or support changes in the permit and SWMP.

Feedback to the stormwater management program

NPDES regulations require assessment and revision of the stormwater management program in order to continue, to the maximum extent practicable, to not cause or contribute to water quality standards exceedances. As part of the iterative management process, stormwater program activities should be adjusted based on the results of an effectiveness evaluation. If a management goal has been achieved, effort in this area might be reduced to a maintenance level and resources reallocated to another pollutant or goal. If a goal has not been achieved, or satisfactory progress has not been made, additional resources can be applied and new strategies implemented. Such adjustments provide the direction for a municipality's permit renewal and will ensure progress toward program goals.

Effectiveness evaluation can also apply to ongoing stormwater programs through the process of adaptive management. Through this, evaluation results on program operations, social or water quality can provide rapid feedback to guide management activities. For example, an MS4 might establish dry weather action levels—or targets—for water quality constituents such as turbidity, phosphorus, and trace metals in tributaries draining to receiving water. Exceedance of an action level in samples taken from a tributary during dry weather would trigger an immediate investigation upstream to find and eliminate illicit connections and illegal discharges. Dry weather action levels would be reviewed and updated annually based on monitoring data and progress toward meeting SWMP goals.

In another example (Figure 3), coastal beaches and storm drains discharging near them are monitored for fecal bacteria. When compared against storm drain action levels for bacteria (sampled at the storm drain) and bacteria water quality criteria for body contact recreation (sampled in the open coastal receiving water), results of the paired samples guide management decisions on actions needed to protect the beach and follow up on sources of high bacteria counts.

Multi-faceted stormwater management programs can be evaluated as well. Baltimore City's NPDES stormwater permit requires it to restore a watershed or combination of watersheds containing 10% of the City's total impervious area during each five-year permit. The City conducts comprehensive watershed assessments and goals for restoration are developed based on

		Beach	
		Meets bacteria criteria	Fails to meet bacteria criteria
Storm drain discharge	Below bacteria action level	No action required	Storm drain discharge not causing beach impairment; continue to monitor and investigate other sources
	Above bacteria action level	Storm drain discharge not causing beach impairment; investigate storm drain sources	Storm drain discharge causing beach impairment; investigate storm drain sources ASAP

Figure 3. Decision table for storm drain and beach bacteria levels.

severity of water quality problems, input form local watershed associations, the possibility for inter-jurisdictional cooperation, and the availability of restoration opportunities. One restoration priority is Watershed 263 (**www.cwp.org/RR_Photos/Baltimore_City_profile_sheet.pdf**) where Baltimore City plans to restore a degraded stream system and simultaneously address other social and economic problems associated with older urban environments. The goals in this watershed include; replacing school yard asphalt with green infrastructure to filter stormwater; replacement of sidewalk sections with trees to remove nutrients and reduce the "heat island" effect; conversion of vacant abandoned lots into gardens for local residents to use; reduce the buildup of trash and litter through increased municipal street sweeping; and installing innovative ultra-urban BMPs wherever possible. A catch basin downstream of all of these activities will be monitored for water quality and compared to a similar watershed in the City with no controls. Since the installation of BMPs will be progressive, monitoring data will show the effectiveness of differing management strategies. Information will be fed back into future management plans for this watershed and others across the City to ensure that stormwater is being controlled to the maximum extent practicable.

In summary, a municipal stormwater management program needs to set clear goals and identify appropriate monitoring methods to evaluate those goals in order to assess the effectiveness of the stormwater program in protecting water quality.

Additional Resources

Monitoring/Evaluation Guidance or References

California Stormwater Quality Association (CASQA), 2007, *Municipal Stormwater Program Effectiveness Assessment Guidance*. Available at **www.casqa.org**

Southern California Coastal Water Research Project, *Model Monitoring Program for Municipal Separate Storm Sewer Systems in Southern California*. **ftp://ftp.sccwrp.org/pub/download/PDFs/419_smc_mm.pdf**

EPA, 1992, NPDES Stormwater Sampling Guidance Document, EPA 833-B-92-001. **www.epa.gov/npdes/pubs/owm0093.pdf**

Center for Watershed Protection, *Smart Watershed Benchmarking Tool*. Available at **www.cwp.org**

Chesapeake Bay Program, *BMP Efficiencies and Definitions*. **www.chesapeakebay.net/pubs/subcommittee/nsc/uswg/BMP_Pollutant_Removal_Efficiencies.pdf**

International Stormwater BMP Database, *Development of Performance Measures: Determining Urban Stormwater Best Management Practice Removal Efficiencies* (**www.bmpdatabase.org/docs/task3_1.pdf**) and *Urban Stormwater BMP Performance Monitoring: A Guidance Manual for Meeting the National Stormwater BMP Database Requirements* (**www.bmpdatabase.org/docs/Urban%20Stormwater%20BMP%20Performance%20Monitoring.pdf**)

Stormwater Manager's Resource Center, *Environmental Indicator Profile Sheet: BMP Performance Monitoring*. **www.stormwatercenter.net/monitoring%20and%20assessment/ind%20profiles/IndPros25.pdf**

State/Municipal examples of monitoring/evaluation programs

Baltimore County, *Watershed Management and Monitoring*. **www.baltimorecountymd.gov/Agencies/environment/watersheds/ep_watershed_monitoring.html**

City of Hialeah, FL *Stormwater Utility Monitoring Program*. **http://hialeahfl.gov/dept/streets/stormwater/plans/monitoring**

Maryland Watershed Restoration Action Strategy. **www.dnr.state.md.us/watersheds/surf/proj/wras.html**

Ventura, California, MS4 Permit **www.swrcb.ca.gov/rwqcb4/html/programs/stormwater/venturaMs4.html**

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NOTE: This document is not law or regulation; it provides recommendations and explanations that MS4s may consider in determining how to comply with requirements of the CWA and NPDES permit requirements.

Useful Water Quality Monitoring Approaches for Evaluation of SWMPs

Visual observations. Some water quality conditions can be assessed by visual (qualitative) observations of controls, outfalls or receiving waters. Searching for and correcting illicit discharges through observation of oil and grease sheens, floatables, or odors at outfalls is one example. Progress in streambank stabilization and channel restoration might be monitored by regular photography of critical locations. In general, qualitative observations should be supplemented by quantitative measurements where possible, such as with dry weather sampling at outfalls or regular surveys of representative stream cross-sections. The City of Albuquerque MS4 Floatable & Gross Pollutant Study (**www.cabq.gov/flood/pdf/FINALREPORT-OCTOBER2005.pdf**) is an example of a systematic approach to qualitative observations of water quality conditions. Examples of survey techniques for streambank assessment can be found in the Maryland Stream Corridor Assessment Survey (**www.dnr.maryland.gov/streams/pubs/surveyprotocols2.pdf**) and the USACE/USEPA Review of protocols for stream assessment (**www.mitigationactionplan.gov/Physical%20Stream%20Assessment%20Sept%2004%20Final.pdf**).

BMP performance monitoring. Monitoring of individual BMP performance provides a direct measure of pollutant reduction efficiency of these key components of a SWMP. Conceptually, BMP input/output monitoring is simple—measure pollutant concentrations or loads entering and leaving a wet pond for example, and compute the difference. In practice, BMP monitoring is more complex, requiring careful collection of data concerning storm and runoff characteristics and information on BMP attributes, as well as water quality information. There are several sources of information on BMP performance and on protocols for collecting, storing, analyzing, and reporting BMP monitoring data, including the National Stormwater BMP Database (**www.bmpdatabase.org**) and the USEPA and ASCE *Urban Stormwater BMP Performance Monitoring Manual*. Some examples of individual BMP monitoring studies can be found at the Villanova Urban Stormwater Partnership (**www3.villanova.edu/VUSP/index.html**).

Probability monitoring. Monitoring sites can be selected across a broad geographic area according to some statistical design to broadly characterize water quality conditions in a watershed or to identify possible contamination hotspots. Site selection could be random to achieve wide spatial coverage or stratified to focus monitoring on particular environment types or represent specific target populations. Data from a statistical sample of stream riffle sites across a watershed could be used to assess the overall condition of watershed macroinvertebrate communities. A monitoring program addressing sediment toxicity in a bay might geographically direct sampling to ensure that sediments in different depositional environments or with different physical characteristics are sampled, or that samples are collected within the areas affected by discharges from major tributaries. Results of probability monitoring can be used to guide SWMP implementation efforts and to assess long-term trends in response to SWMP implementation. An example of a probability design applied to evaluating sediment toxicity is found in the NOAA report Magnitude and Extent of Contaminated Sediment and Toxicity in Chesapeake Bay (**ccma.nos.noaa.gov/publications/NCCOSTM47.pdf**).

Short-term extensive network monitoring. Short-term grab-sampling at the outlets of numerous small watersheds or other drainages within a large MS4 can identify impaired waters and rank areas for implementation priority. Data collected simultaneously across the MS4 can help characterize the geographical distribution of pollutant sources. The City of Los Angeles monitors a network of shoreline stations in Santa Monica Bay for bacteria to identify stormwater impacts on recreational uses of the bay. This approach can apply not only to streams draining small watersheds but also to storm drains during both wet-weather and dry-weather conditions. If continued over several years, this kind of monitoring can be a good opportunity for volunteer groups to participate in the SWMP evaluation process. Data collected by volunteers could be reported separately or incorporated within "official" data sets used for regulatory purposes depending upon the methods used and level of training provided to volunteers.

Site-specific monitoring. High-value resources such as popular swimming beaches, important shellfish beds, or high-priority habitats could require specific monitoring to regularly assess the status of use support. Similarly, known high-priority pollutant sources or hotspots of impairment like contaminated aquatic sediments, an eroding stream channel threatening property, or a stream reach with a degraded fish population could be monitored to assess progress in restoration. Depending on the situation, such monitoring can be done in the critical area itself to assess its condition or upstream and downstream of the area to evaluate changes in pollutant stressors. Fairfax County's MS4 program conducts an Industrial and High-Risk Runoff monitoring program to identify and investigate industrial and other high-risk sites to determine if they are contributing substantial pollutant loadings to the MS4. The San Diego Bay MS4 permittees operate a Toxic Hot Spots Monitoring Program to locate and track areas of aquatic sediment contamination related to discharges from MS4s around the Bay.

Long-term fixed stations. Permanent monitoring stations at major discharges from an MS4 or on a receiving water above and below an MS4 can be used to measure changes in pollutant loads discharged from the MS4. Such stations are usually located where it is easy to measure flow and collect representative samples. Accurate load measurement requires consideration of many factors including patterns of hydrologic variation, seasonal patterns of pollutant concentrations, and desired statistical power; it is advisable to consult a monitoring expert before setting up a sample program to monitor pollutant loads. Flow, concentration, and load data from long-term fixed stations can be used for many purposes, including assessing compliance with water quality standards, collection of representative data from drainage areas that are undergoing similar activities and where the discharges are expected to be of similar quality as required in some MS4s under Phase I rules, documenting water quality trends, and marking progress toward meeting pollutant load goals, e.g., for a TMDL. The Los Angeles County stormwater monitoring program operates a system of mass emissions stations (**www.ladpw.com/WMD/npdes/Int_report/Section_1.pdf**) to update estimated pollutant loads to the ocean and to document long-term trends in pollutant concentrations. The San Diego region urban runoff monitoring program maintains similar long-term mass loading stations (**www.projectcleanwater.org/pdf/science_mon/2003-2004_monitoring_summary.pdf**) that regular assessment of the biological communities as well as chemical pollutant loads in major drainages.

Receiving water monitoring. Protection of a water body receiving discharges from an MS4 is often the ultimate goal of stormwater management. However, an MS4 may not be the only stormwater discharge into a water body, and achievement of the MS4's discharge quality goals may not eliminate the impairment in the receiving water. It may nevertheless be important to monitor water quality in the river, lake, estuary, or bay that receives its discharge, especially if localized impacts can be identified. Evaluation of the effectiveness of a SWMP on maintaining recreational benefits, for example, might involve monitoring both storm drains and swimming beaches for *E. coli*. If a goal of a SWMP is to reduce the impacts of toxic materials delivered in stormwater, a program monitoring a combination of water and sediment chemistry, sediment toxicity, and benthic communities in the receiving water might be appropriate.

ATTACHMENT
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MS4 Permit Improvement Guide

U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF WATER

OFFICE OF WASTEWATER MANAGEMENT

WATER PERMITS DIVISION

APRIL 2010

EPA 833-R-10-001

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR 14 2010

OFFICE OF WATER

Dear NPDES Stormwater Managers,

I am pleased to announce that the Environmental Protection Agency (EPA) has completed the "Municipal Separate Storm Sewer System Permit Improvement Guide." The primary purpose of this guidance document is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) permits.

This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. The Guide also includes recommendations for permit writers on how to tailor the language depending on the type of permit. For example, permits covering traditional municipalities may contain different permit provisions than those covering non-traditional entities like departments of transportation, universities, and prisons.

I ask that permit writers review the permit language and corresponding discussion presented in this Guide and consider how to incorporate this, or similar, language into their MS4 permits. Some modification of the language may be necessary to make it suitable for use with specific MS4 permits, and to better tailor it to meet the needs and goals of the various permitting authorities.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as protective in meeting the applicable regulations. EPA expects the permitting authority to continue to make significant progress and ensure that the intent of the regulations or more stringent requirements is captured in the permit.

In addition, EPA would like to particularly stress the following key principles:

- Permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation.
- Permits should contain a performance standard for post-construction that is based on the objective of maintaining or restoring stable hydrology to protect water quality of receiving waters or another mechanism as effective.

EPA has begun a rulemaking to strengthen the stormwater program. Using this Guide to improve permits represents the direction that EPA is taking to strengthen the program. This Guide is a living document that will be updated as new information for improving the stormwater program is obtained.

I appreciate your continued efforts in strengthening the NPDES municipal stormwater program. If you have any questions about this Guide or suggestions for further improvements, please contact Rachel Herbert of my staff at herbert.rachel@epa.gov or call her at 202-564-2649.

Sincerely,

Linda Y. Boornazian

Linda Y. Boornazian, Director
Water Permits Division

CC: State Stormwater Coordinators
Association of State and Interstate Water Pollution Control Administrators

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INTRODUCTION & GETTING STARTED

Purpose

The primary purpose of the MS4 Permit Improvement Guide (Guide) is to assist National Pollutant Discharge Elimination System (NPDES) permit writers in strengthening municipal separate storm sewer system (MS4) stormwater permits. The objective of the Guide is to facilitate the creation of MS4 permits which are clear, consistent with applicable regulations, and enforceable. This Guide contains examples of permit conditions and supporting rationale that could be used in fact sheets that accompany NPDES permits. Permit language should include controls that identify specific actions permittees must perform to comply with the Permit Requirements.

This Guide focuses in large part on permits for small (Phase II) MS4s. However, while the contents of the Guide are generally organized consistent with the six minimum control measures (40 CFR 123.34(b)) applicable to Phase II MS4 permits, however, permit writers may find this Guide useful for Phase I MS4 permits. In addition, the Guide specifically addresses Phase I MS4 Permit Requirements with regard to the industrial program elements set forth in the Phase I regulations at 40 CFR 122.26(d)(2)(ii) and (iv)(C). These are addressed in Chapter 7. The Guide may also be useful for "non-traditional" MS4 permittees, such as departments of transportation (DOTs), universities and prisons.

EPA has developed a Stormwater Phase II Final Rule Fact Sheet Series (www.epa.gov/npdes/stormwater/swfinal) to assist permitting authorities and permittees in understanding the Phase II regulations. Further, EPA has developed the National Menu of Stormwater Best Management Practices (www.epa.gov/npdes/stormwater/menuofbmps) which provides descriptive information in fact sheets about various best management practices associated with the Phase II six minimum control measures.

The Guide was created by reviewing numerous MS4 permits and fact sheets from around the country. Some of the example permit and fact sheet language presented in this Guide has been adapted from these permits; in those instances where existing language that meets the purpose of this document was not available, EPA has crafted new language.

Contents of this Guide

This document is divided into parts, as noted above, based largely on the six minimum control measures required in the Phase II stormwater regulations (see 40 CFR 122.34(b)). Chapters 1 -6 address development and implementation of a stormwater management program (SWMP) and the six minimum control measures that must be included in the SWMP. Chapter 7 addresses industrial facilities programs relevant for Phase I MS4 permits. Chapter 8, Overall Evaluation and Adaptive Management, discusses reporting, evaluation, and tracking requirements. This Guide does not focus on the water quality provisions of the Clean Water Act, which may require more stringent requirements than those programmatic elements specified here.

Each chapter opens with an introduction providing a brief overview of relevant regulatory requirements pertaining to the subject of the chapter. Each chapter is then divided into sections in which the following topics are addressed:

- *Example Permit Provision* – This section includes example MS4 permit language. The language has been formatted and numbered in such a way that each section corresponds directly to a permit structured in accordance with the chapter sequence of this Guide. EPA developed these examples by first surveying existing EPA and State MS4 permit language and drawing upon agency experience in implementing permits. EPA has identified the source of the language (in footnotes) if adapted from specific permits.
- *Example Permit Requirement Rationale for the Fact Sheet* – This section describes the rationale for the example permit provision. This language can assist the permit writer in developing the fact sheet, which accompanies all NPDES permits; however, it is up to the permit writer to ensure that a complete and customized version of the fact sheet accompanies the permit. Example Permit Requirement Rationale for the Fact Sheet sections often describe "requirements" or steps that "must" be taken. To the extent this language is used in these sections, it is intended to describe requirements included in the example permit provisions. It does not mean that all permits "must" include the specific "requirement" described.
- *Recommendations for the Permit Writer* (included where appropriate) – This section discusses issues the permit writer should consider in determining how to use the example permit provisions.

How to Use this Guide

This guidance includes "example" MS4 permit language for specific program elements, but is not intended to be definitive or comprehensive for all MS4 Permit Requirements.[1] EPA recommends that permit writers review the example permit language presented in this guide and consider how to incorporate this, or similar, language into MS4 permits as appropriate. Each state may have different NPDES requirements along with varied experience overseeing MS4 programs, and MS4 permittees vary widely in storm water management experience and sophistication, size, topography, precipitation patterns, land use, receiving water conditions and other factors. In most instances, EPA anticipates that permit writers will modify the language to make it suitable for specific MS4 permits, and to tailor example provisions to meet the various needs and goals that apply.

When possible, this Guide has tried to provide examples that can be used for both Phase I and Phase II permits. However, in some instances EPA has provided suggestions for how the language can be tailored to better fit within the context of a Phase I or Phase II permit. In addition, EPA acknowledges that some language presented in this Guide may be more suitable for an individual permit rather than a general permit. While EPA has presented a discussion for ways the language could be altered to fit these scenarios in Recommendations for the Permit Writer sections, it is up to the permit writer to determine the best use of the material for the permit being crafted.

[1] For example, the guide does not explicitly address provisions for compliance with CWA section 402(p)(3)(B)(ii), water quality standards, applicable wasteload allocations in TMDLs or such other conditions as the permitting authority deems necessary. For information on integrating TMDLs into stormwater permits see USEPA's DRAFT TMDLs to Stormwater Handbook (www.epa.gov/owow/tmdl/stormwater)

The example permit language in this Guide has been written as if the permit is a reissued permit and not an initial permit, since most MS4 permittees have been subject to NPDES permits for at least one permit term. Requirements to develop the initial SWMP are not included in this Guide since they would have been included in the first permit term. It is important that permit writers consider the different stages in the development and implementation of SWMPs when establishing permit conditions as well as the experience learned from other more advance programs. So, for example, this Guide includes brackets to indicate the place for an appropriate schedule or deadline rather than indicating specific timeframes in all instances. These examples are available to the permit writer, along with other resources such as the permittee's draft or existing SMWP document, annual reports, prior permit experience, receiving water quality information and the permit writer's best professional judgment, to issue permits suitable for their specific MS4s.

The permit language suggested in this Guide is not intended to override already existing, more stringent or differently-worded provisions that are equally as compliant in meeting the applicable regulations and protective of water quality standards. EPA expects the permitting authority to ensure that the intent of all applicable regulations is captured in the permit. States with more stringent permit provisions should continue to strengthen these provisions as the permits are reissued. This Guide includes suggestions on how to develop permit language for MS4 permittees. This Guide does not impose any new legally binding requirements on EPA, States, or the regulated community, and does not confer legal rights or impose legal obligations upon any member of the public. In the event of a conflict between the discussion in this Guide and any statute, regulation, or permit the statute, regulation or permit controls.

Terminology: SWMP and SWMP Document
This guide uses the term SWMP to refer to the stormwater management program that is required by the Phase I and Phase II regulations to be developed by MS4 permittees. The SWMP document is the written plan that is used to describe the various control measures and activities the permittee will undertake to implement the stormwater management program.

Preparing to Write an MS4 Permit

Most Phase II MS4 permittees are regulated under a general permit (with some exceptions where individual permits have been used for Phase II and non-traditional MS4 permittees). Phase I MS4 permittees are regulated under individual permits, and can include multiple co-permittees. EPA regulations require that initial MS4 permits (i.e. first permit term) set the foundation of the permittee's SWMP. For Phase II MS4 the focus is on the six minimum control measures in 40 C.F.R. 122.34(b), while the Phase I MS4 permittees are informed by the regulations at 40 C.F.R. 122.26(d). See Chapter 1 of this Guide.

As the permit writer prepares to reissue an MS4 permit, regardless of whether the permit is an individual or general permit, EPA recommends that the permit writer review, at a minimum, the following sources of information:

Past annual reports
For currently regulated MS4s, annual reports submitted by the permittee can include information that will help permit writers develop more specific and measurable Permit Requirements. The most recent annual report is usually the most helpful to review, but additional annual reports can be reviewed if time allows. If the permit writer is developing a general permit, a broad selection of

annual reports from various permittees should be reviewed. In particular, EPA recommends that the permit writer review, at a minimum, the following specific information:

Areas of obvious strengths or weaknesses in the SWMP

- For example, is the permittee vague about specific activities (often an indicator of a weak program area), or is the permittee clearly meeting the requirements of the permit and/or going above and beyond the minimum requirements?

Trends or common compliance problems

- For example, does the permittee analyze the data to assess the most common compliance problems, and then modify their controls/programs to address these problems? For example, do they use the common compliance issues identified to target their training and outreach/education efforts for construction operators?

Level of implementation of SWMP activities (e.g., frequency and numbers of inspections, frequency of catch basin cleaning, street sweeping)

- Does the permittee report the total universe when reporting the quantity of an activity achieved? For example, if the MS4 is required to conduct industrial inspections, does it report it did 100 inspections (which may be good or bad, depending on how many it was required to inspect), or that it did 100 out of 5,000 (only 2% of the total)?

Water quality priorities for the permittee (e.g. impaired waters, TMDLs, high quality waters)

- Does the permittee's annual report describe priority pollutants for impaired waters and other water quality programs and what was done to reduce and/or eliminate their contact with stormwater? Does the SWMP target both impaired and high quality waters?

Specific sources or pollutants of concern permittee is currently focusing on

- Does the SWMP target pollutants of concern in its activities?

Level and type of enforcement currently being used by permittee

- Does the annual report provide data and summary information on the different types of enforcement actions taken (how many verbal warnings, written notes, fines, etc)?

Any trends (i.e. water quality, compliance, control measure implementation levels) being reported by Permittees which indicate success or failure of particular SWMP components

- Does the permittee analyze the data, or just report the data in the MS4 annual report?

Types of measurable goals being applied and achieved by permittees

- Has the permittee met the measurable goals stated in the permit and SWMP?

Stormwater management program (SWMP)
Review the most current SWMP documents for potential gaps that may need to be specifically addressed in the reissued MS4 permit. EPA's *MS4 Program Evaluation Guidance* (available at www.epa.gov/npdes/pubs/ms4guide_withappendixa.pdf) can be used to assess the key elements in a SWMP.

NPDES MS4 audit reports, construction/industrial/commercial site inspection reports
Review the findings from any MS4 audits conducted during the past permit term to help identify key issues that should be addressed in the next permit. For example, if the audits identified weak or missing program elements and other controls, these should be addressed in the reissuance of the permit. Construction, industrial, and/or commercial site inspection reports for facilities within the MS4's boundary should be reviewed to determine if there are common compliance issues that should be addressed in the MS4 permit (for example, more training, more frequent inspections, more complete inventory or prioritization, etc.).

Monitoring/Information on Quality of Receiving Waters
Review any monitoring data collected by the permittee or any other entity that has collected useful monitoring data to identify potential pollutants of concern. In addition, the most recent information on impaired waters and total maximum daily loads (TMDLs) for the permit area should be reviewed. If there are waste load allocations (WLAs) applicable to the permittee, these should be addressed in the permit. If no WLA has been assigned to the MS4, the permit writer should still consider pollutants of concern identified in 303(d) lists and TMDLs when developing Permit Requirements. Such information will help identify whether more targeted permit conditions are needed to reduce the discharge of these pollutants. This Guide does not specifically address the inclusion of TMDL requirements in MS4 permits.

Permit renewal application data or past notice of intent (NOI) information
Review any permit renewal applications or NOIs submitted to establish coverage for the previous permit term. Permit writers should consider the recommendations made in the EPA "Interpretive Policy Memorandum on Reapplication Requirements for Municipal Separate Storm Sewer Systems" (www.epa.gov/npdes/pubs/owm0125.pdf) published in 1996 (40 CFR Part 122; Federal Register, Volume 61, Number 155). This document provides information which clarifies the MS4 reapplication requirements and explains that MS4 permit applicants and NPDES permit writers have discretion to customize appropriate and streamlined reapplication requirements on a case-by-case basis.

Previous MS4 permit
Finally, review any past MS4 permits to identify where permit language should be revised or completely rewritten, for example, because language was vague. This MS4 permit improvement Guide should be used help strengthen key areas in the permit.

Note that if the MS4 permit is being issued for the first time, some of the above information will not exist yet, such as past annual reports or old SWMP documents.

MS4 Permit Writing Tips

There are a few general tips to keep in mind when writing MS4 permits. First, and most importantly, permit provisions should be clear, specific, measurable, and enforceable. Permits should include specific

deadlines for compliance, incorporate clear performance standards, and include measurable goals or quantifiable targets for implementation. Doing so will allow permitting authorities to more easily assess compliance, and take enforcement actions as necessary.

For example, the following permit provision could be strengthened: "The permittee shall demonstrate compliance with this Permit through the timely implementation of control measures and other actions to reduce pollutants in discharges to the maximum extent practicable in accordance with their SWMP…" This permit provision does not define what "timely implementation" is, allowing the permittee to determine what is timely. Timely implementation could be, although it probably was not intended to be, interpreted as meaning up to five years, or it could mean that implementation must occur within six months. In addition, "other actions" are mentioned in this provision, but they are never described. If a permit requires "other actions," these actions should be specifically described in the permit. Finally, it is important to strike a balance of providing specific Permit Requirements while still allowing the permittee come up with innovative controls.

In addition, vague phrases such as "as feasible" and "as possible" should be avoided because they result in inconsistent implementation by permittees and difficulties in permit authority oversight and enforcement. The permit writer's role is to determine what is necessary to achieve in a permit term, and to develop clear, enforceable language that conforms to these determinations. Accordingly, the permit should set forth objective standards, criteria or processes, which will aid the permittee in complying with the permit, as well as the permitting authority in determining compliance in the MS4 permit.

In order for permit language to be clear, specific, measurable and enforceable, each Permit Requirement will ideally specify:

- *What* needs to happen
- *Who* needs to do it
- *How much* they need to do
- *When* they need to get it done
- *Where* it is to be done

For each Permit Requirement: "What" is usually the stormwater control measure or activity required. "Who" in most cases is implied as the permittee (although in some cases the permitting authority may need to specify who exactly will carry out the requirement if there are co-permittees). "How much" is the performance standard the permittee must meet (e.g., how many inspections). "When" is a specific time (or a set frequency) when the stormwater control measure or activity must be completed. "Where" indicates the specific location or area (if necessary). These questions will help determine compliance with the permit requirement.

The Use of Partnerships in MS4 Permits

Since the Phase II Rule applies to all small MS4s within an urbanized area regardless of political boundaries it is very likely that multiple governments and agencies within a single geographic area are subject to MS4 permitting requirements. For example, a city government that operates a small MS4 within an urbanized area may obtain permit coverage under a general Phase II permit while other MS4s in the same vicinity (such as a county, other cities, or a state DOT) may have individual Phase I MS4 permits. All permittees are responsible for permit compliance in their permitted area. Given the

potential for overlapping activities in close proximity, EPA encourages permittees in a geographic area to establish cooperative agreements in implementing their stormwater programs. Partnerships and agreements between permittees and/or other agencies can minimize unnecessarily repeating activities and result in using available resources as efficiently as possible. Using existing tools and programs instead of creating new ones can allow permittees to focus resources on high priority program components instead. In addition by forming partnerships, water quality can be examined and improved on a larger, consolidated scale rather than on a piece-meal, site-by-site basis.

In addition to requiring MS4 permittees to maintain records of program implementation such as inspection forms, monitoring data, dry weather screening reports, and notices of violation, EPA recommends that MS4 permits include requirements for permittees to summarize and analyze data and submit the analysis to the permitting authority. For example, as permittees are required to evaluate program compliance and appropriateness of best management practices, the permit could require permittees to address in annual reports questions such as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the permittee need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?
- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations) How has the permittee responded to these trends? Over the last year, how many construction site SWPPP reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

Also, although the stormwater Phase II rule requires reports, after the first permit term, reports are required to be submitted only in years two and four of the permit term. EPA strongly encourages annual reports for all permittees. (See 40 CFR 122.34(g)(3))

CHAPTER 1: ESTABLISHMENT OF THE STORMWATER MANAGEMENT PROGRAM

Introduction

Included Concepts

- Requirement to develop a stormwater management program
- Necessary legal authority
- Enforcement Measures and Tracking
- Adequate resources

An over-arching legal authority framework must be established in order for the SWMP to be effective. Ensuring that the permittee has established the legal authority to meet the requirements of the permit, created a well described enforcement response plan (ERP), and allocated adequate resources will set a necessary foundation for the SWMP.

Legal Authority

Permittees must have the authority to carry out all aspects of their stormwater management programs, including requiring the control of pollutants flowing into the MS4 system, having access to inspect sources of pollutant discharges, and being able to compel compliance and issue citations in the event of violations. Legal authority is especially critical for construction site runoff control, post-construction/permanent runoff control, industrial and commercial inspections, and illicit discharge detection and elimination programs. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B))

A permittee seeking permit coverage under individual permits is required to describe the legal authority it has to implement and enforce the SWMP. EPA recommends that general permits also require regulated MS4s to describe their applicable legal authority in their Notices of Intent (NOIs) (40 CFR 122.26(d)(2)(i), 122.33(b)). This legal authority is typically established through the adoption of one or more ordinances, or by modifying existing ordinances to provide the necessary authority. In some cases, a permittee might already have codified water quality provisions to address previous MS4 Permit Requirements; in this case, the permittee should be required to review existing codes and ordinances and prepare a statement detailing any necessary changes required to address the new MS4 permit requirements. Some permittees, such as, DOTs, universities, and prisons, may not have the authority to create and enforce ordinances. For these entities other mechanisms and authorities that they do possess should be utilized (e.g. DOT right-of-way permits).

Enforcement Measures and Tracking

Permittees are required by the Phase I and Phase II regulations to include in their ordinance, or other regulatory mechanism, penalty provisions to ensure compliance with construction and industrial requirements, to require the removal of illicit discharges, and to address noncompliance with post-construction requirements. In complying with these requirements, EPA recommends the use of enforcement responses that vary with the type of permit violation, and escalate if violations are repeated or not corrected. EPA recommends that the permittee be required to develop and implement an enforcement response plan (ERP), which clearly describes the action to be taken for common violations associated with the construction program, industrial and commercial program, or other SWMP programs. A well-written ERP provides guidance to inspectors on the different enforcement

responses available, actions to address general permit non-filers, when and how to refer violators to the State, and how to track enforcement actions.

Adequate Resources

Each permittee will fund its SWMP differently; therefore, in order to assess whether adequate resources have been allocated to carry out the requirements of the MS4 permit, the permitting authorities should require their permittees to submit an accounting of stormwater-related budgets, costs, and staffing resources updated annually. The fiscal analysis should document and explain changes to budgets from year to year and describe how each type of funding can and cannot be used for stormwater program activities. (See 40 CFR 122.26(d)(2)(vi)).

1.1 Requirement to Develop a Stormwater Management Program

Example Permit Provision

1.1.1 Requirement to Develop Program – The permittee must revise and update its written stormwater management program (SWMP) document and submit the SWMP to the [*insert name of Permitting Authority*] for review by [*insert deadline, e.g., within one year of permit issuance*]. The permittee must continue to implement the current SWMP until the revised SWMP is submitted. The SWMP does not contain effluent limitations; the limitations are contained in Parts [*insert relevant part of the permit*] of the permit.

1.1.2 Contents of the SWMP document – At a minimum, the permittee must include the following information in its SWMP document:

a. Ordinances, or other regulatory mechanisms, providing the legal authority necessary to implement and enforce the requirements of this permit (see Part 1.1);

b. Statement by the permittee's legal counsel certifying to adequacy of legal authority (see Part 1.2);

c. Written procedures describing how the permittee will implement provisions described in Parts 2-8.

1.1.3 Modifications to the SWMP document – The [*insert applicable name of permitting authority*]may notify the permittee of the need to modify the SWMP document to be consistent with the permit, in which case the permittee will have [*insert deadline, e.g. 90 days*] to finalize such changes to the program. The permittee is required to keep the SWMP document up to date during the term of the permit. Where the permittee determines that modifications are needed to address any procedural, protocol, or programmatic change, such changes must be made as soon as practicable, but not later than [*insert deadline, e.g. 90 days*].

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to develop a SWMP document that describes how the permittee will meet the control requirements in the permit. (See 40 CFR 122.26(d)(2)(iv), 122.34(a)). The SWMP document is a consolidation of all of the permittee's relevant ordinances or other regulatory requirements, the description of all programs and procedures (including standard forms to be used for reports and inspections) that will be implemented and enforced to comply with this permit and to document the selection, design, and installation of all stormwater control measures. The permittee is required to submit its SWMP document to the permitting authority. If modifications to the SWMP are necessary then the permitting authority will notify the permittee.

Recommendation for the Permit Writer

The permit writer should include in this section the relevant parts of the permit that require specific descriptions or justifications to be included in the SWMP document. Also, permit writers may need to include an additional requirement regarding the submittal of the SWMP document since some information contained in the SWMP document is required to be submitted prior to the permittee obtaining permit coverage. In addition, permit writers should refer to the memo entitled *Interim Guidance on Implementation of NPDES Regulations for Storm Water Phase II for Small Municipal Separate Storm Sewer Systems in Response to Recent Ninth Circuit Decision in Environmental Defense Center, et al. v. EPA, No. 00-70014 & consolidated cases (9th Cir.)* for additional guidance on the implementation of regulations for Phase II MS4s (www.epa.gov/npdes/pubs/interim_guidelines_memo_final.pdf).

1.2 Requirement to Develop Adequate Legal Authority to Implement and Enforce Stormwater Management Program

Example Permit Provision

1.2.1 Within [*insert deadline, e.g., one year from permit issuance*] the permittee must review and revise its relevant ordinances or other regulatory mechanisms, or adopt any new ordinances or other regulatory mechanisms that provide it with adequate legal authority to control pollutant discharges into and from its MS4, and to meet the requirements of this permit.

1.2.2 To be considered adequate, this legal authority must, at a minimum, address the following:

a. Authority to Prohibit Illicit Discharges – Prohibit and eliminate illicit connections and discharges to the MS4. Illicit connections include pipes, drains, open channels, or other conveyances that have the potential to allow an illicit discharge to enter the MS4. Illicit discharges include all non-stormwater discharges except fire fighting discharges, discharges from NPDES permitted industrial sources and discharges not otherwise authorized under Part 1.2.2.b. of this permit.

b. Allowable Non-Stormwater Discharges –Exceptions to the prohibition in Part 1.2.2.a. may include the following, only if they are considered non-significant contributors of pollutants: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water.

c. Authority to Prohibit Spills or Other Releases – Control the discharge of spills, and prohibit dumping or disposal of materials other than stormwater into the MS4.

d. Authority to Require Compliance – Require compliance with conditions in the permittee's ordinances, permits, contracts, or orders (i.e., hold dischargers accountable for their contributions of pollutants and flows).

e. Authority to Require Installation, Implementation, and Maintenance of Control Measures – Require owners/operators of construction sites, new or redeveloped land, and industrial and commercial facilities to minimize the discharge of pollutants to the MS4 through the installation, implementation, and maintenance of stormwater control measures consistent with [*insert references to applicable stormwater control measure manuals, guidance documents, etc.*].

f. Authority to Receive and Collect Information – The permittee must have the authority to request from operators of construction sites, new or redeveloped land, and industrial and commercial facilities information such as stormwater plans, inspection reports, and monitoring results, and other information deemed necessary to assess compliance with this permit. The permittee must also have the authority to review designs and proposals for new development and redevelopment to determine whether adequate stormwater control measures will be installed, implemented, and maintained.

g. Authority to Inspect – The permittee must have the authority to enter private property for the purpose of inspecting at reasonable times any facilities, equipment, practices, or operations related to stormwater discharges to determine whether there is compliance with local stormwater control ordinances/standards or requirements in this Permit.

h. Response to Violations – The permittee must have the ability to promptly require that violators cease and desist illicit discharges or discharges of stormwater in violation of any ordinance or standard and/or cleanup and abate such discharges, including the ability to:

    1. Effectively require the discharger to abate and clean up their discharge, spill, or pollutant release within [*insert deadline, e.g. 48 hours*] of notification; or

    2. For uncontrolled sources of pollutants that could pose an environmental threat, require abatement within [*insert timeframe, e.g. 30 days of notification*]; or,

3. Perform the clean up and abatement work and bill the responsible party, if necessary.
4. If a situation persists where pollutant-causing sources or activities are not abated, provide the option to order the cessation of activities until such problems are adequately addressed.
5. When all parties agree that clean-up activities cannot be completed within the timeframe provided, determine a new timeframe and notify the [*insert name of permitting authority*].

i. Monetary Penalties – The permittee must have the ability to:

1. Levy citations or administrative fines against responsible parties either immediately at the site, or within a few days.
2. Require recovery and remediation costs from responsible parties.

j. Civil/Criminal Penalties – The permittee must have the ability to impose more substantial civil or criminal sanctions (including referral to a city or district attorney) and escalate corrective response, consistent with its enforcement response plan developed pursuant to Part 1.3, for persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm.

k. Interagency Agreements – Control of the contribution of pollutants from one portion of the shared MS4 to another portion of the MS4 through interagency agreements or other similar agreements with other owners of the MS4, such as [*insert other applicable permittees*].

1.2.3 The permittee must include as part of its written SWMP document a statement certified by its chief legal counsel that the permittee has taken the necessary steps to obtain and maintain full legal authority to implement and enforce each of the requirements contained in this permit. This statement must include:

a. Identification of all departments within the permittee's jurisdiction that conduct stormwater-related activities and their roles and responsibilities under this permit. Include an up-to-date organizational chart specifying these departments, key personnel, and contact information.

b. Identification of the local administrative and legal procedures and ordinances available to mandate compliance with stormwater-related ordinances and therefore with the conditions of this permit.

c. A description of how stormwater related-ordinances are implemented and appealed.

d. A description of whether the municipality can issue administrative orders and injunctions, or whether it must go through the court system for enforcement actions.

Example Permit Requirement Rationale for the Fact Sheet

Adequate legal authority is required to implement and enforce most parts of the SWMP. (See 40 CFR 122.26(d)(2)(i) and 40 CFR 122.34(b)(3)(ii)(B), (b)(4)(ii)(A), and (b)(5)(ii)(B)). Without

adequate legal authority the MS4 would be unable to perform many vital SWMP functions such as performing inspections and requiring installation of control measures. In addition, the permittee would not be able to penalize and/or attain remediation costs from violators.

Recommendations for the Permit Writer

A major difference between a traditional MS4 and a non-traditional MS4 (such as a DOT, military base, or university) is often the scope of legal authority available to the MS4. Non-traditional MS4 permittees often cannot pass "ordinances" nor do they have enforcement authority like a typical municipality, so legal authority may consist of policies, standards, or specific contract language. Non-traditional MS4 permittees also do not generally have the authority to impose a monetary penalty. Although these differences exist, just like traditional MS4s, non-traditional MS4s must have the legal authority to develop, implement, and enforce the program. Moreover, the scope of legal authority that may be exercised by MS4 operators that are municipalities may vary from state to state. Therefore, permit writers should tailor the legal authority section depending on the types of permittees covered and the scope of authority that may be exercised by the permittee. For example, non-traditional MS4 permittees often have authority over what their contracts require. Therefore, the permit could require that contracts for construction and maintenance activities include specific stormwater requirements that ensure the permittee's requirements are met. In addition, cooperative agreements could be maintained with those permittees that do possess the legal authorities to enforce stormwater measures within the permittee's MS4 boundary.

The discharge prohibitions listed in Part 1.2.2 are taken from the Phase II regulations and are the minimum requirements. Note that, unlike Phase II MS4s, Phase I MS4 permittees are required to address the sources of non-stormwater discharges in Part 1.2.2.b. when they are identified as sources of pollutants in stormwater discharges. (See 40 CFR 122.26(d)(2)(iv)(B)). The permit writer may choose to apply additional or more stringent prohibitions. For example, some states have chosen to prohibit discharges from street washing activities as they can be significant sources of pollutants such as oil and grease and heavy metals.

1.3 Enforcement Measures and Tracking

Example Permit Provision

1.3.1 The permittee must continue to implement, and revise within [*specify deadline for completion, e.g. 12 months of permit issuance*] if necessary, an enforcement response plan (ERP), which sets out the permittee's potential responses to violations and addresses repeat and continuing violations through progressively stricter responses as needed to achieve compliance. The ERP must describe how the permittee will use each of the following types of enforcement responses based on the type of violation:

a. Verbal Warnings – Verbal warnings are primarily consultative in nature. At a minimum, verbal warnings must specify the nature of the violation and required corrective action.

b. Written Notices – Written notices of violation (NOVs) must stipulate the nature of the violation and the required corrective action, with deadlines for taking such action.

c. Escalated Enforcement Measures – The Permittee must have the legal ability to employ any combination of the enforcement actions below (or their functional equivalent), and to escalate enforcement responses where necessary to address persistent non-compliance, repeat or escalating violations, or incidents of major environmental harm:

   1. Citations (with Fines) – The ERP must indicate when the permittee will assess monetary fines, which may include civil and administrative penalties.
   2. Stop Work Orders – The permittee must have the authority to issue stop work orders that require construction activities to be halted, except for those activities directed at cleaning up, abating discharge, and installing appropriate control measures.
   3. Withholding of Plan Approvals or Other Authorizations – Where a facility is in non-compliance, the ERP must address how the permittee's own approval process affecting the facility's ability to discharge to the MS4 can be used to abate the violation.
   4. Additional Measures – The permittee may also use other escalated measures provided under local legal authorities. The permittee may perform work necessary to improve erosion control measures and collect the funds from the responsible party in an appropriate manner, such as collecting against the project's bond or directly billing the responsible party to pay for work and materials.

1.3.2 Enforcement Tracking – The Permittee must track instances of non-compliance either in hard-copy files or electronically. The enforcement case documentation must include, at a minimum, the following:

a. Name of owner/operator of facility or site of violation
b. Location of stormwater source (i.e., construction project, industrial facility)
c. Description of violation
d. Required schedule for returning to compliance
e. Description of enforcement response used, including escalated responses if repeat violations occur or violations are not resolved in a timely manner
f. Accompanying documentation of enforcement response (e.g., notices of noncompliance, notices of violations)
g. Any referrals to different departments or agencies
h. Date violation was resolved.

1.3.3 Recidivism Reduction – The permittee is required to identify chronic violators of any SWMP component and reduce the rate of noncompliance recidivism. The permittee

must summarize inspection results by these chronic violators and include incentives, disincentives, or an increased inspection frequency at the operator's sites. [2]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires permittees to have an established, escalating enforcement policy that clearly describes the action to be taken for common violations. The policy must describe the procedures to ensure compliance with local ordinances and standards, including the sanctions and enforcement mechanisms that will be used to ensure compliance. (See 40 CFR 122.26(d)(2)(i)). It is critical that the MS4 have the authority to initiate a range of enforcement actions to address the variability and severity of noncompliance. Enforcement responses to individual violations must consider criteria such as magnitude and duration of the violation, effect of the violation on the receiving water, compliance history of the operator, and good faith of the operator in compliance efforts. Particularly for construction sites, enforcement actions must be timely in order to be effective.

Recommendations for the Permit Writer

Typical enforcement mechanisms include verbal warnings, written NOVs, administrative fines and orders, stop work orders, and civil or criminal penalties. Some non-traditional MS4 permittees, such as DOTs and universities, may not have the authority to use the mechanisms described above. Therefore the enforcement requirements in the permit should take the permittee's enforcement limitations and abilities into consideration, allow for alternative mechanisms such as related contract obligations or right-of-way permits, and/or require entities that cannot enforce to coordinate with those entities that can. For example, if a DOT discovers an illicit discharge to the right-of-way, a mechanism should be in place for the DOT to communicate with the adjacent municipality to eliminate the discharge in a timely manner.

Some permit writers include specific language as to when permittees can refer violations of NPDES permits to the permitting authority. Because of the often similar control measures required in MS4 construction programs and NPDES CGP SWPPP requirements, permit writers want the permittee to make an honest effort at achieving compliance with their local requirements before referring a violator to the NPDES permitting authority. An example of permit language on NPDES referrals, which require the MS4 permittee to make a good faith effort at ensuring compliance by conducting at least two inspections and notices of violation, follows:

> NPDES Permit Referrals–For those construction projects or industrial facilities subject to the [*insert name of applicable NPDES general construction/industrial permit*], the permittee must:

[2] Adapted from 2009 San Francisco Bay Municipal Regional Stormwater Permit (Order No. R2-2009-0074; www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf) and the Los Angeles MS4 Permit (Part 3; www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ms4_permits/los_angeles/2001-2007/LA_MS4_Permit2001-2007.pdf)

a. Refer non-filers (i.e., those facilities that cannot demonstrate that they obtained permit coverage) to the [*insert name of permitting authority*] within [*insert number of days, e.g. 30 days*] of making that determination. In making such referrals, the permittee must include, at a minimum, the following documentation:

    1. Construction project or industrial facility location.
    2. Name of owner or operator.
    3. Estimated construction project size or type of industrial activity (including SIC code if known).
    4. Records of communication with the owner or operator regarding filing requirements.

b. Refer violations to the [*insert name of permitting authority*] provided that the permittee has made a good faith effort of progressive enforcement to achieve compliance with its own ordinances. At a minimum, the permittee's good faith effort must include documentation of two follow-up inspections and two warning letters or notices of violation. In making such referrals, the permittee must include, at a minimum, the following documentation:

    1. Construction project or industrial facility location
    2. Name of owner or operator
    3. Estimated construction project size or type of industrial activity (including SIC code if known)
    4. Records of communication with the owner or operator regarding the violation, including at least two follow-up inspections, two warning letters or notices of violation, and any response from the owner or operator

It is important to note that a referral to the permitting authority does not relieve the MS4 from its enforcement obligations. The MS4 must continue to work with the permitting authority, using all available enforcement authority in order to gain compliance.

1.4 Requirement to Ensure Adequate Resources to Comply with MS4 Permit

Example Permit Provision

1.4.1 Secure Resources – The permittee must secure the resources necessary to meet all requirements of this permit.

1.4.2 Annual Fiscal Analysis – The permittee must conduct an annual analysis of the capital and operation and maintenance expenditures needed, allocated, and spent as well as the necessary staff resources needed and allocated to meet the requirements of this permit, including any development, implementation, and

enforcement activities required. The analysis must include estimated expenditures for the reporting period, the preceding period, and the next reporting period and be submitted with the annual report.

a. Each analysis must include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

b. Each analysis must include a narrative description of circumstances resulting in a [*insert percentage, e.g. 25 percent or greater*] annual change for any budget line items.

c. Each analysis must include a description of the staff resources necessary to meet the requirements of this permit.

Example Permit Requirement Rationale for the Fact Sheet

The annual fiscal analysis will show the allocated resources, expenditures, and staff resources necessary to comply with the permit, and implement and enforce the permittee's SWMP. (See 40 CFR 122.26(d)(2)(vi). The annual analysis is necessary to show that the permittee has adequate resources to meet all Permit Requirements. The analysis can also show year-to-year changes in funding for the stormwater program. A summary of the annual analysis must be reported in the annual report (see Section 8.4 and Appendix A). This report will help the Permitting Authority understand the resources that are dedicated to compliance with this permit, and to implementation and enforcement of the SWMP, and track how this changes over time.

Recommendations for the Permit Writer

Permit writers should be specific when requesting financial analysis information from the permittee. The Annual Report Template provided in this Guide includes basic questions that should be adequate for Phase II MS4s. However, more detailed information may be warranted from more established programs and larger Phase I MS4s.

Because stormwater is a component in many different program areas, it can often be difficult to get an accurate accounting of costs. For example, inspection staff may have multiple responsibilities in addition to stormwater inspections. Is it appropriate to count an entire inspector's time (i.e. full-time equivalent (FTE)) as a stormwater cost if the inspector is also doing building inspections? Also, some permittees count street sweeping as a stormwater compliance cost, while others consider their street sweeping costs as an aesthetic or air quality cost. Permittees should provide a detailed breakdown of costs, along with background or additional discussion so the permit writer knows what the costs include.

CHAPTER 2: PUBLIC EDUCATION AND OUTREACH/PUBLIC INVOLVEMENT

Introduction

Included Concepts

- Developing a comprehensive stormwater education/ outreach program
- Involving the public in planning and implementing the SWMP

The Phase II Regulations require MS4 permittees to develop programs to educate the public about the impact of stormwater discharges on local waterways and the steps that citizens, businesses, and other organizations can take to reduce the contamination of stormwater (40 CFR 122.34(b)(1),(2)). Phase I MS4 permittees were also required to describe their proposed public education programs as part of their initial permit application, but the regulations are not as specific as Phase II. (See 40 CFR 122.26(d)(2)(iv) (B), (D)(4) and (A)(6)).

As the public gains a greater understanding of the benefits of stormwater management, an MS4 is likely to gain more support for the SWMP (including financial support) and increased compliance with the applicable regulatory requirements as the public understands how their actions impact water quality. Education and awareness programs help change human behavior with respect to reducing the amount of pollution generated from stormwater sources within the MS4 system. In addition to education, encouraging public participation in local stormwater programs can lead to program improvement as well as enabling people to identify and report a pollution-causing activity, such as spotting an illicit discharge.

2.1 Developing a Comprehensive Stormwater Education/Outreach Program

Example Permit Provision

2.1.1 The permittee must:

a. Continue to implement, and revise if necessary within [s*pecify the time when the development of the program must be completed, e.g., within the first year after permit issuance*], a comprehensive stormwater education/outreach program. The program must, at a minimum:

1. Define the goals and objectives of the program based on at least three high priority, community-wide issues (e.g. reduction of nitrogen in discharges from the MS4, promoting pervious techniques used in the MS4);
2. Identify and analyze the target audience(s);
3. Create an appropriate message(s) based on at least three targeted residential issues and three targeted industrial/commercial issues from the suggested list below (or three issues deemed more appropriate to the MS4):

Residential Community

- Residential car washing and auto maintenance control measures
- Off-pavement automobile parking
- Home and garden care activities (pesticides, herbicides, and fertilizers)
- Disposal of household hazardous waste (e.g. paints, cleaning products)
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Litter prevention
- Importance of native vegetation for preventing soil erosion
- Public reporting of water quality issues
- Community activities (monitoring programs, environmental protection organization activities, etc.)
- Pet and other animal wastes

Industrial/Commercial Community

- Automobile repair and maintenance Control measures
- Control measure installation and maintenance
- Lawful disposal of vacuum truck and sweeping equipment waste
- Pollution prevention and safe alternatives
- Snow removal activities
- Using techniques that keep water onsite and/or reduce imperviousness (rain barrels, rain gardens, porous pavers, permeable concrete, porous asphalt, etc.)
- Equipment and vehicle maintenance and repair
- Importance of good housekeeping (e.g. sweeping impervious surfaces instead of hosing)
- Illicit discharge detection and elimination observations and follow-up during daily work activities
- Water quality impacts associated with land development (including new construction and redevelopment)
- Water quality impacts associated with road resurfacing and repaving

4. Develop appropriate educational materials (e.g. the materials can utilize various media such as printed materials, billboard and mass transit advertisements, signage at select locations, radio advertisements, television advertisements, websites);
5. Determine methods and process of distribution;
6. Evaluate the effectiveness of the program; and
7. Utilize public input (e.g., the opportunity for public comment, or public meetings) in the development of the program.

b. During the term of the permit, the permittee must distribute the educational materials, using whichever methods and procedures determined appropriate by the permittee, in such a way that is designed to convey the program's message to [*insert percentage or other appropriate numeric threshold, e.g., 20%*] of the target audience each year.

c. Within [*insert deadline, e.g., within the permit term*], the permittee must assess changes in public awareness and behavior resulting from the implementation of the program such as using a statistically valid survey and modify the education/outreach program accordingly.

d. The permittee must assess its stormwater education/outreach program annually as specified in Part 8.3 of this permit. The permittee must adjust its educational materials and the delivery of such materials to address any shortcomings found as a result of this assessment.

e. Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Without a focused and comprehensive program, outreach and education efforts will likely be poorly coordinated and possibly ineffective. The permit the permittee to develop an education/outreach program that addresses the six steps listed and also found in EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed (www.epa.gov/watertrain/gettinginstep/)*. This guide explains the steps in developing an outreach plan, presents information on creating outreach materials, and provides tips in working with the media. The permittee is encouraged to follow this guide in developing its outreach strategy.

The public education and outreach program must be tailored and targeted to specific water quality issues of concern in the relevant community. These community-wide and targeted issues must then guide the development of the comprehensive outreach program, including the creation of appropriate messages and educational materials. The permit includes a list of potential residential and commercial issues, but the permittee may also choose other issues that contribute significant pollutant loads to stormwater.

The permittee is encouraged to use existing public educational materials in its program. Examples of public educational materials for stormwater are available at EPA's *Nonpoint Source Outreach Toolbox (www.epa.gov/nps/toolbox)*. The permittee is also encouraged to leverage resources with other agencies and municipalities with similar public education goals.

Finally, the underlying principle of any public education and outreach effort is to change behaviors. The permittee must develop a process to assess how well its public education and outreach programs is changing public awareness and behaviors and to determine what changes are necessary to make its public education program more effective. This assessment of public education programs is typically conducted via phone surveys, but other assessment methods that quantify results can be used. The permittee is encouraged to use a variety of assessment methods to evaluate the effectiveness of different public education activities. The permit requires that the first evaluation assessment be conducted before the final year of the permittee's coverage under this permit, before the next permit is issued. The allows the permittee to make changes as appropriate before the next permit application is due, EPA's *Getting In Step: A Guide to Effective Outreach in Your Watershed (www.epa.gov/watertrain/gettinginstep/)* can provide useful information on setting up and conducting the evaluations.

Recommendations for the Permit Writer

EPA recommends that the requirement to identify high priority community-wide issues and targeted issues be set at least 3 to 6 months before the stormwater education/outreach program is to be implemented, so the permitting authority can review the issues and provide any feedback before the plan is completed.

The permit can be a means for increasing public awareness and understanding of stormwater impacts on local watersheds, including high quality watersheds that need protecting. EPA recommends that the permit writer consider requiring permittees to identify and describe issues, such as specific pollutants, the sources of those pollutants, impacts on biology, and the physical attributes of stormwater runoff, in their education/outreach program, which affect local watershed(s). Where applicable, the education/outreach program should identify and describe high quality watersheds in need of protection and the issues that may threaten the quality of these waters.

The list in Part 2.1.1.a(3) is not all-inclusive. Therefore, EPA recommends that the permit be written to allow the permittee to indentify priority issue(s) not listed that may contribute a significant pollutant load to stormwater. For Phase I, individual permits, it may be appropriate for the permit writer to specify the priority issues based on known issues, monitoring data, historical trends, etc. Phase II general permits will likely need to allow for more flexibility in selecting priority issues.

In addition, the permit writer will need to consider that DOTs and other "non-traditional" MS4s will likely have different priority concerns than the ones identified in the categories above. In fact, the categories (residential and commercial/industrial) may also need to be changed. In these instances, the permit writer may want to consider having the non-traditional permittees work together with any local government MS4s in their area to maximize the program and cost effectiveness of the outreach.

The permit writer may consider specifying the mechanism the permittee is required to use to measure the awareness of and behavior related to issues concerning stormwater runoff by the general public, or targeted audiences within the general public. Examples of evaluations could include:

- Direct Evaluations
- Surveys
- Tracking the number of attendees
- Interviews
- Review of media clippings
- Tracking the number of stormwater-related calls/emails/letters received

Permit writers should consider whether it is appropriate to require a baseline assessment of the public's awareness of stormwater issues, for example in the second year of the permit term, so that comparisons may be drawn in reference to the baseline. This would likely require the permittee to conduct two assessments in the first permit term that the assessment is required.

2.2 Involving the Public in Planning and Implementing the SWMP

Example Permit Provision

2.2.1 The permittee is required to involve the public in the planning and implementation of activities related to the development and implementation of the SWMP. At a minimum, the permittee must:

a. Establish a citizen advisory group or utilize existing citizen organizations. The permittee may establish a stand-alone group or utilize an existing group or process. The advisory group must consist of a balanced representation of all affected parties, including residents, business owners, and environmental organizations in the MS4 area and/or affected watershed. The permittee must invite the citizen advisory group to participate in the development and implementation of all parts of the community's SWMP.

b. Create opportunities for citizens to participate in the implementation of stormwater controls (e.g., stream clean-ups, storm drain stenciling, volunteer monitoring, and educational activities).

c. Ensure the public can easily find information about the permittee's SWMP.

2.2.2 Written procedures for implementing this program must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater management programs can be greatly improved by involving the community throughout the entire process of developing and implementing the program. Involving the public benefits both the permittee itself as well as the community. B y listening to the public's concerns and coming up with solutions together, the permittee will gain the public's support and the community will become invested in the program. The permittees will likewise gain even more insight into the most effective ways to communicate their messages.

This permit requires the involvement of the public, which includes a citizen advisory group or process to solicit feedback on the stormwater program, and opportunities for citizens to participate in implementation of the stormwater program. The citizen advisory group should meet with the local land use planners and provide input on land use code or ordinance updates so that land use requirements incorporate provisions for better management of stormwater runoff and watershed protection. Public participation in implementation of the stormwater program can include many different activities such as stream clean-ups, storm drain markings, and volunteer monitoring.

Permittees are encouraged to work together with other entities that have an impact on stormwater (for example, schools, homeowner associations, DOTs, other MS4 permittees). Permittees are also encouraged to use existing advisory groups or processes in order to implement these public involvement requirements.

Recommendations for the Permit Writer

Especially for Phase I permittees, permit writers may consider requiring more specific information such as requiring at least one contact that the public can reach (including phone number and/or e-mail address) be clearly posted on the website. The contact may be a general contact or a specific person. The permitting authority may want the MS4 to have a mechanism for the public to comment year round, not just at public meetings. This could be facilitated by a webpage and email or a stormwater hotline.

Some Phase II permittees may find it more difficult to establish and maintain a formal citizen advisory group simply because they tend to have smaller populations. The permit writer may want to provide flexibility for the Phase II permittees to utilize the public involvement mechanism which best suits their individual community. For example, groups which are already involved with other aspects of municipal governance or established events where input could be solicited (i.e. farmers markets, festivals) may serve to meet the objective of this section.

CHAPTER 3: ILLICIT DISCHARGE DETECTION AND ELIMINATION

Introduction

Phase I (see 40 CFR 122.26 (d)(1)(v)(B) and (d)(1)(iv)(B)) and Phase II stormwater management programs (see 40 CFR 122.26(d)(2)(iv)(B)) are required to address illicit discharges into the MS4 system. An illicit discharge is defined as any discharge to a municipal separate storm sewer system that is not composed entirely of stormwater, except allowable discharges pursuant to an NPDES permit (40 CFR 122.26(b)(2)). In addition to requiring permittee to have the legal authority to prohibit non-stormwater discharges from entering storm sewers (CWA Section 402(p)(3)(B)) (see Chapter I), MS4 permits must also require the development of a comprehensive, proactive Illicit Discharge Detection Elimination (IDDE) program.

Included Concepts

- IDDE program development
- MS4 mapping
- Identification of priority areas
- Field screening
- IDDE source investigations and elimination
- Public reporting of non-stormwater discharges and spills
- Illicit discharge education and training

An effective IDDE program is more than just a program to respond to complaints about illicit discharges or spills. Permittees must proactively seek out illicit discharges, or activities that could result in discharges, such as illegal connections to the storm sewer system, improper disposal of wastes, or dumping of used motor oil or other chemicals.

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an updated map of the storm drain system and a formal plan of how to locate illicit discharges and how to respond to them once they are located or reported. The permittee must provide a mechanism for public reporting of illicit discharges and spills, as well as an effective way for staff to be alerted to such reports. Regular field screening of outfalls for non-stormwater discharges needs to occur in areas determined to have a higher likelihood for illicit discharges and illegal connections. Proper investigation and enforcement procedures must be in place to eliminate the sources of the discharges, as well. Finally, in order for the permittee to adequately detect and eliminate sources of illicit discharges, both field and office staff must be properly trained to recognize and report the discharges to the appropriate parties.

EPA recommends that permittees refer to the Center for Watershed Protection's guide on *Illicit Discharge Detection and Elimination (IDDE): A Guidance Manual for Program Development and Technical Assistance* (IDDE Manual, available at www.cwp.org) when developing an IDDE program.

3.1 IDDE Program Development

Example Permit Provision

3.1.1 The permittee must continue to implement a program to detect, investigate, and eliminate non-stormwater discharges (see Part 1.2.2), including illegal dumping, into its system. The IDDE program must include the following:

a. An up-to-date storm sewer system map (see Part 3.2).
b. Procedures for identifying priority areas within the MS4 likely to have illicit discharges, and a list of all such areas identified in the system (see Part 3.3)
c. Field screening to detect illicit discharges (see Part 3.4)
d. Procedures for tracing the source of an illicit discharge (see Part 3.5)
e. Procedures for removing the source of the discharge (see Part 3.5)
f. Procedures for program evaluation and assessment (see Part 8.3)
g. Procedures to prevent and correct any on-site sewage disposal systems that discharge into the MS4. [3]

3.1.2 In implementing the IDDE program, the permittee may conduct such investigations, contract for investigation, coordinate with storm drain investigation activities of others, or use any combination of these approaches.

3.1.3 For non-traditional MS4 permittees, if illicit connections or illicit discharges are observed related to another operator's municipal storm sewer system then the permittee must notify the other operator within [*insert applicable deadline, e.g., within 48 hours*] of discovery.

3.1.4 If another operator notifies the permittee of an illegal connection or illicit discharge to the municipal separate storm sewer system then the permittee must follow the requirements specified in Part 3.5.4.

3.1.5 Written procedures for implementing this program, including those components described in Parts 3.1 – 3.7 must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

EPA stormwater regulations define "illicit discharge" as "any discharge to a municipal separate storm sewer that is not composed entirely of stormwater" except discharges resulting from fire fighting activities and discharges from NPDES permitted sources (see 122.26(b)(2)). The applicable regulations state that the following non-stormwater discharges may be allowed if they are not determined to be a significant source of pollutants to the MS4 : water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water. If, however, these discharges are determined to be a significant source of pollution then they are prohibited.

Examples of common sources of illicit discharges in urban areas include apartments and homes, car washes, restaurants, airports, landfills, and gas stations. These so called "generating sites" discharge sanitary wastewater, septic system effluent, vehicle wash water, washdown from

[3] Vermont Phase II General Permit (www.vtwaterquality.org/stormwater/htm/sw_ms4.htm)

grease traps, motor oil, antifreeze, gasoline and fuel spills, among other substances. Although these illicit discharges can enter the storm drain system in various ways, they generally result from either direct connections (e.g., wastewater piping either mistakenly or deliberately connected to the storm drains) or indirect connections (e.g., infiltration into the storm drain system, spills, or "midnight dumping"). Illicit discharges can be further divided into those discharging continuously and those discharging intermittently.

One way of locating these dry weather discharges is to perform field screening of outfalls. If no rain has occurred prior to the screening then it is likely that any flow observed at an outfall is either groundwater or an illicit discharge. It is important to utilize resources effectively and to target field screening activities in priority areas that are the most common sources of illicit discharges. For example, municipalities with older neighborhoods should prioritize those areas for targeted investigation due to the likelihood of cross connections with the sanitary sewer. Older parts of the storm drain system may also be deteriorating and require repair or replacement.

In addition, it is important that permittees establish clear policies and procedures for tracing and eliminating illicit discharges to ensure that individual incidents are addressed consistently. These policies should include procedures to notify neighboring localities if a discharge is discovered either originating on or discharging to the neighboring storm sewer system.

Additional information is available in the Center for Watershed Protection's *IDDE Manual.*

Recommendations for the Permit Writer

In some instances the permit writer may choose to include more specific requirements. For example, if the priority areas are already known, then Part 3.1.1.a may be more specifically worded. In addition, regulations governing Phase I MS4 permits have somewhat different requirements including specific field screening procedures (40 CFR 122.26(d)(1)(iii)(D) and 122.26(d)(2)(iii)) and a program to detect and remove illicit discharges and improper disposal into the storm sewer (40 CFR 122.26(d)(2)(iv)(B).

3.2 MS4 Mapping

Example Permit Provision

3.2.1 The permittee must maintain an up-to-date and accurate storm sewer system map.

a. The storm sewer system map must show the following, at a minimum:

1. The location of all MS4 outfalls and drainage areas contributing to those outfalls that are operated by the permittee, and that discharge within the permittee's jurisdiction to a receiving water
2. The location (and name, where known to the permittee) of all waters receiving discharges from those outfall pipes. Each mapped outfall must be given an individual alphanumeric identifier, which must be noted on the map. When possible, the outfalls must be located using a geographic

position system (GPS) and photographs should be taken to provide baseline information and track operation & maintenance needs over time.[4]

3. Priority areas identified under Part 3.3
4. Field screening stations identified under Part 3.4.2.a

b. A copy of the storm sewer system map must be available onsite for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

In order to trace the origin of a suspected illicit discharge or connection, the permittee must have an up-to-date map of its storm drain system. This is critical in order to isolate the potential source of the non-stormwater discharges and the areas of potential impact. Ideally, the information would be available as a geographic information system (GIS) layer in a geo-locational database, however, paper maps are sufficient providing they have the necessary reference information.

The permit primarily requires the mapping of outfalls, drainage areas contributing to those outfalls, and receiving waters. The municipal facility inventory created to comply with the pollution prevention/good housekeeping requirements (see Part 6.1) must also be included either on this sewer system map or on a separate MS4 map.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a map indicating outfalls and the waters that receive the MS4 discharges. This map is to be used to identify priority areas that have a reasonable potential for illicit discharges. The mapping requirements should be adjusted based on any existing mapping of the MS4 that has already been completed. For example, Phase I mapping should have been initiated during the initial permit application process. This map should not be static, however, since it would need to be updated as development patterns change and new collection and discharge components of the MS4 are added. The mapping requirement could be supplemented by adding a requirement to "modify existing maps to clearly identify all receiving waters."

3.3 Identification of Priority Areas

Example Permit Provision

3.3.1 The permittee must continue to identify the following as priority areas [*insert areas that may be more applicable to the jurisdiction*]:

a. Areas with older infrastructure that are more likely to have illicit connections;

[4] New Jersey Phase II General Permit (www.state.nj.us/dep/dwq/pdf/Tier_A_final.pdf), with modifications

b. Industrial, commercial, or mixed use areas;

c. Areas with a history of past illicit discharges;

d. Areas with a history of illegal dumping;

e. Areas with onsite sewage disposal systems;

f. Areas with older sewer lines or with a history of sewer overflows or cross-connections; and

g. Areas upstream of sensitive waterbodies.

3.3.2 The permittee must document the basis for its selection of each priority area and create a list of all priority areas identified in the system. This priority area list must be updated [*insert frequency, e.g., annually*] to reflect changing priorities and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

The permit requires an evaluation of the permittee's neighborhoods and land uses to identify areas that are more likely to have illicit discharges. These areas must be prioritized for more frequent screening and investigations. Each permittee will have a different set of priority areas: newer communities with modern infrastructure are less likely to have sewer cross-connections and illegal connections to the storm drain system, whereas towns with rural areas may place an emphasis on illegal dumping and onsite sewage disposal systems. Prioritization must be based not only on land use but also on prior history and frequency of problems.

The identification of priority areas must include "hotspots" or areas where dumping, spills, or other illicit discharges are a common occurrence. These hotspots will help identify potential field screening locations and may help target educational activities. For example, if evidence of motor oil dumping is found quite frequently and traced to the same apartment complex, information about motor oil disposal could be distributed to residents in response.

Recommendations for the Permit Writer

Phase I permittees should have been documenting information regarding high priority areas for several permit terms. In these instances the permit writer should require the permittee to continually evaluate and update the priority areas as development patterns change or new "hotspot" areas are found. If the permit writer has information regarding priority areas which are specific to the Phase I permittee (e.g. certain high priority watersheds or land use types which typically discharge a pollutant of concern) then those specific areas should be specified as high priority.

3.4 Field Screening

Example Permit Provision

3.4.1 The permittee must continue to implement and revise if necessary within [*specify deadline for completion*] a written dry weather field screening and analytical monitoring procedures to detect and eliminate illicit discharges to the MS4. These procedures must be included as part of the IDDE program, and incorporated into the permittee's SWMP document. Dry weather field screening and analytical monitoring consists of (1) field observations; (2) field screening monitoring; and (3) analytical monitoring at selected stations.

3.4.2 Conduct dry weather field screening and analytical monitoring. At a minimum, the permittee must:

a. Identify a minimum of [*specify number*] stations within the priority areas it identified in Part 3.3.1 at which field screening and analytical monitoring will take place. In addition, if the permittee is made aware of non-stormwater discharges that occur during the permit term outside of the priority areas, the permittee must include field screening stations in those areas;

b. Conduct dry weather field screening and analytical monitoring at each station identified above at least once [*insert timeframe for dry part of year, or specify annually*].

c. Sample runoff according to requirements outlined in (1) and (2) below if flow or ponded runoff is observed at a field screening station and there has been at least seventy-two (72) hours of dry weather. The permittee must also record general information such as time since last rain, quantity of last rain, site descriptions (e.g., conveyance type, dominant watershed land uses), flow estimation (e.g., width of water surface, approximate depth of water, approximate flow velocity, flow rate), and visual observations (e.g., odor, color, clarity, floatables, deposits/stains, vegetation condition, structural condition, and biology).

1. Field screening requirements: The permittee is required to conduct a field screening analysis for the following constituents. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136.

   [*insert specific indicator pollutants that the permittee is required to monitor for.]*

2. Analytical monitoring requirements: In addition to field screening, the permittee is required to collect samples for analytical laboratory analysis of the following constituents for a minimum of [*insert percentage*] of the samples taken. Samples must be collected and analyzed consistent with the procedures required by 40 CFR Part 136.

   [*insert specific pollutants of concern that the permittee is required to monitor for*]

3. Develop benchmark concentration levels for dry weather field screening and analytical monitoring results whereby exceedance of the benchmark will

require follow-up investigations to be conducted to identify and eliminate the source causing the exceedance of the benchmark.

d. Conduct a follow-up investigation under Part 4.5 if the benchmarks associated with the constituents listed above in Part 3.4.2.c(1) and (2) are exceeded; and

e. Make and record all applicable observations and select another station from the list of alternate stations for monitoring if, after two subsequent field screening tests have been completed, the field screening station is dry (i.e., no flowing or ponded runoff).

3.4.3 The permittee must assess its IDDE program every [*specify deadline for completion, e.g., once per permit term*] to determine if updates are needed. Where updates are found to be necessary, the permittee must make such changes [*insert deadline for finalizing changes*].

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the development of a dry weather field screening and analytical monitoring program. The program must identify stations (e.g., outfalls) within the identified "priority areas" where the field screening will be conducted. At a frequency set by the permitting authority, the permittee must screen outfalls during dry weather and, if flow or ponded water is observed, collect a sample for field screening and analytical monitoring.

Visually screening outfalls during dry weather and conducting field tests, where flow is occurring, of selected chemical parameters as indicators of the discharge source will assist permittees in determining the source of illicit discharges. For example, the presence of surfactants is an indicator that sewage could be present in the discharge (e.g., soaps being discharged into sewer system as an indicator that wastewater is being discharged). Specific conductivity, fluoride and/or hardness concentration, ammonia and/or potassium concentration, surfactant and/or fluorescence concentration, chlorine concentration, pH, and other chemicals may similarly be indicative of industrial sources.

The permit requires the permittee to develop benchmarks for dry weather screening and analytical monitoring results. An exceedance of the benchmark concentration level indicates the need to conduct a follow-up investigation. The results will help the permittee narrow down the possible sources causing the benchmark to be exceeded so that they can then be eliminated. This is a common protocol to trigger additional monitoring and/or implementation of BMPs at stormwater discharges (e.g. MSGP has sector-specific benchmark monitoring requirements).

Recommendations for the Permit Writer

There are many options for field screening programs available to the permit writer that will meet the requirements of the regulations. Phase I regulations require that permittees conduct initial field screening of the entire MS4 during the permit application process as well as on-going field screening activities during the life of the permit. Based on this historical information and data, permit writers may want to specify in Phase I individual permits which priority areas must be screened. They may

also want to specify how many outfalls or what percentage of the outfalls should be inspected during the permit term.

In addition, for new Phase II permittees, permit writers may want to require screening of all priority areas during the first permit term and then require on-going screening in the areas where illicit discharges were identified.

This permit language includes analytical monitoring at dry weather field screening locations. The monitoring required during field screening (Part 3.4.2.c.1.) should include appropriate indicator pollutants, i.e. pollutants that will indicate the presence of some sort of illicit discharge. For example, Phase II NPDES regulations suggest sampling for specific conductivity, ammonia, surfactant and/or fluorescence concentration, pH and other chemicals indicative of industrial sources.

Permit writers should select the additional pollutants to be monitored based upon specific pollutants of concern for the receiving water(s) and/or specific indicator pollutants which can assist the MS4 in the location of particular discharges of concern and the potential water quality impact of the discharge. For example, the Phase I San Diego MS4 Permit requires that permittees monitor the following parameters during field screening: total hardness, oil and grease, diazinon and chlorpyrifos, cadmium (dissolved), lead (dissolved), zinc (dissolved), copper (dissolved), Enterococcus bacteria, total coliform bacteria, and fecal coliform bacteria.

Permit writers should encourage or even require permittees to use the CWP *IDDE Manual* and/ or EPA's 2008 Multi-Sector General Permit (www.epa.gov/npdes/stormwater/msgp) to develop benchmarks for each parameter.

In the *IDDE Manual* it is strongly recommended that benchmarks be developed specifically for each area. As an example, the *IDDE Manual* lists the following benchmark concentrations (Table 3-1) to identify industrial discharges:

Table 3-1. Benchmark concentrations to identify Industrial Discharges (from CWP IDDE Manual, Table 45)

Indicator Parameter	Benchmark Concentration
Ammonia	>= 50 mg/L
Color	>= 500 units
Conductivity	>= 2,000 µS/cm
Hardness	<= 10 mg/L as CaCO3 or >= 2,000 mg/L as CaCO3
pH	<= 5
Potassium	>= 20 mg/L
Turbidity	>= 1,000 NTU

For comparison purposes, the chemical fingerprint for different flow types in Alabama is presented in Table 3-2. The chemical fingerprint for each flow type can differ regionally, so permittees should develop their own "fingerprint" library by sampling each flow type.

Table 3-2. Comparative "Fingerprint" (Mean Values) of Flow Types (from CWP IDDE Manual, Table 1)

Flow Type	Hardness (mg/L as CaCO3)	NH3 (mg/L)	Potassium (mg/L)	Conductivity (µS/cm)	Fluoride (mg/L)	Detergents (mg/L)
Sewage	50 (0.26)	25 (0.53)	12 (0.21)	1215 (0.45)	0.7 (0.1)	9.7 (0.17)
Septage	57 (0.36)	87 (0.4)	19 (0.42)	502 (0.42)	0.93 (0.39)	3.3 (1.33)

Table 3-2. Comparative "Fingerprint" (Mean Values) of Flow Types (from CWP IDDE Manual, Table 1)						
Laundry Washwater	45 (0.33)	3.2 (0.89)	6.5 (0.78)	463.5 (0.88)	0.85 (0.4)	758 (0.27)
Car Washwater	71 (0.27)	0.9 (1.4)	3.6 (0.67)	274 (0.45)	1.2 (1.56)	140 (0.2)
Plating Bath (Liquid Industrial Waste)	14330 (0.32)	66 (0.66)	1009 (1.24)	10352 (0.45)	5.1 (0.47)	6.8 (0.68)
Radiator Flushing (Liquid Industrial Waste)	5.6 (1.88)	26 (0.89)	2801 (0.13)	3280 (0.21)	149 (0.16)	15 (0.11)
Tap Water	52 (0.27)	<0.06 (0.55)	1.3 (0.37)	140 (0.07)	0.94 (0.07)	0 (NA)
Groundwater	38 (0.19)	0.06 (1.35)	3.1 (0.55)	149 (0.24)	0.13 (0.93)	0 (NA)
Landscape Irrigation	53 (0.13)	1.3 (1.12)	5.6 (0.5)	180 (0.1)	0.61 (0.35)	0 (NA)
The number in parentheses after each concentration is the Coefficient of Variation. Source: Robert Pitt data from CWP IDDE Manual						

The permit writer may also want to require the permittee to analyze a certain number of discharge samples to characterize the concentration of certain pollutants in the different drainage areas. This characterization sampling would be in addition to any characterization sampling completed for the Phase I permit application. This type of sampling would not necessarily aid in the elimination of the source of the discharge, however, the data would be useful in characterizing the discharge from the MS4.

For those areas that have ponding or flow during dry weather, permit writers may consider allowing permittees the flexibility to look for indicators of an illicit discharge before conducting water quality tests due to baseline flow (e.g. baseflow, groundwater flow, irrigation return flows) in certain areas. In these cases, permit writers could require that sensory indicators (i.e. odor, color, turbidity, and floatables) be evaluated.

For additional guidance on field screening, the *IDDE Manual* describes an outfall reconnaissance inventory (ORI) to assess outfalls and conduct indicator monitoring to help identify illicit discharges.

Regardless of the field screening scheme, it is also very important to emphasize in the permit conditions that monitoring must be done in compliance with 40 CFR 136.

3.5 IDDE Source Investigation and Elimination

Example Permit Provision

3.5.1 The permittee is required to develop written procedures for conducting investigations into the source of all identified illicit discharges, including approaches to requiring such discharges to be eliminated.

3.5.2 Minimum Investigation Requirements – At a minimum, the permittee is required to conduct an investigation(s) to identify and locate the source of any continuous or

intermittent non-stormwater discharge within [*specify time period*] of becoming aware of the illicit discharge.

a. Illicit discharges suspected of being sanitary sewage and/or significantly contaminated must be investigated first.

b. Investigations of illicit discharges suspected of being cooling water, wash water, or natural flows may be delayed until after all suspected sanitary sewage and/or significantly contaminated discharges have been investigated, eliminated and/or resolved.

c. The permittee must report immediately the occurrence of any dry weather flows believed to be an immediate threat to human health or the environment to [*insert state water quality emergency contact phone number*].

d. The permittee must track all investigations to document at a minimum the date(s) the illicit discharge was observed; the results of the investigation; any follow-up of the investigation; and the date the investigation was closed.

3.5.3 Determining the Source of the Illicit Discharge –The permittee is required to determine and document through its investigations, carried out in Part 3.5.1, the source of all illicit discharges. If the source of the illicit discharge is found to be a discharge authorized under [*insert NPDES discharge permit reference*] of an NPDES permit, no further action is required.

a. If an illicit discharge is found, but within six (6) months of the beginning of the investigation neither the source nor the same non-stormwater discharge has been identified/observed, then the permittee must maintain written documentation for review by the permitting authority.

b. If the observed discharge is intermittent, the permittee must document that a minimum of three (3) separate investigations were made to observe the discharge when it was flowing. If these attempts are unsuccessful, the Permittee must maintain written documentation for review by the permitting authority. However, since this is an ongoing program, the Permittee should periodically recheck these suspected intermittent discharges.[5]

3.5.4 Corrective Action to Eliminate Illicit Discharge – Once the source of the illicit discharge has been determined, the permittee must immediately notify the responsible party of the problem, and require the responsible party to conduct all necessary corrective actions to eliminate the non-stormwater discharge within [*specify deadline*]. Upon being notified that the discharge has been eliminated, the permittee must conduct a follow-up investigation and field screening, consistent with Part 3.4, to verify that the discharge has been eliminated. The permittee is required to document its follow-up investigation. The permittee may seek recovery and remediation costs from responsible parties consistent with Part 1.2, or require compensation for the cost of field screening and investigations. Resulting enforcement actions must follow the SWMP ERP.

[5] New Jersey Phase II Permit (www.state.nj.us/dep/dwq/pdf/Tier_A_final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The Clean Water Act, section 402(p)(3)(B)(ii) requires MS4 permits to "effectively prohibit non-stormwater discharges into the storm sewers." The permit implements this requirement, in part by requiring the development of procedures to investigate and eliminate illicit discharges. The permittee must develop a clear, step-by-step procedure for conducting the investigation of illicit discharges. The procedure must include an investigation protocol that clearly defines what constitutes an illicit discharge "case" and when a case is considered "closed." In many circumstances, sources of intermittent, illicit discharges are very difficult to locate, and these cases may remain unresolved. The permit requires that each case be conducted in accordance with the SOPs developed to locate the source and conclude the investigation, after which the case may be considered closed. A standard operating procedure (SOP) document is required in order to provide investigators with guidance and any necessary forms to ensure that consistent investigations occur for every illicit discharge incident.

Physical observations and field testing can help narrow the identification of potential sources of a non-stormwater discharge; however it is unlikely that either will pinpoint the exact source. Therefore, the permittee will need to perform investigations "upstream" to identify illicit connections to systems with identified problem outfalls.

Once the source of the non-stormwater discharge is determined through investigation, corrective action is required to eliminate the problem source. Resulting enforcement actions must follow the SWMP ERP. The permittee may conduct remediation activities on its own, in which case the permittee must require compensation for any and all costs related to eliminating the non-stormwater discharge. Non-traditional MS4 permittees may be limited in their ability to seek recovery.

Recommendations for the Permit Writer

Both Phase I and Phase II regulations require permittees to develop a process to trace the source of illicit discharges and eliminate them. The regulations also state that appropriate enforcement procedures and actions must be included in this process.

3.6 Public Reporting of Non-Stormwater Discharges and Spills

Example Permit Provision

3.6.1 The permittee must promote, publicize, and facilitate public reporting of illicit discharges or water quality impacts associated with discharges into or from MS4s through a central contact point, including phone numbers for complaints and spill reporting, and publicize to both internal permittee staff and the public. If 911 is selected, the permittee must also create, maintain, and publicize a staffed, non-emergency phone number with voicemail, which is checked daily.

3.6.2 The permittee must develop a written spill/dumping response procedure, and a flow chart or phone tree, or similar list for internal use, that shows the procedures for responding to public notices of illicit discharges, the various responsible agencies

and their contacts, and who would be involved in illicit discharge incidence response, even if it is a different entity other than the permittee.

3.6.3 The permittee must conduct reactive inspections in response to complaints and follow-up inspections as needed to ensure that corrective measures have been implemented by the responsible party to achieve and maintain compliance.[6]

Example Permit Requirement Rationale for the Fact Sheet

This provision serves to implement, in part, the statutory requirement that MS4 permits effectively prohibit non-stormwater discharges. Spills, leaks, sanitary sewer overflows, and illicit dumping or discharges can introduce a range of stormwater pollutants into the storm system. Prompt response to these occurrences is the best way to prevent or reduce negative impacts to waterbodies. The permittee must develop a spill response SOP that includes an investigation procedure similar to or in conjunction with the investigation SOP developed for illicit discharges in general (see Section 3.5). Often, a different entity might be responsible for spill response in a community (i.e. fire department), therefore, it is imperative that adequate communication exists between stormwater and spill response staff to ensure that spills are documented and investigated in a timely manner.

A stormwater hotline can be used to help permittees become aware of and mitigate spills or dumping incidents. Spills can include everything from an overturned gasoline tanker to sediment leaving a construction site to a sanitary sewer overflow entering into a storm drain. Permittees must set up a hotline consisting of any of the following (or combination thereof): a dedicated or non-dedicated phone line, E-mail address, or website.

Recommendations for the Permit Writer

Spills which occur due to municipal staff activities are considered illicit discharges, but, spill prevention could also be addressed in the municipal operations/good-housekeeping portion of the permit as in this Guide (Chapter 6).

Facilitating public reporting of illicit discharges is specifically required in the Phase I regulations and as a part of the plan to detect and address illicit discharge, EPA recommends that Phase II permittees also develop a venue to promote, publicize, and facilitate public reporting of these discharges.

It is also noteworthy that smaller Phase II MS4s may utilize outside agency resources for spill response and/or they may use a neighboring locality. In this case, permittees will need to coordinate with these agencies to ensure appropriate spill response occurs and the necessary documentation is completed.

[6] San Francisco Municipal Regional Stormwater permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

3.7 Illicit Discharge Education & Training

Example Permit Requirement

*3.*7.1 The permittee must continue to implement a training program for all municipal field staff, who, as part of their normal job responsibilities, may come into contact with or otherwise observe an illicit discharge or illicit connection to the storm sewer system. Contact information, including the procedure for reporting an illicit discharge, must be included in the permittee's fleet vehicles that are used by field staff. Training program documents must be available for review by the permitting authority.

3.7.2 By no later than [*insert applicable deadline, e.g., 6 months after permit authorization*], the permittee must train all staff identified in Section 3.7.1 above on the identification of an illicit discharge or connection, and on the proper procedures for reporting and responding to the illicit discharge or connection. Follow-up training must be provided as needed to address changes in procedures, techniques, or staffing. The permittee must document and maintain records of the training provided and the staff trained. [7]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to train field staff, who may come into contact or observe illicit discharges, on the identification and proper procedures for reporting illicit discharges. Field staff to be trained may include, but are not limited to, municipal maintenance staff, inspectors, and other staff whose job responsibilities regularly take them out of the office and into areas within the MS4 area. Permittee field staff are out in the community every day and are in the best position to locate and report spills, illicit discharges, and potentially polluting activities. With proper training and information on reporting illicit discharges easily accessible, these field staff can greatly expand the reach of the IDDE program.

Recommendations for the Permit Writer

Permit writers may wish to require training of office staff (or all permittee staff), as well as field staff, as they can act as additional "eyes and ears" since they typically live in the community. The training should consist of how to identify illicit discharges and dumping, as well as the appropriate people to contact based on the type of discharge that is occurring.

Existing permittees (Phase I and Phase II) may have been training staff for several permit terms. For this reason, the permit writer may want the permittee to focus on annual "refresher" trainings for existing staff and new employees within a certain time of their hire date.

[7] Washington State Phase I Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf)

CHAPTER 4: CONSTRUCTION

Introduction

MS4 permits must address construction-related requirements (and often more specific state requirements) found in the following Federal regulations – Phase I MS4 Regulations 40 CFR 122.26(d)(2)(iv)(D) and Phase II MS4 Regulations 40 CFR 122.34(b)(4). Specific Permit Requirements should vary based on state requirements, rainfall amounts or other site-specific factors, but, in general, the requirements imposed on MS4 permittees for stormwater management of discharges associated with construction activities consist of several common requirements.

Included Concepts

- Construction requirements and control measures
- Construction site inventory
- Construction plan review procedures
- Construction site inspections and enforcement
- MS4 staff training
- Construction site operator education and public involvement

Permits must require that the permittee enact, to the extent allowed by State, Tribal or local law, an ordinance or other regulatory mechanism as part of the construction program that controls runoff from construction sites with a land disturbance of greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale. As part of the ordinance or other regulatory mechanism, the permittee should provide commonly understood and legally binding definitions. These terms should be defined consistently across other related guidance and regulatory documents. Note that EPA's recommended definitions addressing this requirement are included in Appendix B.

Permits must require that MS4 permittees ensure that construction site operators select and implement appropriate erosion and sediment control measures to reduce or eliminate the impacts to receiving waters. The permit can require that permittees develop their own standards and specifications, but often it is preferable to require the permittees to utilize existing guidance that is approved by the permitting authority.

The permit must require that the permittee establish review procedures for construction site plans to determine potential water quality impacts and ensure the proposed controls are adequate. These procedures must include the review of individual pre-construction site plans to ensure consistency with local sediment and erosion control requirements. In addition, the permit must include requirements for inspection and enforcement of erosion and sediment control measures once construction begins.

Finally, Phase I MS4 permits must require the development of educational materials and training for construction site operators, and EPA recommends that training on stormwater controls for construction site operators be mandated in Phase II MS4 permits as well. Training should address site requirements for control measures, local stormwater requirements, enforcement activities, and penalties for non-compliance.

4.1 Construction Requirements and Control Measures

Example Permit Provision

4.1.1 The permittee must continue to implement a program which requires operators of public or private "construction activities" to select, install, implement, and maintain stormwater control measures that comply with [*Insert reference to documents including any and all applicable erosion and sediment control, pollution prevention, and other stormwater requirements, including applicable CGP, State, and local requirements*.] "Construction activity" for this permit includes, at a minimum, all public and private construction sites that result in a total land disturbance of [*insert disturbance threshold – either one or more acres or that result in a total land disturbance of less than one acre if part of a larger common plan or development or sale, or an alternative threshold that includes disturbances of less than one acre*]. Written procedures for implementing this program, including the components described in Parts 4.2 – 4.6, must be incorporated into the SWMP document. The permittee's construction program must ensure the following minimum requirements are effectively implemented for all construction activity discharging to its MS4:

[*Insert specific minimum requirements, such as:*

a. **Erosion and Sediment Controls**. Design, install and maintain effective erosion controls and sediment controls to minimize the discharge of pollutants. At a minimum, such controls must be designed, installed and maintained to:

(1) Control stormwater volume and velocity within the site to minimize soil erosion;

(2) Control stormwater discharges, including both peak flowrates and total stormwater volume, to minimize erosion at outlets and to minimize downstream channel and streambank erosion;

(3) Minimize the amount of soil exposed during construction activity;

(4) Minimize the disturbance of steep slopes;

(5) Minimize sediment discharges from the site. The design, installation and maintenance of erosion and sediment controls must address factors such as the amount, frequency, intensity and duration of precipitation, the nature of resulting stormwater runoff, and soil characteristics, including the range of soil particle sizes expected to be present on the site;

(6) Provide and maintain natural buffers around surface waters, direct stormwater to vegetated areas to increase sediment removal and maximize stormwater infiltration, unless infeasible; and

(7) Minimize soil compaction and, unless infeasible, preserve topsoil.

b. **Soil Stabilization**. Stabilization of disturbed areas must, at a minimum, be initiated immediately whenever any clearing, grading, excavating or other earth disturbing activities have permanently ceased on any portion of the site, or temporarily ceased on any portion of the site and will not resume for a period exceeding 14 calendar days. Stabilization must be completed within a period of

time determined by the permittee. In arid, semiarid, and drought-stricken areas where initiating vegetative stabilization measures immediately is infeasible, alternative stabilization measures must be employed as specified by the permittee.

c. **Dewatering**. Discharges from dewatering activities, including discharges from dewatering of trenches and excavations, are prohibited unless managed by appropriate controls.

d. **Pollution Prevention Measures**. Design, install, implement, and maintain effective pollution prevention measures to minimize the discharge of pollutants. At a minimum, such measures must be designed, installed, implemented and maintained to:

(1) Minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, and other wash waters. Wash waters must be treated in a sediment basin or alternative control that provides equivalent or better treatment prior to discharge;

(2) Minimize the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater; and

(3) Minimize the discharge of pollutants from spills and leaks and implement chemical spill and leak prevention and response procedures.

e. **Prohibited Discharges**. The following discharges are prohibited:

(1) Wastewater from washout of concrete, unless managed by an appropriate control;

(2) Wastewater from washout and cleanout of stucco, paint, from release oils, curing compounds and other construction materials;

(3) Fuels, oils, or other pollutants used in vehicle and equipment operation and maintenance; and,

(4) Soaps or solvents used in vehicle and equipment washing.

f. **Surface Outlets**. When discharging from basins and impoundments, utilize outlet structures that withdraw water from the surface, unless infeasible.

Example Permit Requirement Rationale for the Fact Sheet

Stormwater discharges from construction sites generally includes sediment and other pollutants such as phosphorus and nitrogen, turbidity, pesticides, petroleum derivatives, construction chemicals, and solid wastes that may become mobilized when land surfaces are disturbed. The permit requires MS4 permittees to require construction site operators at defined sites to meet certain minimum stormwater requirements relating to erosion and sediment control and pollution prevention, and to meet other restrictions imposed on them by the State, or local regulations. These minimum requirements clearly specify the expectations for addressing

erosion control, sediment control, and pollution prevention control measures at construction sites.

EPA's Effluent Limitations Guidelines and Standards for the Construction and Development Point Source Category (74 FR 62996, December 1, 2009) require construction site owners and operators to implement a range of erosion and sediment control measures and pollution prevention practices to control pollutants in discharges from construction sites. These standards will be required in state construction general permits as they are reissued. These standards are broadly applicable to all construction activity disturbing one or more acres. They provide an objective means of describing appropriate erosion and sediment control best management practices, pollution prevention controls on construction site waste and storage of building materials and other reasonable components of the permittee's program to reduce pollutants to the maximum extent practicable in stormwater from construction sites that discharge through the MS4.

Recommendations for the Permit Writer

The Phase II stormwater regulations require permittees to develop a construction site program addressing "land disturbance of greater than or equal to one acre." However, some states may have more stringent requirements that apply to some permittees, or the permit writer may have discretion to lower the one acre threshold if this threshold is too high for particular permittees. For example, smaller, built-out cities may have many small redevelopment projects that fall below the one acre threshold. In such cases, controlling construction site stormwater entering the MS4 to the maximum extent practicable may require stormwater controls at smaller sites. Permit writers should review available construction and planning data from the MS4 to determine an appropriate project size threshold.

The example permit provision's list of minimum requirements for erosion controls, sediment controls, and pollution prevention measures is intended to establish specific requirements to implement the broader requirements in the Phase II rule (40 CFR 122.24(b)(4)). The list of minimum requirements in the example permit provision are from EPA's Construction and Development Effluent Guidelines (published December 1, 2009) which will eventually be required in all NPDES stormwater permits issued to construction site operators. At a minimum, the permit should reference the applicable state standards and, where appropriate, any local standards as well. Permit writers may wish to modify these specific requirements based on current standards or guidance on construction site stormwater controls in the State.

4.2 Construction Site Inventory

Example Permit Provision

4.2.1 The permittee must continue to maintain an inventory of all active public and private construction sites that result in a total land disturbance of [*insert disturbance threshold from Part 4.1.1.*]. The inventory must be continuously updated as new projects are permitted and projects are completed. The inventory must contain

relevant contact information for each project (e.g., name, address, phone, etc.), the size of the project and area of disturbance, whether the project has submitted for permit coverage under [*insert name of applicable NPDES general construction permit*], the date the permittee approved the [*insert name of local erosion and sediment control/stormwater plan]* in accordance with Part 4.3, and the permit tracking number issued by [*insert name of permitting authority*]. The permittee must make it available to the permitting authority upon request.

Example Permit Requirement Rationale for the Fact Sheet

To effectively conduct inspections, the permittee must know where construction activity is occurring. A construction site inventory tracks information such as project size, disturbed area, distance to any waterbody or flow channel, when the erosion and sediment control/stormwater plan was approved by the Permittee, and whether the project is covered by the permitting authority's construction general permit. This inventory will allow the permittee to track and target its inspections.

Recommendations for the Permit Writer

Because of state or local construction permitting requirements, many permittees have some system in place to track construction activity in their jurisdiction. If this is the first MS4 permit issued to the permittee, the permit writer should include a deadline for the development of the initial inventory.

Permit writers may want to request electronic copies of the inventory quarterly or yearly, if that information will be used by the State permitting or inspection staff.

4.3 Construction Plan Review Procedures

Example Permit Provision

4.3.1 The permittee must continue to require each operator of a construction activity to prepare and submit a [*insert name of local erosion and sediment control/stormwater plan*] prior to the disturbance of land for the permittee's review and written approval prior to issuance of a [*insert appropriate permit, i.e. grading or construction*]. The permittee must make it clear to operators of construction activity that they are prohibited from commencing construction activity until they receive receipt of written approval of the the plans. If the [*insert name of local erosion and sediment control/stormwater plan*] is revised, the permittee must review and approve those revisions.

4.3.2 The permittee must continue to implement site plan review procedures that meet the following minimum requirements:

a. The permittee must not approve any [*insert name of local erosion and sediment*

control/stormwater plan] unless it contains appropriate site-specific construction site control measures that meet the minimum requirements in Part 4.1.1 of this permit.

b. The stormwater pollution prevention plan (SWPPP) developed pursuant to [*insert name of applicable NPDES general construction permit*] may substitute for the [*insert name of local erosion and sediment control/stormwater plan*] for projects where a SWPPP is developed. The permittee is responsible for reviewing those portions of the SWPPP that comply with the [*insert name of local erosion and sediment control/stormwater plan*].

c. The [*insert name of local erosion and sediment control/stormwater plan*] must include the rationale used for selecting control measures, including how the control measure protects a waterway or stormwater conveyance.

d. The permittee must use qualified individuals, knowledgeable in the technical review of [*insert name of local erosion and sediment control/stormwater plan*] to conduct such reviews.

e. The permittee must document its review of each [*insert name of local erosion and sediment control/stormwater plan*] using a checklist or similar process. [8]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the review and prior approval of all local erosion and sediment control plans/stormwater plans to ensure that construction activities adhere to the permittee's minimum stormwater control requirements. Adequate review of erosion and sediment control/stormwater plans is necessary to verify compliance with all applicable requirements in the permittee's ordinance or other regulatory mechanism, as well as compliance with control measure standards and specifications. A formalized review procedure ensures consistent review of plans by specifying the requirements for plans being submitted, the schedule for review, and general conditions for approval. The site plan review process also provides a way to track construction activities and enforce standards.

A good site plan review process provides the permittee with the opportunity to comment – early and often – on a project's proposed number, type, location, and sizing of stormwater control measures that will be in place prior to, during, and at the conclusion of active construction. It is important to keep in mind that a site plan is a "living document" that may change during the life of the project; however, it is critical that the site plan be adequately reviewed and initially based on established policy, guidelines, and standards. The plan is the framework for stormwater control implementation, as well as the basis of any enforcement action on a project site.

The permit requires the permittee to review plans before construction activity begins to ensure that the plans are consistent with the standards specified in Part 4.1.1. The permit language also includes some key requirements during the plan review process:

[8] 2009 Ventura County, CA Phase I MS4 Permit (www.swrcb.ca.gov/rwqcb4/water_issues/programs/stormwater/municipal/ventura_ms4/09-0057/Transmittal%20Letter%20and%20MS4%20Permit%20Order%20No%2009%200057.pdf)

- If a SWPPP is developed for the State construction general permit, that plan may substitute for the local plan if it also includes/addresses the local requirements.
- The plan must include the rationale used for selecting or rejecting control measures (for example, why a silt fence was selected or why a sediment trap was not included).
- Finally, plan reviewers must be trained and must document their review. For example, this can be done by using a checklist or similar process.

Recommendations for the Permit Writer

Some MS4 permits include a requirement that, prior to approval of local permits, the permittee must verify that the construction site operator has existing coverage under the State's Construction General Permit, if necessary. This requirement helps to reduce the number of non-filers for the State general permit by providing a check for NPDES CGP permit coverage at the local level.

4.4 Construction Site Inspections and Enforcement

Example Permit Provision

4.4.1 The permittee must continue to implement procedures for inspecting public and private construction projects in accordance with the frequency specified in Table 4-1 below:

Table 4-1: Inspection Frequencies

Site	Inspection Frequency
a. All sites [*insert a size threshold that is considered large for the MS4 if large projects are common, e.g. 5 acres*] or larger in size	Inspection must occur within [*insert number of days/hours, e.g. 48 hours] of a [insert significant rain event size, e.g. ½ inch rain event] and no less than biweekly (every 2 weeks)*]
b. All sites one (1) acre or larger that discharge to a tributary listed by the state/tribe as an impaired water for sediment or turbidity under the CWA section 303(d)	
c. Other sites one (1) acre or more determined by the permittee or permitting authority to be a significant threat to water quality*	
d. All other construction sites with one (1) acre or more of soil disturbance not meeting the criteria specified in (A),(B), or (C) above	Inspection must occur at least monthly
e. Construction sites less than one (1) acre in size	Inspection must occur as needed based on the evaluation of the factors that are a threat to water quality*
*In evaluating the threat to water quality, the following factors must be considered: soil erosion potential; site slope; project size and type; sensitivity of receiving waterbodies; proximity to receiving waterbodies; non-stormwater discharges; past record of non-compliance by the operators of the construction site; and [*insert other factors relevant to particular MS4*].	

4.4.2 The permittee must adequately inspect all phases of construction.

a. Prior to Land Disturbance: Prior to allowing an operator to commence land disturbance, the permittee must perform an inspection to ensure all necessary erosion and sediment controls are in place.

b. During Active Construction: During active construction, the permittee is required to conduct inspections in accordance with the frequencies specified in Table 4-1 in Part 4.4.1.

c. Following Active Construction: At the conclusion of the project, the Permittee must inspect all projects to ensure that all graded areas have reached final stabilization and that all temporary control measures are removed (e.g., silt fence).

4.4.3 The permittee must have trained and qualified inspectors (See Part 4.5). The permittee must also continue to follow, and revise as necessary, written procedures outlining the inspection and enforcement procedures. Inspections of construction sites must, at a minimum:

a. Check for coverage under the [*insert name of applicable NPDES general construction permit*] by requesting a copy of any application or Notice of Intent (NOI) or other relevant application form during initial inspections.

b. Review the applicable [*insert name of local erosion and sediment control/stormwater plan*] and conduct a thorough site inspection to determine if control measures have been selected, installed, implemented, and maintained according to the plan.

c. Assess compliance with the permittee's ordinances and permits related to stormwater runoff, including the implementation and maintenance of designated minimum control measures.

d. Assess the appropriateness of planned control measures and their effectiveness.

e. Visually observe and record non-stormwater discharges, potential illicit connections, and potential discharge of pollutants in stormwater runoff.

f. Provide education and outreach on stormwater pollution prevention, as needed.

g. Provide a written or electronic inspection report generated from findings in the field

4.4.4 The permittee must track the number of inspections for the inventoried construction sites throughout the reporting period to verify that the sites are inspected at the minimum frequencies required. Inspection findings must be documented and maintained for review by the permitting authority.

4.4.5 Based on site inspection findings, the permittee must take all necessary follow-up actions (i.e., re-inspection, enforcement) to ensure compliance in accordance with the permittee's enforcement response plan required in Part 1.3. These follow-up and enforcement actions must be tracked and maintained for review by the permitting authority. [9]

[9] 2007 San Diego Phase I MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The permit requires inspections of construction sites based on a prioritized ranking of sites (see 40 CFR 122.26(d)(2)(iv)(D)(3) and 122.34(b)(4)(ii)(F)). Larger construction sites and sites that discharge to a sediment impaired waterbody are inspected more frequently than small sites. In addition to inspections at a regular interval, inspections are required within a certain timeframe after a rain event.

Inspections are required before land disturbance to ensure erosion and sediment controls are in place and a plan has been developed, during active construction, and after the site has been stabilized. The permit language also contains specific requirements on what the inspection must include (such as a comparison of control measures in the approved plan to measures installed in the field).

Without adequate implementation and maintenance, stormwater controls will not function as designed. In order to ensure proper implementation and maintenance by site operators, a rigorous inspection protocol is necessary. This protocol must include a written SOP for site inspections and enforcement to ensure inspections and enforcement actions are conducted in a consistent manner. The SOP must include steps to identify priority sites for inspection and enforcement based on the nature and extent of the construction activity, slope of the site, proximity to receiving waters, the characteristics of soils, and the water quality status of the receiving water. This will allow inspection resources and staff time to be used most effectively. Documentation of inspections is critical to track noncompliance and enforcement. Regularly scheduled inspections, as well as post-storm event inspections, are necessary to be sure that regular maintenance occurs as well as repairs after storm events.

Recommendations for the Permit Writer

Selecting an appropriate inspection frequency is, by necessity, a case-by-case exercise. Inspection frequencies for one permittee will not necessarily be appropriate for other permittees. For example, appropriate inspection frequencies may vary among different permittees depending on such factors as topography and rainfall patterns, including whether the MS4 is located in a wet or arid region and/or has distinct wet and dry seasons. Appropriate inspection frequencies may also vary seasonally or geographically within a single MS4 based on seasonal variations in rainfall or snowfall, or differing topographical or geographic conditions in different parts of the MS4 area.

For individual MS4 permits, permit writers should consider seasonal rainfall patterns, the presence and location of impaired streams or sensitive habitats, soils, topography, and other MS4-specific factors. In addition, permit writers should review current inspection frequencies, as well as inspection and enforcement records.

The permit writer should also note that the permit language will need to be modified if the permittee was not previously required to develop written procedures for the inspection and enforcement conducted at construction sites.

4.5 MS4 Staff Training

Example Permit Provision

4.5.1 The permittee must ensure that all staff whose primary job duties are related to implementing the construction stormwater program, including permitting, plan review, construction site inspections, and enforcement, are trained to conduct these activities. The training can be conducted by the permittee or outside training can be attended, however, this training must include, at a minimum:

a. Erosion and Sediment Control/Stormwater Inspectors:

1. Initial training, held within the first permit year, regarding proper control measure selection, installation, implementation, and maintenance, as well as administrative requirements such as inspection reporting/tracking and use of the permittee's enforcement responses; and
2. Annual refresher training for existing inspection staff to update them on preferred controls, regulation changes, permit updates, and policy or standards updates. Throughout the year, e-mails and/or memos must be sent out to update the inspectors as changes happen.

b. Other Construction Inspectors: Initial training must be held within the first permit year, on general stormwater issues, basic control measure implementation information, and procedures for notifying the appropriate personnel of noncompliance. Refresher training held at least once every two years.

c. Plan Reviewers:

1. Initial training, held within the first permit year, regarding control measure selection, design standards, and review procedures; and
2. Annual training regarding new control measures, innovative approaches, permit updates, regulation changes, and policy or standard updates.

d. Third-Party Inspectors and Plan Reviewers: If the permittee utilizes outside parties to conduct inspections and/or review plans, these outside staff must be trained per the requirements listed in Part 4.5.1.a (above).

Example Permit Requirement Rationale for the Fact Sheet

By setting up training for the permittee staff, the permittee can ensure that the erosion and sediment control requirements are understood and consistently applied since all staff will have been trained on the same information. The permit requires staff whose primary job duties are related to implementing the construction stormwater program to be trained. The training requirements vary by the type of staff. F or example, erosion and sediment control inspectors must be trained annually on a range of topics, while other construction inspectors (such as building inspectors) will receive more general training.

The permittee can conduct the training or the training can be provided by another entity (such as a State erosion and sediment control class). Ideally, the training should include classroom presentations, in-field training, and follow-up evaluations to determine whether the training was effective.

Also, the permittee should consider providing training to other in-field municipal staff so that problems associated with flooding and sedimentation from construction sites can be properly reported and addressed.

4.6 Construction Site Operator Education & Public Involvement

Example Permit Provision

4.6.1 Construction Operator Education. The permittee must develop and distribute educational materials to construction site operators as follows:

a. Each year, the permittee must either provide information on existing training opportunities or develop new training for construction operators on control measure selection, installation, implementation, and maintenance as well as overall program compliance.

b. The permittee must develop or utilize existing outreach tools (i.e. brochures, posters, website, plan notes, manuals etc.) aimed at educating construction operators on appropriate selection, installation, implementation, and maintenance of stormwater controls, as well as overall program compliance.

c. The permittee must make available appropriate outreach materials to all construction operators who will be disturbing land within the MS4 boundary. The permittees' contact information and website must be included in these materials.

d. The permittee must include information on appropriate selection, installation, implementation, and maintenance of controls, as well as overall program compliance, on the permittee's existing website.

4.6.2 Public Involvement.

a. The permittee must adopt and implement procedures for receipt and consideration of information submitted by the public regarding construction projects. This includes, but is not limited to, the public reporting mechanisms described in Part 3.6.

b. The permittee must hold public meetings for all public projects that have planned disturbance greater than or equal to an acre. [10]

[10] Eastern Washington MS4 Phase II Permit (Part 2 only) (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

Education of construction site operators regarding stormwater management and regulatory requirements is an essential part of controlling stormwater discharges from construction sites. Making brochures, guidance documents and trainings available will increase the knowledge of operators and compliance in the field and can help them choose the correct structural control and processes, correctly install the controls, and successfully implement control measures. The permit requires the permittee to provide appropriate outreach materials to construction site operators. These materials can be made available during the normal course of business (i.e. in BMP manuals, in plan notes, during meetings) or via brochures or websites. In addition, the permittee must either provide training or notify the operators of available training opportunities.

Public involvement requirements include the development of a hotline or other telephone number for the public to call regarding stormwater concerns at construction sites.

CHAPTER 5: POST-CONSTRUCTION OR PERMANENT/LONG-TERM STORMWATER CONTROL MEASURES

Introduction

Phase I MS4s are required to address new development and significant redevelopment in their SWMPs through controls to reduce pollutants in stormwater discharges after construction is completed. See 40 CFR 122.26(d)(2)(iv)(A)(2).

Included Concepts

- Post-construction stormwater management program
- Site performance standards
- Site plan review
- Long-term maintenance of post-construction stormwater control measures
- Watershed protection
- Tracking of post-construction stormwater control measures
- Inspections and enforcement
- Retrofit plan

The Phase II regulations require regulated small MS4 operators to develop, implement, and enforce a program to address stormwater discharges from new development and redevelopment sites that disturb greater than or equal to one acre to the MS4 (including projects that disturb less than one acre that are part of a larger common plan of development or sale). The regulations also require that the MS4 ensure that control measures are installed and implemented that prevent or minimize water quality impacts. See 40 CFR 122.34(b)(5)(i)

As part of these Phase II requirements, the MS4 must:

- Develop and implement approaches to addressing post-construction stormwater discharges that include a combination of structural and/or non-structural controls;
- Adopt adequate legal authority to enable the MS4 to address post-construction stormwater discharges from new development and redeveloped sites; and
- Ensure adequate long-term operation and maintenance of applicable post-construction control measures. See 40 CFR 122.34(b)(5)(ii).

As of April 2010, most MS4 permits only require permittees to adopt a post-construction program with enforceable requirements designed to reduce stormwater impacts from new development and redevelopment, without specifying a performance standard. To meet this requirement many MS4s have adopted criteria in ordinances or other legally enforceable mechanisms based on already promulgated flood-control based standards (i.e., focused only on discharge rates). However, performance standards can be a very useful and meaningful mechanism in the post-construction toolbox to ensure that water quality objectives are met.

The example permit provisions that follow present the current thinking on how to strengthen the effectiveness of the permittee's stormwater program by preventing the harmful effects of increased stormwater flows and pollutant loads from new development and redeveloped sites on receiving waterbodies. EPA recognizes that there are a wide variety of approaches that some states have already

taken to control discharges from new development and redeveloped sites, some of which are more stringent than the permit language recommended below. The language below includes components that EPA believes would provide focus and enforceability, and would bring about significant improvements in stormwater controls on site. However, the "maximum extent practicable" may be greater than is reflected in the example permit language below for some MS4s, and EPA encourages states, where possible, to go beyond these example provisions and to achieve even better watershed planning and water quality outcomes. For these reasons, this chapter presents the minimum permit provisions EPA currently recommends to be included in permits in order for permittees to reduce their discharges to the maximum extent practicable as well as the optional, more stringent, requirements.

5.1 Post-Construction Stormwater Management Program

Example Permit Provision

5.1.1 The permittee must continue to implement a program to control stormwater discharges from new development and redeveloped sites that disturb at least one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale) that discharge into an MS4 [*or insert smaller alternative size*]. The program must apply to private and public development sites, including roads.

5.1.2 The program must require that controls are in place that will infiltrate, evapotranspire, or harvest and use stormwater from the site to meet the performance standards in Part 5.2 to protect water quality.

5.1.3 Written procedures for implementing this program, including the components described in Parts 5.2 – 5.8, must be incorporated into the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

The stormwater regulations require that an MS4 develop and implement a program to address post-construction discharges from new development and redeveloped sites, and ensure the long-term operation and maintenance of these controls (see Part 5.4 for the maintenance requirements). (See 40 CFR 122.34(b)(5)). The permit requires the use of specific stormwater controls, i.e., those that infiltrate, evapotranspire, or harvest and use stormwater, with the aim of maintaining or restoring the pre-development stormwater runoff conditions at the site.

Many traditional stormwater management practices, and the permit language that drives them, fail to address the hydrologic modifications that increase the quantity of stormwater discharges, and cause excessive erosion and stream channel degradation. Frequently the volume, duration, and velocity of stormwater discharges cause degradation to aquatic systems. Protecting and restoring the physical, chemical and biological integrity of receiving waters must be a central issue in stormwater permits. The recent report of the National Research Council (*Urban Stormwater Management in the United States*, National Academies Press, 2008, www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf) recommends that the NPDES stormwater

program examine the impacts of stormwater flow, treat flow as a surrogate for other pollutants, and includes the necessary control requirements in stormwater permits. Specifically the report recommends that the volume retention practices of infiltration, evapotranspiration and rainwater harvesting be used as primary stormwater management mechanisms. For this reason, EPA recommends use of a permit condition that is based on maintaining or restoring predevelopment hydrology although other forms of this permit condition maybe appropriate as well.

Additional information on the development of a post-construction program for Phase II permittees can be found in the Center for Watershed Protection's *Managing Stormwater In Your Community: A Guide for Building an Effective Post-Construction Program* (available at www.cwp.org/postconstruction). Also, EPA's green infrastructure website includes information on post-construction controls and programs (see www.epa.gov/greeninfrastructure).

5.2 Site Performance Standards

Example Permit Provision

5.2.1 The permittee must establish, implement and enforce a requirement that owners or operators of new development and redeveloped sites discharging to the MS4, which disturb greater than or equal to one acre (including projects that disturb less than one acre that are part of a larger common plan of development or sale), design, install, implement, and maintain stormwater control measures that infiltrate, evapotranspire, harvest, and use stormwater discharges.

5.2.2 Within [*insert deadline, e.g., 12 months, 24 months, etc.*] the permittee must require that stormwater discharges from such new development and redevelopment sites be managed such that post-development hydrology does not exceed the pre-development hydrology at the site, in accordance with the performance standard set forth in this paragraph. The SWMP must describe the site design strategies, control measures, and other practices deemed necessary by the permittee to maintain or improve pre-development hydrology.[11] [*Insert a new development performance standard, such as one or a combination of the following:*

Basis for Performance Standard	***Description***	***Performance Standard***
Rainfall	*Minimum storm volume to be retained on site.*	*Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from [insert standards, such as "the first one inch of rainfall from a 24-hour storm preceded by 48 hours of no measurable precipitation"]. Discharge volume reduction can be achieved by canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration and/or evapotranspiration and any combination of the aforementioned practices. This first one inch of rainfall*

[11] *Big Darby Creek Watershed CGP, Part III.G.2.d. (web.epa.ohio.gov/dsw/permits/DarbyStormWater_Final_GP_sep06.pdf)*

		must be 100% managed with no discharge to surface waters, except when the permittee chooses to implement the conditions in Part 5.2.5.d below.[12]
Rainfall	*Minimum storm size to be retained on site.*	*Design, construct, and maintain stormwater management practices that manage rainfall on-site, and prevent the off-site discharge of the precipitation from all rainfall events less than or equal to [insert standards, such as "the 95th percentile rainfall event"]. This objective must be accomplished by the use of practices that infiltrate, evapotranspire and/or harvest and reuse rainwater. The 95th percentile rainfall event is the event whose precipitation total is greater than or equal to 95 percent of all storm events over a given period of record.*[13]
Recharge/Runoff	*Hydrologic analysis.*	*Design, construct, and maintain stormwater management practices that preserve the pre-development runoff conditions following construction. The post-construction rate, volume, duration and temperature of discharges must not exceed the pre-development rates and the pre-development hydrograph for 1, 2, 10, 25, 50 and 100 year storms must be replicated through site design and other appropriate practices. These goals must be accomplished through the use of infiltration, evapotranspiration, and/or rainwater harvesting and reuse practices. Defensible and consistent hydrological assessments and modeling methods must be used and documented.* [14]
Recharge	*Groundwater recharge requirement.*	*Any "major development" project, which is one that disturbs [insert standards, such as at least one (1) acre of land or creates at least 0.25 acres of new or additional impervious surface], must comply with one of the following two groundwater recharge requirements:* • *Demonstrate through hydrologic and hydraulic analysis that the site and its stormwater management measures maintain 100 percent of the average annual pre-construction groundwater recharge volume for the site; or* • *Demonstrate through hydrologic and hydraulic analysis that the increase of stormwater discharges volume from pre-construction to post-construction for the two-year storm is infiltrated.*[15]
Impervious Cover	*Limiting total impermeable surface (or effective impermeable surface)*	*Minimize total impervious cover resulting from new development and redevelopment to [insert standards, such as <10% of disturbed land cover and/or limit total amount of effective impervious surface to no more than 5% of the landscape].*

[12] *West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*
[13] *Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)*
[14] *Section 438, Energy Independence & Security Act (EISA) Guidance (www.epa.gov/owow/NPS/lid/section438/pdf/final_sec438_eisa.pdf)*
[15] *New Jersey Stormwater Management Rules, N.J.A.C. 7:8 (www.nj.gov/dep/rules/adoptions/2004_0202_njpdes.pdf)*

5.2.3 Incentives for Redeveloped Sites. When considered at the watershed scale, certain types of developed sites can either reduce existing impervious surfaces, or at least create less 'accessory' impervious surfaces. The Permittee may develop a program to allow adjustments to the performance standard for new development or redevelopment sites that qualify. A reduction of [*insert the amount of stormwater the Permittee can reduce for utilizing redevelopment principles, e.g. 0.2 inches from the one inch runoff reduction standard*] may be applied to any of the following types of development. Reductions are additive up to a maximum reduction of [*insert amount, such as 0.75 inches*] for a project that meets four or more criteria. The permittee may choose to be more restrictive and allow a reduction of less than [*insert amount, such as 0.75 inches*] if they choose. In no case will the reduction be greater than [*insert amount, such as 0.75 inches*].

1. Redeveloped sites
2. Brownfield redeveloped site
3. High density (>7 units per acre)
4. Vertical Density, (Floor to Area Ratio (FAR) of 2 or >18 units per acre)
5. Mixed use and Transit Oriented Development (within ½ mile of transit)[16]

5.2.4 Additional Requirements and Exceptions: The permittee must implement the following additional requirements where applicable:

a. A site that is a potential hot spot with the reasonable potential for contaminating underground sources of drinking water must provide treatment for associated pollutants (e.g., petroleum hydrocarbons at a vehicle fueling facility).

b. A site that discharges or proposes to discharge to any surface water or ground water that is used as a source of drinking water must comply with all applicable requirements relating to source water protection and must not cause an exceedance of drinking water standards.[17]

c. Sites may not infiltrate stormwater in areas of soil contamination.

d. For projects that cannot meet 100% of the performance standard in Part 5.2.2 on site, two alternatives are available: off-site mitigation and payment in lieu. If these alternatives are chosen, then the permittee must develop and fairly apply criteria for determining the circumstances under which these alternatives will be available and establish reasonable schedules for mitigation and require payment in lieu of prior to project inception. A determination that standards cannot be met on site must include multiple criteria that would rule out fully meeting the performance standard in Part 5.2.2, such as: too small a lot outside of the building footprint to create the necessary infiltrative capacity even with amended soils; soil instability as documented by a thorough geotechnical

[16] *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.3) (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*
[17] *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.2) (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*

analysis; a site use that is inconsistent with capture and reuse of stormwater; or too much shade or other physical conditions that preclude adequate use of plants. Sites must still maximize stormwater retention on-site, before applying the remaining stormwater to one of the alternatives. In instances where alternatives are chosen, technical justification as to the infeasibility of on site management is required to be documented.[18]

Example Permit Requirement Rationale for the Fact Sheet

Developed land changes the hydrology of sites, leading to higher stormwater discharge volumes and higher pollutant loads. The purpose of this standard is to maintain or restore stable hydrology in receiving waters thereby protecting water quality by having post-construction hydrology mimic the natural hydrology of the area.

A simpler, but reasonably approximate 'mimicking the natural hydrograph' approach can typically be accomplished by retaining (as opposed to detaining stormwater for later discharge) on a developed site the volume of water that was retained prior to development, through the mechanisms of infiltration, evapotranspiration, and capture and use. By significantly reducing the volume of stormwater discharges, these mechanisms significantly reduce the discharge of pollutants in stormwater, making discharge volumes the ideal all-around focus and metric for stormwater management. These provisions must be clear about the retention requirement, e.g., an underdrained rain garden likely functions more as a detention and filtration system than an infiltration system.

In Part 5.2.3, the five types of development which qualify for incentives are redevelopment, brownfield redevelopment, high density, vertical density, and mixed use with transit oriented development. Redeveloping already degraded sites can reduce regional land consumption and minimize new land disturbance. Minimizing land disturbance and impervious cover is critical to maintaining watershed health. In addition to water quality benefits, cleaning up and reinvesting in brownfield properties increases local tax bases, facilitates job growth, utilizes existing infrastructure, takes development pressures off of undeveloped, open land, and both improves and protects the environment. The effect of low-density urbanization on watersheds and the hydrologic cycle is substantial. High-density development, including vertical density, slows land consumption rates and accommodates more land uses on a smaller footprint. Finally, mixing land uses and promoting transit-oriented development can directly reduce runoff since mixed-use developments have the potential to use surface parking lots and transportation infrastructure more efficiently, requiring less pavement.[19]

In Part 5.2.4.d, the permittee must establish clear and stringent criteria for the conditions under which payment in lieu and off-site mitigation could be used. These criteria must be related to physical constraints such as a combination of soils which limit infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of stormwater. Further, appropriate schedules for

[18] *West Virginia Small MS4 Permit (Section C.b.5.a.ii.A.4) (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*

[19] Adapted from the WV Phase II MS4 Fact Sheet (www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx)

payment and implementation of mitigation measures must be established to ensure stormwater impacts are addressed in a timely manner.

Recommendations for Permit Writer

Many communities have adopted criteria based on already promulgated flood-control based standards (i.e., focused only on discharge rates). This example permit language instead promotes the concept that effective standards should be based on the objective of maintaining or restoring stable hydrology to protect the quality of receiving waters by having post-construction hydrology mimic the natural hydrology of the area. The permit language provides a number of example standards that can be used to achieve this objective.

Performance standards should take into account the wide variability in hydrologic conditions in different areas. Ideally, standards should reflect the local naturally-occurring hydrology with respect to runoff, infiltration, evapotranspiration, and storage – that is, the water balance that would be present in the absence of development. Key parameters, such as rainfall patterns, soil characteristics, and topography, can be used to establish likely 'natural' hydrology. Where maintaining or reestablishing such hydrologic conditions is infeasible, off-site mitigation, payment-in-lieu, or fee programs may be used. Based on current (2010) information, EPA recommends that permits allow for a combination of techniques that utilize infiltration, capture and use, and evapotranspiration as appropriate, rather than relying only on infiltration or some other technique alone to meet performance standards.

The permit writer could include a performance standard that stipulates that predevelopment hydrographs match post-development hydrographs. In order for this type of performance standard to be effective, the permit writer should make sure that the permit clearly spells out all variables of the hydrograph (volume, rate, duration, frequency) to be matched, and not just the discharge rate. Many current pre-post hydrology standards focus only on discharge rate, which is primarily a flood control approach. In addition, a pre-development condition should also be defined, and that condition should be one that is reasonably 'natural', rather than simply the conditions (perhaps already fairly impervious) that existed immediately prior to the current developed site. A calculator tool based on key hydrologic parameters (soil, rainfall, slope, and vegetation) or an on-site rainfall retention standard that is appropriate for that area can help the permittee determine what constitutes pre-development hydrology and the means by which it may be matched.

As contemplated in the example permit provisions, permit writers may want to consider the difference between new development and redevelopment sites, as well as differences among some types of developed sites, in establishing performance standards. From the standpoint of imperviousness at a watershed scale, redeveloped sites are usually more desirable than new development sites, which replace relatively naturally functioning green spaces with impervious surfaces such as roads, and parking lots. Certain types of development generate less impervious surfaces than others. For example, typically, there is little or no increase in net stormwater discharges when redeveloping underused properties such as vacant properties, brownfield sites, or greyfield sites, since new impervious cover replaces existing impervious cover. The net discharge increase from already developed properties would likely be zero since the site was already predominately impervious cover. In many cases, redeveloped sites break up or remove some portion of the impervious cover, converting it to pervious cover and allowing for some stormwater infiltration. Redevelopment sites can produce a net improvement in regional water quality by decreasing total impervious area and its

associated stormwater discharges. Redeveloped sites can also reduce regional land consumption. By building on underused, already degraded land, the pressure to convert previously undeveloped land is reduced. Therefore differential standards for new development and redeveloped sites, as well as for different types of developed sites, may be reasonable. However, they should be crafted to minimize creation of imperviousness at the watershed scale, and still include some reasonable level of stormwater management at the site scale.

Redevelopment is the act of improving by renewing or restoring any developed property that results in the land disturbance of one acre or greater, and that has one of the following characteristics:

- Land that currently has an existing structure, such as buildings or houses, or
- Land that is currently covered with an impervious surface, such as a parking lot or roof, or
- Land that is currently degraded and is covered with sand, gravel, stones, or other non-vegetative covering.

Infiltration may not be appropriate in all cases. For example, a site that is a potential hot spot with the reasonable potential for significant pollutant loading(s) may not be appropriate for stormwater infiltration. Hot spots may include commercial, industrial, institutional, municipal, or transportation related operations that may produce higher levels of stormwater pollutants, and/or present a higher level or risk for spills, leaks, or illicit discharges such as: gas stations, petroleum wholesalers, vehicle maintenance and repair, auto recyclers, recycling centers and scrap yards, landfills, solid waste facilities, wastewater treatment plants, airports, railroad stations and associated maintenance facilities, and highway maintenance facilities.

In addition, the permit writer may want to consider what type of flexibility to afford sites where the owner/operator is not able to meet the performance standard on site. For instance, if a site is constrained by size or previous impervious surfaces, such that the use of control measures that infiltrate stormwater is severely limited, the permit could allow alternatives for meeting the performance standard in other ways such as payment in lieu and off-site mitigation within the same watershed.

Off-site mitigation and payment in lieu programs are options that can be used in these instances. Off-site mitigation generally means that control measures may be implemented at another location, in the same sewershed/watershed as the original project, and as approved by the regulatory agency. Payment in lieu programs generally mean that the developer pays a fee to the permittee which will then be applied to a stormwater control project, in lieu of installing the required control measures.

If the permit writer chooses to include an off-site mitigation or payment in lieu program in the permit, the permit writer could specify that the programs meet several criteria, for example, those described in the 2009 West Virginia Phase II General Permit Fact Sheet (www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx):

1. The permittee must establish clear and stringent criteria for the conditions under which these options are available that must be related to real physical constraints such as a combination of soils limiting infiltration opportunities, space or light limited situations restricting the amount of vegetation that can be used, and a land use that is not conducive to capture and use of

stormwater. While one or two of these characteristics should not be adequate to qualify for the alternative, the combination of multiple constraints could;

2. A minimal requirement for at least [*0.4 inch*] of stormwater managed on-site;

3. A [*1:1.5 ratio*] of the amount of requisite stormwater not managed on site to the amount of stormwater required to be mitigated at another site, or for which in-lieu payments must be made;

4. If demonstrated to the permittee that it is completely infeasible to manage the remainder [*0.4 inches*], then the ratio for this unmanaged portion is [*1:2*].

5. The necessary tracking systems for both types of programs, including the necessary inventory of public and retrofit projects for off-site mitigation; and,

6. The establishment of a credible valuation structure for payment in lieu, i.e., what is the actual cost for the permittee to provide retrofits for the necessary amount of stormwater, not just a token payment. The purpose of these provisions is to disincentivize the use of alternatives unless really needed, but also to provide a financial foundation for implementation of public stormwater management projects, including retrofits where those needs have been identified.

Additional justification for the development types which qualify for these incentives can be seen in the West Virginia Phase II MS4 Permit Fact Sheet (www.dep.wv.gov/WWE/Programs/stormwater/MS4/permits/Pages/default.aspx).

5.3 Site Plan Review

Example Permit Provision

5.3.1 To ensure that all applicable new development and redeveloped sites conform to the performance standards required in Part 5.2, the permittee must continue to implement project review, approval, and enforcement procedures that include:

a. Procedures for the site plan review and approval process(es) that include inter-departmental consultations, as needed, and a required re-approval process when changes to an approved plan are desired; and

b. A requirement for submittal of 'as-built' certifications within 90 days of completion of a project.

5.3.2 The permittee must conduct site plan reviews, using the procedures described in Part 5.3.1, of all new development and redeveloped sites which will disturb greater than or equal to one acre [*or a smaller threshold as set by the permitting authority*] and discharge to the MS4 (including sites that disturb less than one acre that are part of a larger common plan of development or sale). The site plan review must specifically address how the project applicant meets the performance standards in Part 5.2 and how the project will ensure long-term maintenance as required in Part 5.4.

Example Permit Requirement Rationale for the Fact Sheet

Specific standards are a critical component of a stormwater management program. However, even the best requirements need to be supported by a review program to ensure that the standards are met. The example permit provision would require permittees to fully implement a comprehensive site plan review and approval program. To meet this requirement, the permittee must have the authority to withhold approvals when standards are not met.

Recommendations for the Permit Writer

The permit writer may want to consider adding a requirement for a pre-application concept plan meeting to occur (in addition to the requirement for the project applicant to submit a site plan for review). During this meeting the project land owner or developer, the project design engineer, and municipal planning staff could discuss the conceptual designs that would be used to ensure that they meet the performance standards. This meeting would ensure that stormwater and performance standards are addressed early in the development process. However, if this pre-application concept plan meeting is not consistent with local planning procedures, the permit writer could consider omitting this requirement.

5.4 Long-Term Maintenance of Post-Construction Stormwater Control Measures

Example Permit Provision

5.4.1 All structural stormwater control measures installed and implemented to meet the performance standards of Part 5.2 must be maintained in perpetuity. The permittee must ensure the long-term maintenance of structural stormwater control measures installed according to this Part through one, or both, of the following approaches:

a. Maintenance performed by the Permittee. See part 6.4.

b. Maintenance performed by the owner or operator of a new development or redeveloped site under a maintenance agreement. The permittee must require the owner or operator of any new development or redeveloped site subject to the performance standards in Part 5.2 to develop and implement a maintenance agreement addressing maintenance requirements for any structural control measures installed on site to meet the performance standards. The agreement must allow the permittee, or its designee, to conduct inspections of the structural stormwater control measures and also account for transfer of responsibility in leases and/or deeds. The agreement must also allow the permittee, or its designee, to perform necessary maintenance or corrective actions neglected by the property owner/operator, and bill or recoup costs from the property owner/operator when the owner/operator has not performed the necessary maintenance within thirty (30) days of notification by the permittee or its designee.

5.4.2 Verification of maintenance responsibilities. The permittee must require that property owners or operators of any new development or redeveloped site subject to the performance standards in Part 5.2 provide verification of maintenance for the approved structural stormwater control measures used to comply with the performance standards. Verification must include one or more of the following as applicable:

a. The owner/operator's signed statement accepting responsibility for maintenance with a provision for transferring maintenance responsibility if the property is legally transferred to another party; and/or

b. Written conditions in the sales or lease agreement that require the recipient to assume responsibility for maintenance; and/or

c. Written conditions in project conditions, covenants and restrictions for residential properties assigning maintenance responsibilities to a home owner's association, or other appropriate group, for maintenance of structural and treatment control stormwater management practices; and/or

d. Any other legally enforceable agreement that assigns permanent responsibility for maintenance of structural or treatment control stormwater management practices.

Example Permit Requirement Rationale for the Fact Sheet

Appropriate operation and maintenance are critical aspects to the function of any suite of controls. In many cases, controls may be located on private property, and it is necessary to establish some provision to assure responsibility and accountability for the operation and maintenance of these controls.

The permittee must ensure maintenance of all structural stormwater control measures. In this Guide, structural controls also include many green infrastructure practices such as rainwater harvesting, rain gardens, permeable pavement, and vegetated swales.

Recommendations for the Permit Writer

Most non-traditional MS4 permittees will probably not have the legal authority to recoup costs where the owner/operator has not completed necessary maintenance. Permit writers may want to be more specific in this requirement to include other options for non-traditional MS4 permittees.

5.5 Watershed Protection

Example Permit Provision

5.5.1 When the Permittee revises its General Plan (or equivalent) or other relevant plans (e.g. Transportation Master, or Community Plan) they must include effective water

quality and watershed protection elements that require implementation of consistent water quality protection measures for new development and redeveloped sites within [*insert deadline*]. Examples of water quality and watershed protection elements to be considered include the following: [*insert principles and/or policies which are appropriate for the watershed such as,*

- Minimize the amount of impervious surfaces (roads, parking lots, roofs, etc.) within each watershed, by minimizing the creation, extension and widening of parking lots, roads and associated development.
- Preserve, protect, create and restore ecologically sensitive areas that provide water quality benefits and serve critical watershed functions. These areas may include, but are not limited to; riparian corridors, headwaters, floodplains and wetlands.
- Implement management practices that prevent or reduce thermal impacts to streams, including requiring vegetated buffers along waterways, and disconnecting discharges to surface waters from impervious surfaces such as parking lots.
- Prevent disturbances of natural waterbodies and natural drainage systems caused by development, including roads, highways, and bridges.
- Avoid development in areas that are particularly susceptible to erosion and sediment loss.
- Implement standards to protect trees, and other vegetation with important evapotranspirative qualities.
- Implement policies to protect native soils, prevent topsoil stripping, and prevent compaction of soils.
- Implement water conservation policies that will reduce both stormwater and non- stormwater discharges via storm sewer systems.[20]
- Implement policies that encourage stormwater practices close to the source of the runoff rather than downstream and lower in the watershed.]

Example Permit Requirement Rationale for the Fact Sheet

Imperviousness has been shown to correlate with water quality impacts. In order to minimize water quality impacts, the permittee must examine their planning principles to manage the creation of impervious surfaces at the watershed level, such as reducing the footprint of streets and parking lots. Also, ecologically sensitive areas can protect water quality by acting both as filters that reduce pollutants in stormwater discharges and as sponges to reduce the impact on the ecosystem's hydrology. Thermal pollution is also a concern that can impact biota in waterways. Stormwater discharges from impervious surfaces are often characterized by higher temperatures than natural, pervious surfaces. Reducing the chances of further increasing this temperature by preserving, protecting, and restoring natural features that provide shading for the waterway can further help reduce thermal pollution. Whenever possible natural waterways

[20] *West Virginia Small MS4 Permit (www.wvdep.org/Docs/17444_SW_WV%20MS4%20permit%202009.pdf)*

must be protected and not disturbed by stormwater from developed sites. For example, areas that have a high potential for erosion must be avoided for development when possible. Protecting vegetation, native soils, and conserving water can also help ensure the hydrologic qualities of the site remain intact.

Consideration of stormwater impacts from development is critical during the planning phases of development. This not only includes planning on the site-level, but also with respect to discharges from the MS4 on the watershed level. To the extent possible, stormwater management must be an integral part of higher level planning documents that determine where and how development that will result in stormwater discharges to the MS4 should occur since these decisions affect water quality. Using land efficiently can result in better stormwater management by putting development where it is most appropriate. For example, by directing and concentrating new development in areas targeted for growth, communities can reduce or remove development pressure on undeveloped parcels and protect sensitive natural lands and recharge areas. Another strategy is redeveloping already degraded sites such as abandoned shopping centers or underutilized parking lots. In this case, the net increase in discharges from developed sites would likely be zero, and it would likely decrease, depending on the on-site infiltration practices used. Also, by allowing or encouraging denser development, less land is converted overall, and less total impervious area created.

Recommendations for the Permit Writer

Examining stormwater on a watershed basis and including watershed principles is an important part of protecting waterways in a holistic manner. Climate change may increase the size and frequency of storms in some area of the nation. Including watershed-type assessments and considerations as Permit Requirements will help the permittee better focus their efforts to ensure the best water protection outcomes for existing conditions and those anticipated future conditions. Therefore, permit writers should consider including watershed protection principles. Newer programs may not be ready for permit writers to include the exact example permit provision provided. If possible, permit writers should be as specific as possible for the needs of the watershed where the MS4 permittee is located. Permittees should be careful when installing new stormwater BMPs to ensure that there are not any negative, unintended consequences.

5.6 Tracking of Post-Construction Stormwater Control Measures

Example Permit Provision

5.6.1 Inventory of Post-Construction Stormwater Control Measures. The permittee must continue to maintain an inventory of all post-construction structural stormwater control measures installed and implemented at new development and redeveloped sites, including both public and private sector sites located within the permit area. The inventory must be searchable by property location (either on paper or electronic). New entries to the inventory must be made during the site plan review and approval process in Part 5.3.1.

5.6.2 Tracking Information. Each entry to the inventory must include basic information on each project, such as project name, owner's name and contact information, location, start/end date, etc. In addition, inventory entries must include the following for each project:

a. Short description of each stormwater control measure (type, number, design or performance specifications);

b. Latitude and longitude coordinates of each stormwater control measure;

c. Short description of maintenance requirements (frequency of required maintenance and inspections); and

d. Inspection information (date, findings, follow up activities, prioritization of follow-up activities, compliance status).

Based on inspections conducted under Part 5.7, the permittee must update the inventory as appropriate where changes occur in property ownership or the specific control measures implemented at the site. This inventory must be maintained and available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Creating an inventory of post-construction structural stormwater control measures, including tracking of specific information, will first enable permittees to know what control measures they are responsible for. Without this information the permittee will not be protecting water quality to their full potential since inspections, maintenance, and follow-up changes cannot be performed. Tracking information such as the latitude/longitude, maintenance and inspection requirements and follow-up will allow the permittee to be able to better allocate their resources for those activities that are immediately necessary. Although not required, including photographs will help the permittee assess how the control measure has changed since it was first created and will likely aid in determining proper maintenance and/or retrofitting opportunities if the measure is no longer providing the water quality benefits it was originally designed.

Recommendations for the Permit Writer

Permit writers may wish to specifically define the types of structural controls that must be included in the inventory. For example, rain barrels may be considered a structural control, but the MS4 likely does not need latitude and longitude coordinates of the rain barrels.

5.7 Inspections and Enforcement

Example Permit Provision

5.7.1 Inspection Frequency. To ensure that all stormwater control measures are operating correctly and are being maintained as required consistent with its applicable maintenance agreement, the permittee must conduct inspections of each project site covered under Part 5.2 performance standards, [*insert inspection frequency, e.g., at least one time during the permit term, 20% of sites per year, etc.*]. The inspections must be in accordance with those specified in the [*insert State manual that describes the maintenance of control measures*]. A description of inspection procedures must be included in the SWMP document.

5.7.2 Post-Construction Inspection. Within [*insert deadline, e.g., 1 week, 2 weeks, etc.*] of completion of construction of any project required to meet the Section 5.2 performance standards, the permittee must conduct a post-construction inspection to verify that the permittee's performance standards have been met. The permittee must include in its SWMP a procedure for being notified by construction operators/owners of their completion of active construction so that the post-construction inspection may be conducted.

5.7.3 Inspection Reports. The permittee must document its inspection findings in an inspection report. Each inspection report must include:

a. Inspection date;

b. Name and signature of inspector;

c. Project location (street address, latitude/longitude, etc.) and inventory reference number (from inventory established in Section 5.6.1)

d. Current ownership information (for example, name, address, phone number, fax, and email)

e. A description of the condition of the structural stormwater control measure including the quality of: vegetation and soils; inlet and outlet channels and structures; embankments, slopes, and safety benches; catch basins; spillways, weirs, and other control structures; and sediment and debris accumulation in storage and forebay areas as well as in and around inlet and outlet structures;

f. Photographic documentation of all critical structural stormwater control measure components; and

g. Specific maintenance issues or violations found that need to be corrected by the property owner or operator along with deadlines and reinspection dates.

The permittee must document and maintain records of inspection findings and enforcement actions and make them available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Inspection of post-construction control measures is key to ensuring the protection of water quality. If control measures are not inspected and maintained they could become sources of pollution rather than reducing pollution. By including detailed information in the inspection report, the permittee can better determine if maintenance is required and the permittee can have a snapshot of sorts to know the status of their control measures to prioritize funding.

Recommendations for the Permit Writer

Permit writers should clearly specify the requirements for inspections. Inspecting and properly maintaining structural stormwater controls to ensure they are working as designed is just as important as installing them in the first place. By having specific requirements, permittees will be reminded that they must allocate resources to ensure control measures are properly maintained and functioning. The permit writer may also want to add a prioritization scheme to the requirement to help the permittee determine what maintenance activities are priorities for protecting water quality and which ones are minor changes.

5.8 Retrofit Plan

Example Permit Provision

5.8.1 The permittee must develop a plan to retrofit existing developed sites that are impacting water quality. The retrofit plan must be developed within [*insert deadline, such as within two years of permit issuance*] and must emphasize controls that infiltrate, evapotranspire, or harvest and use stormwater discharges. The plan must include[21]:

a. An inventory of potential retrofit locations, which considers, at a minimum:

- Locations that contribute pollutants of concern to an impaired waterbody
- Locations that contribute to receiving waters that are significantly eroded
- Locations that are tributary to a sensitive ecosystem or protected area
- Locations that are tributary to areas prone to flooding

[21] Orange County Municipal Stormwater Permit (Section F.3.d) (www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/oc_stormwater.shtml)

b. An evaluation and ranking of the inventoried locations to prioritize retrofitting which includes, at a minimum:
   - Feasibility
   - Cost effectiveness
   - Pollutant removal effectiveness
   - Impervious area potentially treated
   - Maintenance requirements
   - Landowner cooperation
   - Neighborhood acceptance
   - Aesthetic qualities, and
   - Efficacy at addressing concern.

Example Permit Requirement Rationale for the Fact Sheet

It is clear that we cannot protect the nation's waters without also addressing degradation caused by stormwater discharges from existing developed sites. For that reason stormwater programs must include substantive retrofit provisions.

It is possible and reasonable to significantly improve water quality in many urban receiving waters. This requires more than just a new development and redeveloped sites program, however, which at best can only hold the line. To actually improve the quality of receiving waters it is necessary to mitigate discharges from existing developed sites, which generally means implementation of measures to bring about the retrofit the stormwater control measures at existing sites to retain most stormwater on site.

In addition, research indicates that most streambank restoration projects that actively stabilize eroding channels should not be implemented until after hydrologic retrofits have been completed that restore the hydrologic regime not concurrently with the implementation of the retrofits.

Municipal projects, such as traffic calming sites could also include stormwater retrofit components, such as curb bump outs that include bioretention features, rain gardens, and curb cuts.

Information on retrofit options and the development of a retrofit plan can be found in the Center for Watershed Protection's guidance on Urban Stormwater Retrofit Practices (available at www.cwp.org as Manual No. 3 under the Urban Subwatershed Restoration Manual Series).

Recommendations for the Permit Writer

Permittees may need a permit term or two to adequately develop and implement a retrofit plan. Some permittees may not be ready to have retrofit plans as part of their requirements. It is up to the permit writer to make this determination based on the specific information they have available on current programs. A retrofit plan should assess the areas where retrofitting is appropriate and will result in increased water quality protection and restoration. The permit writer should determine

the appropriate timeframe and language for a retrofit plan. For example, if the permittee was already required to develop a retrofit plan in a previous permit term the permit may specify a schedule for implementation rather than development.

CHAPTER 6: POLLUTION PREVENTION/GOOD HOUSEKEEPING

Introduction

Federal stormwater regulations (see 40 CFR 122.34(b)(6) and 40 CFR 122.26(d)(2)(iv)(A)) require the operator of a regulated MS4 community to develop a program to:

- Prevent or reduce the amount of stormwater pollution generated by municipal operations and conveyed into receiving waters.
- Train employees on how to incorporate pollution prevention/good housekeeping techniques into municipal operations.
- Identify appropriate control measures and measurable goals for preventing or reducing the amount of stormwater pollution generated by municipal operations.

Included Concepts

- ► Municipal facility and control inventory
- ► Facility assessment
- ► Development of facility-specific stormwater management SOPs and Implementation of facility stormwater controls
- ► Storm sewer system maintenance activities
- ► Flood management
- ► Pesticide, herbicide, and fertilizer application and management
- ► Training and education
- ► Contractor requirements and oversight

The first step for the permittee is to evaluate and assess the areas and municipal facilities that it controls in order to determine which activities may currently have a negative impact on water quality and to find solutions for these activities. The simplest solution is to limit the number of activities that are conducted outside and exposed to stormwater.

Storm sewer systems need maintenance to ensure that structures within the storm sewer that are meant to reduce pollutants do not become sources of pollution. Regularly maintaining catch basins and cleaning storm sewer pipes prevent the accumulation of pollutants that are later released during rain events as well as blockages, backups, and flooding. Most permittees have an existing program to maintain the storm sewer infrastructure. EPA notes, however, that some of these programs have tended to focus on flood avoidance and complaint response rather than reducing water quality impacts from stormwater discharges.

The MS4 permit must require that the system be maintained to prevent the discharge of pollutants into receiving waters. System mapping and a schedule of regular maintenance are key to a successful pollution prevention program. EPA recommends establishing a tiered maintenance schedule for the entire storm sewer system area, with the highest priority areas being maintained at the greatest frequency. Priorities should be driven by water quality concerns and can be based on the land use within the MS4 area, the condition of the receiving water, the amount and type of material that typically accumulates in an area, or other location-specific factors. It is also advisable to use spill and illicit discharge data to track areas that may require immediate sewer infrastructure maintenance. It is also important for material that is collected to be disposed of in a responsible manner.

The procedures for storm sewer system operation and maintenance must be documented in the permittee's SOPs or similar type of documents, which are part of the permittee's SWMP. Employee training to carry out these pollution prevention measures is a required component of the program. The pollution prevention/good housekeeping/maintenance activities should be documented and, where possible, quantified (e.g., number and location of inspections and clean-outs, type and quantity of materials removed). Having permittees characterize the quantity, location, and composition of pollutants removed from catch basins can provide useful data that can later be used to assess the program's overall effectiveness, identify illicit discharges, and help the permittee better prioritize implementation activities in the future.

Specific pollution prevention requirements related to pollutant-generating activities such as landscaping techniques (including the application of pesticides, herbicides, and fertilizer) and operating and maintaining public streets, should also be included in the permit where applicable. For example, typical pollutants associated with street repair and maintenance include heavy metals, chlorides, hydrocarbons (e.g., benzene, toluene, ethylbenzene, xylene), concrete dust, sand, deicers, sediment, and trash. The permitting authority should consider requiring alternative landscaping practices such as integrated pest management (IPM), xeriscaping, or mechanical (non-chemical) removal of unwanted plants. Other landscaping controls, such as mulch management, chemical storage, reduction of soil compaction, and erosion control, should also be considered. Training and educating municipal and contracted staff is also important to ensure that everyone is knowledgeable and proficient in the newest and most effective approaches to minimizing pollutant discharges from municipal facilities and activities.

Additionally, permits should require that water quality be considered when designing flood management projects, and that existing structural flood control devices are evaluated to determine if retrofitting the device to remove/reduce pollutants from stormwater is necessary and practicable.

6.1 Municipal Facility and Control Inventory

Example Permit Provision

6.1.1 Development of a Municipal Facility and Stormwater Control Inventory – The permittee must continue to update and maintain an inventory of municipally-owned or operated facilities and stormwater controls, including but not limited to the following:

- Composting facilities
- Equipment storage and maintenance facilities
- Fuel farms
- Hazardous waste disposal facilities
- Hazardous waste handling and transfer facilities
- Incinerators
- Landfills
- Landscape maintenance on municipal property
- Materials storage yards

- Pesticide storage facilities
- Public buildings, including schools, libraries, police stations, fire stations, municipal buildings, and similar buildings
- Public parking lots
- Public golf courses
- Public swimming pools
- Public works yards
- Recycling facilities
- Salt storage facilities
- Solid waste handling and transfer facilities
- Street repair and maintenance sites
- Vehicle storage and maintenance yards
- Municipally-owned and/or maintained structural stormwater controls

6.1.2 Documentation– The list of municipally-owned or operated facilities and stormwater controls must be maintained and available for review by the permitting authority.

6.1.3 Mapping – On a map of the area covered by the MS4 permit, the permittee must identify where the municipally-owned or operated facilities and stormwater controls are located. The map must identify the stormwater outfalls corresponding to each of the facilities as well as the receiving waters to which these facilities discharge. The permittee must also identify the manager of each facility and their contact information. The map must be maintained and updated regularly and be available for review by the permitting authority.

Example Permit Requirement Rationale for the Fact Sheet

Municipally-owned or operated facilities serve as hubs of activity for a variety of municipal staff from many different departments. Some municipalities will have one property at which all activities take place (e.g., the municipal maintenance yard), whereas others will have several specialized facilities such as those listed above. A comprehensive list and map of such facilities will help staff responsible for stormwater compliance build a better awareness of their locations within the MS4 service area and their potential to contribute stormwater pollutants. The facility inventory will also serve as a basis for setting up periodic facility assessments (see Part 6.2) and developing, where necessary, facility stormwater pollution prevention plans (see Part 6.3).

Recommendations for the Permit Writer

Permit writers should tailor the facilities listed in the assessment as best they can to include the facilities most likely to be owned or operated by the permittee. It is highly likely that some of the facilities listed in the Permit Requirement would not apply to most non-traditional and/or non-municipal MS4s.

6.2 Facility Assessment

Permit Requirement

6.2.1 Municipally-owned or operated facility assessment:

a. Comprehensive Assessment of Pollutant Discharge Potential –The permittee must review, reassess, and update the comprehensive assessment of all municipally-owned or operated facilities identified in Part 6.1 [*insert frequency, e.g., annually*] for their potential to discharge in stormwater the following typical urban pollutants: sediment, nutrients, metals, hydrocarbons (e.g., benzene, toluene, ethylbenzene and xylene), pesticides, chlorides, and trash. Other pollutants may be associated with, but not generated directly from, the municipally-owned or operated facilities, such as bacteria, chlorine, organic matter, etc. Therefore, the permittee must determine additional pollutants associated with its facilities that could be found in stormwater discharges. A description of the assessment process must be included in the SWMP document.

b. Identification of "High Priority" Facilities – Based on the Part 6.2.1.a comprehensive assessment, the permittee must identify as "high-priority" those facilities that have a high potential to generate stormwater pollutants. Among the factors that must be considered in giving a facility a high priority ranking is the amount of urban pollutants stored at the site, the identification of improperly stored materials, activities that must not be performed outside (e.g., changing automotive fluids, vehicle washing), proximity to waterbodies, poor housekeeping practices, and discharge of pollutant(s) of concern to impaired water(s). High priority facilities must include the permittee's maintenance yards, hazardous waste facilities, fuel storage locations, and any other facilities at which chemicals or other materials have a high potential to be discharged in stormwater.

c. Documentation of Comprehensive Assessment Results – The permittee must document the results of the assessments and maintain copies of all site evaluation checklists used to conduct the comprehensive assessment. The documentation must include the results of the permittee's initial assessment, any identified deficiencies and corrective actions taken, and a list of the "high priority" facilities identified per Part 6.2.1.b.

Example Permit Requirement Rationale for the Fact Sheet

The initial ("first time") comprehensive assessment is necessary to identify which of the municipality's facilities are most likely to contribute stormwater pollutants and which are in need of stormwater controls. The assessments will involve a detailed site inspection that can identify improperly stored materials, activities that should not be performed outside (e.g., changing automotive fluids, vehicle washing), and poor housekeeping practices.

Recommendations for the Permit Writer

If the permitting authority has an established site inspection protocol to be used in the comprehensive assessment, it should be included and referenced here. The list of pollutants in this section should be modified or expanded based on pollutants of concern in the permitting authority's jurisdiction.

6.3 Development of Facility-Specific Stormwater Management SOPs and Implementation of Facility Stormwater Controls

Example Permit Provision

6.3.1 Facility-specific Stormwater Management SOPs for "High Priority" Facilities:

a. For each "high priority" facility or operation identified in Part 6.2, the permittee must develop a site-specific SOP that identifies stormwater controls (i.e., structural and non-structural controls, and operational improvements) to be installed, implemented, and maintained to minimize the discharge of pollutants in stormwater. At a minimum, the facility-specific SOP must include the stormwater control measures described below in Part 6.3.2, as well as inspection and visual monitoring procedures and schedules described in Part 6.3.3.

b. A copy of the facility-specific stormwater management SOP must be maintained and be available for review by the permitting authority. The SOP must be kept on-site at each of the municipally-owned or operated facilities' offices for which it was completed. The SOP must be updated as necessary.

c. The permittee must install, implement, and maintain all stormwater controls required per Part 6.3.2 of this permit and included in the facility's site-specific SOP.

6.3.2 Stormwater Controls for "High Priority" Facilities – The following stormwater controls must be implemented at all "high priority" municipally-owned or operated facilities identified in Part 6.2. A description of any controls included in this part and any standard operating procedures developed to comply with this part must be included as part of the of each facility's SOP:

a. General good housekeeping – The following good housekeeping practices must be implemented for all facilities identified as "high priority":

1. The permittee must keep all municipally-owned or operated facilities neat and orderly, minimizing pollutant sources through good housekeeping procedures and proper storage of materials.

2. Materials exposed to stormwater must be covered where feasible (without creating additional impervious surfaces, if possible).

b. De-icing material storage – The permittee must store salt and other de-icing materials in a permanent storage structure, unless stormwater runoff from the storage piles is not discharged, or if discharges from the piles are authorized under another stormwater permit. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal

tarping must be used as an interim control measure until the permanent structure is completed. If a permanent storage facility is not feasible, the permittee must provide a rationale to the permitting authority as to why and what alternate BMPs will be utilized instead.

Where a permanent storage structure is present, the permittee must perform regular maintenance and inspections of the permanent storage structure.

c. Fueling operations – The permittee must continue to implement standard operating procedures for vehicle fueling and receiving of bulk fuel deliveries at municipally-owned or operated facilities with the goal of reducing the likelihood of spills, and providing spill controls in the event that accidental spills do occur.

d. Vehicle maintenance – The permittee must continue to implement a standard operating procedure for vehicle maintenance and repair activities that occur at municipally-owned or operated facilities with the goal of reducing the likelihood of spills or releases and providing controls in the event that accidental spills do occur. The standard operating procedures must include regular inspections of all maintenance areas and activities.

e. Equipment and vehicle washing – The discharge of equipment and vehicle wash wastewater to the MS4 or directly to receiving waters from municipal facilities is prohibited. The permittee may meet this requirement by either installing a vehicle wash reclaim system, capturing and hauling the wastewater for proper disposal, connecting to sanitary sewer (where applicable and approved by local authorities), ceasing the activity, and/or applying for and obtaining a separate stormwater permit.[22]

6.3.3 Inspections and Visual Monitoring:

a. Weekly visual inspections – The permittee must perform weekly visual inspections to ensure materials and equipment are clean and orderly, and to minimize the potential for pollutant discharge. The permittee must look for evidence of spills and immediately clean them up to prevent contact with precipitation or runoff. The weekly inspections must be tracked in a log for every facility, and records kept with the SWMP document. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

b. Quarterly comprehensive inspections – At least once per quarter, a comprehensive inspection of "high priority" facilities, including all stormwater controls, must be performed, with specific attention paid to waste storage areas, dumpsters, vehicle and equipment maintenance/fueling areas, material handling areas, and similar potential pollutant-generating areas. The quarterly inspection results must be documented and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

[22] New Jersey Tier A Phase II MS4 Permit (NJ0141852) (www.state.nj.us/dep/dwq/pdf/Tier_A_final.pdf)

c. Quarterly visual observation of stormwater discharges – At least once per quarter, the permittee must visually observe the quality of the stormwater discharges from the "high priority" facilities (unless climate conditions preclude doing so, in which case the permittee must attempt to evaluate the discharges four times during the wet season). Any observed problems (e.g., color, foam, sheen, turbidity) that can be associated with pollutant sources or controls must be remedied within three days or before the next storm event, whichever is sooner. Visual observations must be documented, and records kept with the SOP document. This inspection must be done in accordance with the developed SOPs. The inspection report must also include any identified deficiencies and the corrective actions taken to fix the deficiencies.

Example Permit Requirement Rationale for the Fact Sheet

Each municipal facility will require a different set of control measures depending on the nature of activities that occur there and the types of materials that are stored and used. Developing and maintaining a site-specific SOP for each facility will help to ensure that employees responsible for facility operation are aware of the stormwater controls required for the site.

There are a number of storage areas and activities that are common at municipal facilities that have a high potential for polluting stormwater:

- Deicing materials, particularly road salt, are easily liberated and transported by rainfall, and constituents such as chloride are not removed by most stormwater controls.
- Fueling and vehicle maintenance and storage areas are prone to spills and drips of various automotive fluids.
- Equipment and vehicle washing areas are designed to mix water with dirt and hydrocarbons, requiring special treatment of the wastewater (including pretreatment and diversion to the sanitary sewer, if allowed) and protection of wash areas from rainfall and runoff.

The best way to avoid pollutant discharges from these sources is to keep precipitation and runoff from coming into contact with stored chemicals and activity areas that use chemicals and materials, which can become sources of stormwater pollutants. For example, the permittee must cover stockpiles, create dedicated structures for stored materials, build berms around areas of pavement to prevent clean runoff from contacting contaminated areas, and maintain a minimum distance between stockpiles and stormwater infrastructure and receiving waters. These are just a few of the ways in which these potential pollutant sources can be protected from precipitation and runoff.

The permit requires that comprehensive site inspections be conducted quarterly, which is an appropriate frequency to ensure that material stockpiles that might be moved or utilized on a seasonal basis are protected from precipitation and runoff. Also, quarterly inspections will allow inspectors to observe different types of operations that occur at different times of the year (e.g., landscape maintenance crews are less active in the winter). Quarterly visual observations are required so that inspectors can see in real time the qualitative nature of the

stormwater discharge and so that corrective action can be taken where necessary to improve on-site stormwater controls.

The permit also specifies that inspection procedures, results, and controls for each facility be documented to ensure that the site inspections are consistent and that maintenance of stormwater controls remains part of the municipality's standard operating procedures. The requirement for an inspection log will allow the permitting authority to verify that periodic site inspections have been performed.

Recommendations for the Permit Writer

Neither Phase I nor Phase II regulations specifically require that MS4 permittees develop facility-specific stormwater management SOPs. However, both Phase I and Phase II require that permittees prevent or reduce pollutant discharge in stormwater from municipal facilities and activities. Requiring permittees to assess high priority facilities and develop appropriate controls for each is an effective way of requiring permittees to address potential sources of pollutants at facilities.

When setting frequency for facility inspections (see Part 6.3.3), the permit writer should consider the number of facilities and the size/complexity of the sites to ensure that enough time is available to complete the assessments.

The list of specific stormwater controls for municipal facilities will vary from place to place based on local and watershed priorities and climate considerations. The permit writer should specify stormwater controls that are appropriate for the local conditions. For example, if a permittee uses satellite locations for temporary storage of deicing materials during snow events, the permit writer may want to consider options other than the permanent storage requirement if the permittee uses the piles within a certain time frame and the piles are covered by temporary tarping or a similar control.

6.4 Storm Sewer System Maintenance Activities

Example Permit Provision

6.4.1 MS4 catch basin maintenance

a. Assessment/prioritization of catch basins – The permittee must assign a priority to each of its catch basin inlets within its jurisdiction as one of the following:

- Priority A – Catch basins that are designated as consistently generating the highest volumes of trash and/or debris
- Priority B – Catch basins that are designated as consistently generating moderate volumes of trash and/or debris
- Priority C – Catch basins that are designated as generating low volumes of trash and/or debris

The permittee must use information compiled from citizen complaints/reports to help in the determination of the appropriate priority level. A description of

the prioritization scheme must be included in the SWMP.

b. Catch basin inspection and cleaning

1. Based on the priorities assigned in Part 6.4.1.a., the permittee must inspect and clean catch basins in accordance with the following schedule:

- Priority A – [*Insert cleanout frequency, e.g., 3 times per year*]
- Priority B – [*Insert cleanout frequency, e.g., 2 times per year*]
- Priority C – [*Insert cleanout frequency, e.g., 1 time per year*]

The permittee must develop a catch basin cleaning schedule based on the frequency specified in this permit, along with a list of each of its catch basins and the priority assigned to them per Part 6.4.1.a.

2. In addition to catch basin cleanings performed above, the permittee must ensure that any catch basin that is inspected and found to be between one third and one half full of trash and/or debris must be cleaned within [*Insert cleanout frequency e.g., 1 week of discovery*].[23] The permittee must maintain a log of all maintenance performed.

3. The permittee must document that it has performed all required catch basin cleanings in a log that is to be made available for review by the permitting authority upon request.

c. Catch basin labeling – The permittee must ensure that each catch basin includes a legible stormwater awareness message (e.g., a label, stencil, marker, or pre-cast message such as "drains to the creek" or "only rain in the drain"). Catch basins with illegible or missing labels must be recorded and re-labeled within [*insert number of days*] of inspection.

d. Maintenance of surface drainage structures – The permittee must visually monitor permittee-owned open channels and other drainage structures for debris at least [*specify frequency, e.g., once per year*] and identify and prioritize problem areas, such as those with recurrent illegal dumping, for inspection at least [*specify frequency, e.g., three times per year*]. Removal of trash and debris from open channels and other drainage structures must occur [*insert frequency of open channel/drainage structure cleaning, e.g., annually*]. The permittee must document its drainage structure maintenance in a log that is to be made available for review by the permitting authority upon request.

e. Disposal of waste materials – The permittee must develop a procedure to dewater and dispose of materials extracted from catch basins. This procedure must ensure that water removed during the catch basin cleaning process and waste material will not reenter the MS4.

6.4.2 Municipal activities and operations

a. Assessment of municipal activities and operations

[23] EPA's Office of Research and Development documented a threshold sump level of ½ as a break point where solids retainage was either erratic or negative (Catchbasin Technology Overview and Assessment #EPA-600/2-77-051 1977).

1. The permittee must maintain and revise as necessary the operation and maintenance (O&M) activity assessment. The following municipal O&M activities must be included in the assessment for their potential to discharge pollutants in stormwater:
    - Road and parking lot maintenance, including pothole repair, pavement marking, sealing, and re-paving
    - Bridge maintenance, including re-chipping, grinding, and saw cutting
    - Cold weather operations, including plowing, sanding, and application of deicing compounds and maintenance of snow disposal areas
    - Right-of-way maintenance, including mowing, herbicide and pesticide application, and planting vegetation
    - Municipally-sponsored events such as large outdoor festivals, parades, or street fairs
2. The permittee must identify all materials that could be discharged from each of these O&M activities. Typical pollutants associated with these activities include metals, chlorides, hydrocarbons (e.g. benzene, toluene, ethylbenzene, xylene), sediment, and trash.
3. The permittee must develop a set of pollution prevention measures that, when applied during municipal O&M activities, will reduce the discharge of pollutants in stormwater. These pollution prevention measures must include, at a minimum:
    - Replacing materials/chemicals with more environmentally benign materials or methods (e.g., use mechanical methods vs. herbicides, or use water-based paints or thermoplastics rather than solvent-based paints for stripping)
    - Changing operations to minimize the exposure or mobilization of pollutants (e.g., mulch, compost or landfill grass clippings) to prevent them from entering surface waters
    - Placing barriers around or conducting runoff away from deicing chemical storage areas to prevent discharge into surface waters), consistent with Part 6.3.2.b

    [*If available in your particular State or the municipality, insert relevant section of SWMP, or other relevant document, that includes specific stormwater controls that must be used*.]
4. The permittee must develop and implement a schedule for instituting the pollution prevention measures. At a minimum, with respect to all roads, highways, and parking lots with more than 5,000 square feet of pollutant-generating impervious surface area that are owned, operated, or maintained, the permittee must implement all pollution prevention measures by [*insert deadline*].
5. The results of the assessments and pollution prevention measures, including schedules for implementation, must be documented and made available for review by the permitting authority upon request.

b. Inspection of pollution prevention measures – All pollution prevention measures implemented at municipal facilities must be visually inspected [*insert frequency, e.g., monthly or quarterly*] to ensure they are working properly; a log of inspections must be maintained and made available for review by the permitting authority upon request.

6.4.3 Street Sweeping and Cleaning

a. The permittee must continue to evaluate and rate all municipally-owned streets, roads, and public parking lots within their jurisdiction. The permittee must include in the evaluation the sweeping frequency, timing, and efficiency of existing street sweeping programs. The street sweeping frequency must be based on land use, trash and stormwater pollutant levels generated. At a minimum, the following areas must be regarded as "high priority," for sweeping activities while the "medium priority" and "low priority" areas are recommended:

- High priority – Streets, road segments, and public parking lots designated as high priority include, but are not limited to, high traffic zones, commercial and industrial districts, shopping malls, large schools, high-density residential dwellings, sport and event venues, and plazas. This designation must include areas that consistently accumulate high volumes of trash, debris, and other stormwater pollutants.
- Medium priority – Streets, road segments and public parking lots designated as medium priority include, but are not limited to, medium traffic zones; warehouse districts; and light, small-scale commercial and industrial areas.
- Low priority – Streets and road segments designated as low priority include, but are not limited to, light traffic zones and residential zones.

b. The permittee must show on a map of its service area how the streets, roads, and public parking lots have been rated in accordance with Part 6.4.3.a.

c. Implementing sweeping schedules – The permittee must sweep streets/roads/public parking lots in accordance with the following frequency:

- High priority – average of at least [*insert frequency, e.g., twice per month*]
- Medium priority – average of at least [*insert frequency, e.g., once per month*]
- Low priority – [*insert frequency, e.g., twice per year*]

If a permittee's existing overall street sweeping effort provides equivalent or greater street sweeping frequency relative to the requirements above, the permittee may continue to implement its existing street sweeping program.

d. For areas where street sweeping is technically infeasible (e.g., streets without curbs), the permittee must increase implementation of other trash/litter control procedures to minimize pollutant discharges to storm drains and creeks. The permittee must show on its Part 6.4.3.b map the location of these areas.

e. Sweeping equipment selection and operation

1. When replacing existing sweeping equipment, the permittee must select and operate high-performing sweepers that are efficient in removing pollutants,

including fine particulates, from impervious surfaces.

2. The permittee must follow equipment design performance specifications to ensure that street sweeping equipment is operated at the proper equipment design speed with appropriate verification, and that it is properly maintained.
3. The permittee must operate sweepers to optimize pollutant removal by permitting sweepers access to the curb through the use of parking restrictions that clear the curb or through effective public outreach to inform citizens of sweeping days and times so that voluntary curb clearing can occur.

f. Sweeper Waste Material Disposal – The permittee must develop a procedure to dewater and dispose of street sweeper waste material. This procedure must ensure that water and material will not reenter the MS4.

g. Operator training – Street sweeper operators must be trained to enhance operations for water quality benefit.

h. The permittee must include the following in the SWMP and update as changes are made:

1. A description of the street sweeping frequency and any significant changes in the sweeping frequency map, along with the basis for those changes
2. The types of sweepers used
3. A summary of the proper sweeping operation verification results and street sweeping methods, including the way in which the permittee specifies and confirms the rate or speed at which street miles are covered by sweeper operators
4. The use of additional resources in sweeping seasonal leaves or pick-up of other material
5. A description of the methods for addressing areas identified in Part 6.4.3, considered infeasible for street sweeping

6.4.4 Maintenance of municipally-owned and/or maintained structural stormwater controls

a. The permittee must inspect at least [*insert frequency, e.g., yearly*], and maintain if necessary, all municipally-owned or maintained structural stormwater controls. The permittee must also maintain all green infrastructure practices through regularly scheduled maintenance activities.

Example Permit Requirement Rationale for the Fact Sheet

MS4 Maintenance

Traditional municipal storm drain systems were designed to quickly collect and convey runoff to receiving waters. The purpose of catch basin, inlet, and storm drain cleanouts is to prevent blockages, flooding, and reduce pollution.

Fine particles and pollutants from run-on, atmospheric deposition, vehicle emissions, breakup of street surface materials, littering, and sanding can accumulate along the curbs of roads in between rainfall events. This results in the accumulation of pollutants such as sediment, nutrients, metals, hydrocarbons, bacteria, pesticides, trash and other toxic chemicals. Storm drain maintenance is often the last opportunity to remove pollutants before they enter the storm drain system. Because they effectively trap solids, they need to be cleaned out periodically to prevent those materials from being transported by high stormwater flows. By doing so the MS4 will prevent trash and litter from ultimately becoming sources of marine debris, which is any man-made, solid material that enters waterways either directly or indirectly.

The permit includes a priority ranking approach for catch basins so that municipal resources are directed to the areas and structures that generate the most pollutants. A priority ranking system is required because some catch basins will accumulate pollutants faster than others based on the nature of the drainage area and whether controls are present upstream of the catch basin. Catch basins with the highest accumulations will need to be cleaned more often than those with low accumulations. The permit language also includes a requirement that triggers catch basin cleaning when a catch basin is one-third full.

Proper storm drain system cleanout includes vacuuming or manually removing debris from catch basins; vacuuming or flushing pipes to increase capacity and remove clogs; removing sediment, debris, and overgrown vegetation from open channels; and repairing structures to ensure the integrity of the drainage system. It is important to conduct regular inspections of all storm sewer infrastructure and perform maintenance as necessary. Though these activities are intended to ensure that the sewer system is properly maintained and that any accumulated pollutants are removed prior to discharge, if not properly executed, cleanout activities can result in pollutant discharges. In selecting maintenance practices, the permittee must carefully evaluate each with an eye towards stormwater pollution potential to minimize unintended pollutant discharges, such as the use of flushing storm drain pipes to remove debris without recapturing the debris further down the pipe.

The materials removed from catch basins may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials removed from storm drains and open channels may require special handling and disposal, and may not be authorized to be disposed of in a landfill.

Street Sweeping and Cleaning

Street and parking lot sweeping is a practice that most municipalities initially conducted for aesthetic purposes. However, the water quality benefits are now widely recognized. Street sweeping also prevents particulate matter associated with road dust from accumulating on public streets and washing into storm drains.

The permit language addresses a number of important factors that impact the effectiveness of a street sweeping program. The first factor is the type of equipment used; the permit language stipulates that when equipment needs to be replaced, high-performance sweepers are purchased preferentially. Street sweeping has traditionally been more effective at removing large-sized particles, but new equipment has been developed to remove smaller, fine-grained particles. Mechanical sweepers (broom-type) are usually the least expensive and are better suited to pick up

large-grained sediment. Vacuum and regenerative air sweepers are better at removing fine-grained sediment particles, but they are more expensive. Removal efficiency can be improved through tandem sweeping (i.e., two sweepers sweeping the same route, with one following the other to pick up missed material), or if the street sweeper makes multiple passes on a street.

The second factor influencing street sweeping effectiveness is the way in which the equipment is operated; the permit specifies that equipment be operated according to the manufacturers' operating instructions by operators who have been trained to sweep in accordance with the Permit Requirements in order to protect water quality.

The third determining factor is the degree to which parked cars block sweeper access to the curb; one of the best ways to ensure access to the curb is to establish parking restrictions based on sweeping schedules and to inform residents of the schedule so they can voluntarily move their cars. The permit requires that the permittee institute parking restrictions and/or a public outreach campaign requesting that cars be parked elsewhere to accommodate sweeping schedules.

Because not all streets are suitable for sweeping (e.g., those that don't have a curb and gutter), source controls can be used in place of sweeping in those areas.

The permittee is required to maintain documentation of sweeping events and characterize the quantity and composition of pollutants removed from roadways. Street sweeping data are relatively easy to track and maintain, so the permit includes requirements for reporting and assessment of the effectiveness of the sweeping activities based on equipment used, miles swept, and the amount of materials collected.

The street sweeping material may not reenter the MS4. The material must be dewatered in a contained area and the water treated with an appropriate and approved control measure or discharged to the sanitary sewer. The solid material will need to be stored and disposed of properly to avoid discharge during a storm event. Some materials may require special handling and disposal, and my not be authorized to be disposed of in a landfill.

Recommendations for the Permit Writer

MS4 Maintenance

MS4s should have a specific schedule to clean out their storm drains since it will ensure that the debris that is trapped in the system will not move into waterbodies and ultimately become marine debris in the ocean. For additional information to include on marine debris go to the EPA's Marine Debris website (www.epa.gov/owow/oceans/debris).

The frequency and timing of visual assessments and cleaning of storm drains and open channels can be tailored to local climate conditions. For example, one approach would be to require that visual observations and cleanings be conducted before the start of the wet season or before spring snowmelt.

The permitting authority should review and approve dewatering and disposal methods for materials removed from catch basins.

Catch basin labeling is believed to be an effective mechanism for educating residents since it involves a direct reminder that that water or other materials which flow into storm drains is not

treated in any way, but instead drains directly to nearby waterways. There are many methods for labeling catch basins and the permit writer should work with the permittee to determine the most feasible and cost effective method of delivering the "drains to stream" message.

Street Sweeping and Cleaning

Street sweeping frequency and timing can be based on climate conditions and seasonal variation in pollution loading. For example, in cold climates where sand is used for winter road maintenance, the permit language could specify increased sweeping during the winter and prior to the spring snowmelt. In areas with a rainy season, sweeping might be timed to occur before the rainy season starts.

In the fall, sweepers can be used to pick up leaves, as they can contribute 25 percent of nutrient loadings in catch basins. If more substantial piles of leaves are found in the community during the fall, street sweeping activities should be coordinated with leaf pick-up. Equally important is an early spring sweeping before rains begin to pick up sand, de-icing material, and winter debris. More frequent sweeping may reduce the need for catch basin cleaning.

The prioritization of sweeping activities (high, medium, low) should be based on standard categories that are based on traffic frequencies and used to determine service levels for the roadways. The example provided in the permit language is based on specific information for the location.

The permitting authority should review and approve dewatering and disposal methods for street sweeping material.

6.5 Flood Management

Example Permit Provision

6.5.1 Flood Management Projects – Within [*insert deadline, such as two years*] of permit issuance, the permittee must develop and implement a process to assess the water quality impacts in the design of all new flood management projects that are associated with the permittee or that discharge to the MS4. This process must include consideration of controls that can be used to minimize the impacts to site water quality and hydrology while still meeting the project objectives. Beginning [*insert deadline, such as three years*] from date of permit issuance, the permittee must assess at least [*insert number of projects to be evaluated, such as two*] existing flood management projects per year to determine whether changes or additions should be made to improve water quality. [24] A description of this process must be included in the SWMP document.

[24] Eastern Washington Phase II MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseiiEwa/MODIFIEDpermitDOCS/EWpermitMODsigned.pdf)

Example Permit Requirement Rationale for the Fact Sheet

This permit requires that existing flood management projects be prioritized and a set number be evaluated to identify opportunities for water quality retrofits. This is because the focus of stormwater management in the past had been to control flooding and mitigate property damage, with less emphasis on water quality protection. These structures may handle a significant amount of stormwater and therefore offer an opportunity to modify their design to include water quality features for less than the cost of building new controls. This requirement applies not only to new flood control projects, but also to existing structures.

6.6 Pesticide, Herbicide, and Fertilizer Application and Management

Example Permit Provision

6.6.1 Landscape maintenance

a. The permittee must evaluate the materials used and activities performed on public spaces such as parks, schools, golf courses, easements, public rights of way, and other open spaces for pollution prevention opportunities. Maintenance activities for the turf landscaped portions of these can include mowing, fertilization, pesticide application, irrigation, etc. Typical pollutants include sediment, nutrients, hydrocarbons, pesticides, herbicides and organic debris.

b. The permittee must implement the following practices to minimize landscaping-related pollutant generation:

   1. Educational activities, permits, certifications, and other measures for municipal applicators and distributors.
   2. Integrated pest management measures that rely on non-chemical solutions, including
      - Use of native plants, xeriscaping in arid/semi-arid regions (reduces water usage and fertilization)
      - Keeping clippings and leaves away from waterways and out of the street using mulching, composting, or landfilling
      - Limiting application of pesticides and fertilizers if precipitation is forecasted within 24 hours or as specified in label instructions
      - Limiting or replacing pesticide use (e.g., manual weed and insect removal)
      - Limiting or eliminating the use of fertilizers, or, if necessary, prohibiting application within 5 feet of pavement, 25 feet of a storm drain inlet, or 50 feet of a waterbody
      - Reducing mowing of grass to allow for greater pollutant removal, but not jeopardizing motorist safety
   3. Schedules for chemical application that minimize the discharge of such constituents due to irrigation and expected precipitation.

4. The collection and proper disposal of unused pesticides, herbicides, and fertilizers.[25]

Example Permit Requirement Rationale for the Fact Sheet

The permit focuses on requiring source controls to reduce the amount of chemicals used. The permit specifies the use of integrated pest management, selection of native vegetation that is naturally adapted to local conditions and therefore requires fewer chemical and water inputs, reducing exposure of the chemicals to water by scheduling application according to weather forecasts and plant needs, and ensuring that municipal employees who are responsible for storing and handling these materials are educated about their use, disposal, and possible impacts.

Recommendations for the Permit Writer

EPA is currently developing a general permit to control discharges from the application of pesticides to or over, including near, waters of the U.S. EPA is working closely with state NPDES and pesticide control authorities, the regulated community, and environmental organizations to develop its permit that will be required for such discharges beginning in April 2011. It is important to note that some of the permit language in this section may need to be altered to be consistent with the pesticide permit once it is finalized. For up-to-date information, go to EPA's website (www.epa.gov/npdes/agriculture).

6.7 Training and Education

Example Permit Provision

6.7.1 Employee Training Requirements – Permittees must develop an annual employee training program for appropriate employees involved in implementing pollution prevention and good housekeeping practices in the preceding Parts. All new hires must receive training within the first year of their hire date. This annual training must include a general stormwater education component, any new technologies, operations, or responsibilities that arise during the year, and the Permit Requirements that apply to the staff being trained. A description of the program must be maintained for review by the permitting authority. The permittee must also identify and track all personnel requiring training and records must be maintained. Training must begin [*insert deadline*] from the effective date of permit authorization.

[25] San Diego Phase I MS4 Permit (CAS0108758) (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/oc_permit/updates_8_13_09/R9-2009-0002_12Aug09.pdf)

Example Permit Requirement Rationale for the Fact Sheet

The regulations found at 40 CFR 122.34(b)(6) specifically requires that the permittee develop a "training component" that trains employees "to prevent and reduce stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance." This permit requires employee training for existing and new employees who are involved in performing pollution prevention and good housekeeping practices. All training must include a general stormwater educational component, including an overview of the requirements with which the municipality needs to comply. The permittee is responsible for identifying which staff must attend trainings based on the applicability of the topics listed, and they are required to conduct refresher training on an annual basis.

Recommendations for the Permit Writer

The topics included in the trainings should take into consideration the types of activities in which the municipality engages and the extent to which such activities are performed in-house or contracted.

6.8 Contractor Requirements and Oversight

Example Permit Provision

6.8.1 Requirements for Contractors:

a. Any contractors hired by the permittee to perform municipal maintenance activities must be contractually required to comply with all of the stormwater control measures, good housekeeping practices, and facility-specific stormwater management SOPs described above.

b. The permittee must provide oversight of contractor activities to ensure that contractors are using appropriate control measures and SOPs. Oversight procedures must be described in the SWMP document.

Example Permit Requirement Rationale for the Fact Sheet

Many municipalities use third-party contractors to conduct municipal maintenance activities in lieu of using municipal employees. Contractors performing activities that can affect stormwater quality must be held to the same standards as the permittee. Not only must these expectations be defined in contracts between the permittee and its contractors, but the permittee is responsible for ensuring, through contractually-required documentation or periodic site visits, that contractors are using stormwater controls and following standard operating procedures.

CHAPTER 7: INDUSTRIAL STORMWATER SOURCES

Introduction

Phase I MS4 permittees are required to develop and implement an inspection and oversight program to monitor and control pollutants in stormwater discharges to the MS4 from industrial facilities. Regulations addressing industrial stormwater management in Phase I MS4 permits is found at 40 CFR 122.26(d)(2)(i)(B, C, E, and F) and 40 CFR 122.26(d)(2)(iv). Requirements to regulate the stormwater discharges from commercial facilities are found at 40 CFR 122.26(d)(2)(iv)(A).

Included Concepts

- Facility inventory
- Industrial facility stormwater control measures
- Industrial and commercial facility inspections
- Staff training

This program component typically applies only to Phase I MS4 permittees as Phase II federal regulations (40 CFR 122.34(b)) do not specifically address stormwater discharges from industrial facilities and commercial businesses (other than as part of the education and outreach program). However, EPA recommends that permit writers consider including requirements pertaining to stormwater discharges to the MS4 from industrial sources in Phase II permits to further reduce stormwater pollutants from the MS4.

Phase I MS4 regulations specify that several key elements be included in Phase I MS4 stormwater management programs. These elements include: adequate legal authority to require compliance and inspect sites, inspection of priority industrial and commercial facilities, establishing control measure requirements for facilities that may pose a threat to water quality, and enforcing stormwater requirements. In order to implement these requirements, MS4 permits require the development of an inventory of facilities and prioritization protocol and adequate staff training to ensure proper inspection and enforcement of requirements.

7.1 Facility Inventory

Example Permit Provision

7.1.1 Source Identification

a. The permittee must continue to maintain an inventory of all industrial and commercial sites/sources within its jurisdiction (regardless of ownership) that could discharge pollutants in stormwater to the MS4. The inventory must be updated [*insert frequency, e.g. annually*] and available for review by the permitting authority upon request.

b. The inventory must include the following minimum information for each industrial and commercial site/source:

   1. Name

2. Address
3. Physical location of storm drain receiving discharge
4. Name of receiving water
5. Pollutants potentially generated by the site/source
6. Identification of whether the site/source is (1) tributary to an impaired water body segment (i.e., whether it is listed under Section 303(d) of the Clean Water Act) and (2) whether it generates pollutants for which the water body segment is impaired
7. A narrative description including standard industrial classification (SIC) codes, which best reflects the principal products or services provided by each facility.

The use of a geolocational database system is highly recommended.

c. At a minimum, the following sites/sources must be included in the inventory:

1. Commercial Sites/Sources:

[*insert commercial sources that are a priority such as*

- Airplane repair, maintenance, fueling, or cleaning
- Animal facilities
- Automobile and other vehicle body repair or painting
- Automobile (or other vehicle) parking lots and storage facilities
- Automobile repair, maintenance, fueling, or cleaning
- Boat repair, maintenance, fueling, or cleaning
- Building material retailers and storage
- Cement mixing or cutting
- Eating or drinking establishments (e.g., restaurants), including food markets
- Equipment repair, maintenance, fueling, or cleaning
- Golf courses, parks and other recreational areas/facilities
- Landscaping
- Marinas
- Masonry
- Mobile automobile or other vehicle washing
- Mobile carpet, drape or furniture cleaning
- Nurseries and greenhouses
- Painting and coating
- Pest control services
- Pool and fountain cleaning
- Portable sanitary services

- Power washing services
- Retail or wholesale fueling]

2. Industrial Sites/Sources:
   - Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the Multi Sector General Permit or individual NPDES permit
   - Facilities subject to Title III of the Superfund Amendments and Reauthorization Act (SARA)
   - Hazardous waste treatment, disposal, storage and recovery facilities
3. All other commercial or industrial sites/sources tributary to an impaired water body segment, where the site/source generates pollutants for which the water body segment is impaired
4. All other commercial or industrial sites/sources that the permittee determines may contribute a significant pollutant load to the MS4[26]

Example Permit Requirement Rationale for the Fact Sheet

The permit requires the permittee to develop an inventory of all potential commercial and industrial sites/sources that could contribute pollutants to the MS4. A list of specific commercial and industrial sites/sources is included in the permit, and additional sites/sources can be added if they are likely to discharge a pollutant of concern to an impaired waterbody or they are contributing a significant pollutant load to the MS4.

The inventory information will provide the permittee with information on potential pollutant sources that contribute to its MS4 system, and at what locations in the system into which they discharge. This information will also allow the permittee to prioritize inspections and tailor education and outreach efforts, which will best assist the facility in implementing appropriate pollution prevention practices or other on-site stormwater controls. In addition, the inventory data will allow the permittee to determine whether the facilities may discharge pollutants of concern into impaired waters. Finally, the information contained in the inventory will enable permittees to characterize these facilities and prioritize them based on their potential impact on stormwater quality. By prioritizing facilities in such a manner, the permittee may then establish a targeted approach towards conducting inspections (see Part 7.3 for a discussion of inspection frequency).

In addition, data from NPDES pretreatment programs within the MS4 boundary on significant industrial users (SIUs) could also be used to identify and prioritize the industrial sites in the stormwater program.

[26] San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications.

Recommendations for the Permit Writer

The example permit provision lists specific commercial and industrial sources to be included in the inventory, but permit writers should customize this list to meet specific issues in their area. For example, some permittees may have large industrial areas with few commercial businesses, while others may have a large number of restaurants and retail businesses but no industrial facilities at all. Other permittees may have had past water quality problems at certain types of commercial or industrial sites, in which case such facilities should be included in their inventories.

7.2 Industrial Facility Stormwater Control Measures

Example Permit Provision

7.2.1 The permittee must require industrial and commercial facilities included in the Part 7.1 inventory to select, install, implement, and maintain stormwater control measures. At a minimum, these control measures must:

a. Minimize Exposure – Industrial/commercial facilities must minimize the exposure of manufacturing, processing, and material storage areas (including loading and unloading, storage, disposal, cleaning, maintenance, and fueling operations) to rain, snow, snowmelt, and runoff by either locating these industrial materials and activities inside or protecting them with storm resistant coverings (although significant enlargement of impervious surface area is not recommended). The facilities must consider, where appropriate:

1. Using grading, berming, or curbing to prevent runoff of contaminated flows and divert run-on away from these areas
2. Locating materials, equipment, and activities so that leaks are contained in existing containment and diversion systems (confine the storage of leaky or leak-prone vehicles and equipment awaiting maintenance to protected areas)
3. Cleaning up spills and leaks promptly using dry methods (e.g., absorbents) to prevent the discharge of pollutants
4. Using drip pans and absorbents under or around leaky vehicles and equipment or store indoors where feasible
5. Using spill/overflow protection equipment
6. Draining fluids from equipment and vehicles prior to on-site storage or disposal
7. Performing all cleaning operations indoors, under cover, or in bermed areas that prevent runoff and run-on and also that capture any overspray
8. Ensuring that all wash water drains to a proper collection system (i.e., not the stormwater drainage system)

b. Follow Good Housekeeping Practices – Industrial/commercial facilities must keep clean all exposed areas that are potential sources of pollutants, using such

measures as sweeping at regular intervals, keeping materials orderly and labeled, and storing materials in appropriate containers.

c. Conduct Maintenance – Industrial/commercial facilities must regularly inspect, test, maintain, and repair all industrial equipment and systems to avoid situations that may result in leaks, spills, and other releases of pollutants in stormwater discharged to receiving waters.

d. Implement Spill Prevention and Response Procedures – Industrial/commercial facilities must minimize the potential for leaks, spills and other releases that may be exposed to stormwater and develop plans for effective response to such spills if or when they occur. At a minimum, the facilities must implement:

    1. Procedures for plainly labeling containers (e.g., "Used Oil," "Spent Solvents," "Fertilizers and Pesticides,") that could be susceptible to spillage or leakage to encourage proper handling and facilitate rapid response if spills or leaks occur

    2. Preventative measures such as barriers between material storage and traffic areas, secondary containment provisions, and procedures for material storage and handling

    3. Procedures for expeditiously stopping, containing, and cleaning up leaks, spills, and other releases. Employees who may cause, detect, or respond to a spill or leak must be trained in these procedures and have necessary spill response equipment available.

    4. Procedures for notification of appropriate facility personnel, emergency response agencies, and regulatory agencies [*Insert appropriate contacts for reporting*]

e. Implement Erosion and Sediment Controls – Industrial/commercial facilities must stabilize exposed areas and contain runoff using structural and/or non-structural control measures to minimize onsite erosion and sedimentation, and the resulting discharge of pollutants.

f. Manage Runoff – Industrial/commercial facilities must divert, infiltrate, reuse, contain, or otherwise reduce stormwater runoff, to minimize pollutants in discharges.

g. Address Salt Storage Piles or Piles Containing Salt – Industrial/commercial facilities must enclose or cover storage piles of salt, or piles containing salt, used for deicing or other commercial or industrial purposes, including maintenance of paved surfaces. If a permanent storage structure is required but does not exist, one must be built within [*insert timeframe*], and seasonal tarping must be used as an interim control until the permanent structure is completed. Facilities must implement appropriate measures (e.g., good housekeeping, diversions, containment) to minimize exposure resulting from adding to or removing materials from the pile. Piles do not need to be enclosed or covered if stormwater runoff from the piles is not discharged or if discharges from the piles are authorized under another NPDES permit.

h. Conduct Employee Training – All facility employees who work in areas where industrial materials or activities are exposed to stormwater, or who are

responsible for implementing activities necessary to manage stormwater must be trained. Training must be conducted [*insert frequency, e.g. at least annually*].

i. Address Non-Stormwater Discharges – Industrial/commercial facilities must eliminate non-stormwater discharges not authorized by an applicable NPDES permit.

j. Control Waste, Garbage and Floatable Debris – Facilities must ensure that waste, garbage, and floatable debris are not discharged to receiving waters by keeping exposed areas free of such materials or by intercepting them before they are discharged.

k. Control Dust Generation and Vehicle Tracking of Industrial Materials – Industrial/commercial facilities must minimize generation of dust and off-site tracking of raw, final, or waste materials.[27]

7.2.2 Within the [*insert deadline, e.g. first two years of permit term*], the permittee must notify the owner/operator of each industrial and commercial site/source of the stormwater requirements for control measures in Part 7.2.1.

7.2.3 As necessary to minimize any pollutants causing the applicable receiving waterbody to be listed as impaired, the permittee must require implementation of additional controls for industrial and commercial sites/sources that are tributary to the impaired water body segments and that are likely to generate such impairment pollutants.[28]

Example Permit Requirement Rationale for the Fact Sheet

The permittee is required to ensure that the minimum control measures are implemented, as applicable, at every industrial/commercial facility included in its inventory. The minimum measures outlined, when properly selected, designed and implemented, promote prevention and source control, before treatment.

The control measures in this permit are consistent with the control measure requirements found in EPA's 2008 Multi-Sector General Permit (MSGP) for stormwater discharges from industrial activities. The permit writer should ensure that these requirements are consistent with the State's industrial stormwater permit. The control measures in this permit describe specific activities that the permittee must require industrial facilities and commercial sites to implement to minimize stormwater pollution. Another control measure is simply preventing pollutants from coming into contact with precipitation in the first place since this will ensure they are not carried into nearby waterways. General good housekeeping and maintenance procedures are also required. Additional control measures address spill prevention and response, erosion and sediment controls, managing runoff, and controlling discharges from salt storage piles.

[27] 2008 MSGP (Section 2) (www.epa.gov/npdes/pubs/msgp2008_finalpermit.pdf), with modifications
[28] San Diego MS4 Permit (www.swrcb.ca.gov/rwqcb9/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf), with modifications

The control measures must also include employee training, controlling non-stormwater discharges, addressing waste, garbage and floatable debris, and addressing dust generation and vehicle tracking.[29]

The permittee is required to notify industrial and commercial sites of the control measure requirements and their responsibility to implement and comply with the requirements.

Facilities that discharge into impaired waterbodies may be required to implement additional controls as necessary to prevent the discharge of the associated pollutants of concern.

7.3 Industrial and Commercial Facility Inspections

Example Permit Provision

7.3.1 Industrial and Commercial Site Inspection Program

a. The permittee must continue to implement a program to inspect all commercial and industrial facilities included in its Part 7.1(a) inventory. The permittee must describe how this will occur in the SWMP.

b. The inspection program must:

1. Prioritize all facilities into high, medium, and low categories on the basis of the potential for water quality impact using criteria such as pollutant sources on site, pollutants of concern, proximity to a water body, and violation history of the facility. The different priority categories will be assigned different inspection frequencies, with the highest priority facilities receiving more frequent inspections. Describe the process for prioritizing inspections and frequency of inspections. If any geographical areas are to be targeted for inspections due to high potential for stormwater pollution, these areas must be listed in the Inspection Plan.

3. Explain how the priority assigned to any one facility may be modified based on the site inspection findings and the facility's potential to discharge pollutants.

7.3.2 Minimum Inspection Requirements

a. Inspection Frequency – The permittee is required to conduct inspections at the following frequencies, at a minimum:

1. Facilities with high potential for water quality impact must be inspected [*insert frequency, e.g. annually*].

2. Facilities with medium potential for water quality impact must be inspected at least [*insert frequency, e.g. once every three years*].

3. Facilities with low potential for water quality impact must be inspected at least [*insert frequency, e.g. once every 5 years*].

[29] 2008 MSGP Fact Sheet (www.epa.gov/npdes/pubs/msgp2008_finalfs.pdf), with modifications

4. Facilities with either a [*insert violation type*] written violation occurring in the previous year must be inspected at least [*insert frequency, e.g. annually*] until compliance is achieved.
5. For facilities with no exposure of commercial or industrial activities to stormwater, no inspections are required. However, the permittee must continue to track these facilities for significant change in the exposure of their operations to stormwater.

b. Scope of Inspection – Inspections must at a minimum:
   1. Evaluate the facility's compliance with the Part 7.2 requirement to select, design, install, and implement stormwater control measures.
   2. Conduct a visual observation for evidence of unauthorized discharges, illicit connections, and potential discharge of pollutants to stormwater.
   3. Verify whether the facility is required to be authorized under the [*insert applicable NPDES general industrial stormwater permit*], and whether the facility has in fact obtained such permit coverage.[30]
   4. Evaluate the facility's compliance with any other relevant local stormwater requirements.

c. Documentation Requirements – At a minimum, the permittee must document the following for each inspection:

   The inspection date and time;

   The name(s) and signature(s) of the inspector(s);

   1. Weather information and a description of any discharges occurring at the time of the inspection;
   2. Any previously unidentified discharges of pollutants from the site;
   3. Any control measures needing maintenance or repairs;
   4. Any failed control measures that need replacement;
   5. Any incidents of noncompliance observed; and
   6. Any additional control measures needed to comply with the Permit Requirements.

d. Track Inspections – Inspection findings must be tracked to ensure inspections are conducted at the frequency specified in Part 7.3.2.b., highlight and document the recidivism of noncompliant facilities, and aid follow up and enforcement activities.

7.3.3 Enforcement – The permittee must ensure that all necessary follow up and enforcement activities are conducted as necessary to require necessary implementation and maintenance of the control measures described in Part 7.2. The permittee is required to utilize the approved ERP for all enforcement actions.

[30] San Francisco Bay Region Municipal Regional Stormwater NPDES Permit (www.swrcb.ca.gov/sanfranciscobay/board_decisions/adopted_orders/2009/R2-2009-0074.pdf), with modifications

Example Permit Requirement Rationale for the Fact Sheet

The permittee must design an inspection program that facilitates more frequent inspections of the highest priority facilities. (See 40 CFR 122.26(d)(iv)(C)(1)). This will help maximize use of the permittee's existing inspection resources and ensure that the permittee inspectors are the most visible and the most familiar with the facilities with the highest potential for water quality impact.

The permittee must develop a process for prioritizing inspections and designating all facilities in the industrial and commercial inventory as either a high, medium or low priority. The designation could occur by individual facility or by facility type. The prioritization for individual facilities may be adjusted after the first, or any subsequent, inspection (for example, if a facility is a high priority facility and the inspection reveals it has little potential for stormwater pollution, then the facility could be reprioritized as a low priority facility).

It is important that inspections be conducted in a thorough and consistent manner in accordance with a formal protocol for conducting an inspection. This protocol should be the basis for inspector training as well. Inspections should include a thorough walk-through of the facility.

The documentation of inspections is very important, not only when tracking noncompliance, but also to facilitate effective enforcement action when needed. A timeline of noncompliance and subsequent enforcement action is critical when escalating measures to gain compliance. Typically, the use of inspection forms facilitates complete and consistent documentation among inspectors and over time.

Recommendations for the Permit Writer

The permit writer may choose to define what criteria the permittee will use to determine the priority of each facility on its inventory. For example, the Phase I Los Angeles County MS4 permit specifies which facilities are Tier 1 and Tier 2 and provides the required inspection frequency for each. The permit writer could also automatically designate certain sets of industries to a certain priority category (e.g., all facilities subject to the State's Industrial General Permit could be designated as high priority facilities in the permit). If the permit does not define what criteria are to be used when prioritizing facilities, the permittee should be required to develop this protocol and submit it to the permitting authority for review.

The permit writer should review available industrial and commercial inventories to determine if more specific inspection frequencies should be set. For example, an MS4 with only 10 facilities in the inventory could probably inspect those facilities annually. However, an MS4 with over 2,000 facilities in the inventory may need to set the inspection frequency at a less frequent interval.

7.4 Staff Training

Example Permit Provision

7.4.1 The permittee must ensure that all staff whose primary job duties are implementing the industrial stormwater program is trained to conduct facility inspections. The training must cover what is required under this permit in terms of stormwater control measures, the requirements of other applicable Industrial Stormwater general permits or other related local requirements, the permittee's site inspection and documentation protocols, and enforcement procedures. Follow-up training must be provided every other year to address changes in procedures, techniques, or staffing. Permittees must document and maintain records of the training provided and the staff trained.[31]

Example Permit Requirement Rationale for the Fact Sheet

Inspectors responsible for conducting inspections at industrial/commercial facilities must be trained on the applicable stormwater requirements for the different types of facilities (i.e., industrial, commercial, other). Training must include a summary of federal, state, and local stormwater regulations that may apply to industrial/commercial facilities. Inspectors must be familiar with various types of stormwater control measures commonly used at the types of facilities typically found in the MS4 area and must be able to educate facility operators about such stormwater control measures. In addition, inspectors must understand and use the permittee's established enforcement response plan (see Chapter 1 of this Guide) to gain compliance as necessary. The inspection staff must be proficient in the enforcement escalation procedure and must properly document all enforcement actions accordingly per the ERP.

[31] Western Washington Phase I MS4 Permit (www.ecy.wa.gov/programs/wq/stormwater/municipal/phaseIpermit/MODIFIEDpermitDOCS/PhaseIpermitSIGNED.pdf), with modifications

CHAPTER 8: MONITORING, EVALUATION, AND REPORTING

Introduction

Phase I MS4s are required to conduct discharge characterization, field screening and develop a monitoring program. Phase I MS4s are also required to conduct an assessment of controls. See 40 CFR 122.26(d)(1)(iii), (d)(2)(iii), and (d)(2)(v).

Phase II MS4 regulations allow, but do not specifically require, monitoring. Phase II MS4s are required to evaluate program compliance, the appropriateness of identified control measures, and progress toward achieving identified measurable goals. See 40 CFR 122.34(g).

Included Concepts

- Consolidated information tracking system
- Development of a comprehensive monitoring and assessment program
- Evaluation of overall program effectiveness
- Requirements for annual reporting of MS4 activities

There are many components involved in monitoring and evaluating the effectiveness of a municipal stormwater program. Any comprehensive monitoring program should have clear monitoring objectives to help determine compliance and water quality impacts. Each monitoring program is unique and should be customized to the specific waterbodies, impairments, and pollutant sources of the MS4.

Evaluating the overall effectiveness of the municipal stormwater program should be done using information from the monitoring program, progress toward meeting measurable goals, and other indicators. Without assessing the effectiveness of the stormwater management program the permittee will not know which parts of the program need to be modified to protect and/or improve water quality and instead will essentially be operating blindly. Establishing a comprehensive monitoring and assessment program will enable the permittee to track progress in complying with permit provisions and implementing a program to protect water quality.

8.1 Consolidated Information Tracking System

Example Permit Provision

8.1.1 Within the first [*insert time frame which corresponds to the development of the monitoring program e.g. first two years of permit*], the permittee must develop a tracking system to track the information required in the permit as well as the information required to be reported in the annual report (see Part 8.4).

Example Permit Requirement Rationale for the Fact Sheet

An important part of any municipal stormwater program is to document and track information on activities the permittee undertakes to comply with the Permit Requirements. Tracking should be integrated into each of the minimum measures. For example, tracking the location of illicit discharges may indicate that a specific area has a high incidence of motor oil being dumped into storm drains. Investigations may reveal that homeowners are changing the motor oil in their cars, but not properly disposing it. Therefore, the permittee will need to educate the homeowners in that area regarding proper disposal.

The permittee must develop a tracking system to monitor implementation of its various programs in order to document the permittee's compliance with its Permit Requirements, such as the number of construction sites and industrial facilities inspected. In addition, the tracking system will allow the permitee to monitor the compliance status of those entities within its jurisdiction, such as construction sites and industrial facilities, and to ensure compliance of municipally-owned and operated facilities.

Any tracking system should be coordinated with the monitoring and evaluation programs developed by the permittee. Ideally, a monitoring and evaluation program will link the "actions" (e.g., the inspections, maintenance, education and other activities the permittee implements) with the "results" (e.g., water quality monitoring data, improvements in environmental indicators) of the monitoring program.

In addition, adequate tracking is necessary to generate and provide reports of program progress not only to the permitting authority, but to a permittee's internal management for planning and funding purposes. Ideally, a MS4 permittee will have at least one person in charge of overall coordination, including tracking. While many departments or agencies might implement various stormwater program components, it is helpful for a single person or department to gather and analyze applicable data. This can be accomplished in a number of ways and will vary based on existing data tracking mechanisms used by a permittee, the data being captured and the reporting requirements the permittee must comply with. Ideally, the program would have a database accessible by all parties which specifies the required data. Lacking this, the permittee will need to coordinate all responsible parties. The permittee will need to ensure that responsible parties "mine" all data necessary to adequately represent the program and permit compliance, and specify adequate internal reporting deadlines to guarantee that the data is available in a timely manner for program planning, effectiveness assessments and permit reporting. Some permittees create reporting forms for program component managers to complete and submit by internal deadlines. Regardless of how the permittee coordinates the effort internally, without adequate tracking of data the permittees will not be able to submit annual reports to the permitting authority that provide the necessary information to determine permit compliance.

Recommendations for the Permit Writer

To assist the permittee in ensuring appropriate data is gathered and analyzed, the permitting authority should be very clear regarding annual reporting requirements. In addition, the text for this section should be tailored depending on the permittee. For example, some permittees may be able to develop a GIS-based system complete with the option to upload pictures and inspection reports versus a spreadsheet. In the text provided either system would meet the requirements, but more detailed information can be obtained with the GIS-based system.

8.2 Development of a Comprehensive Monitoring & Assessment Program

Example Permit Provision

8.2.1 The permittee must continue to implement, and revise as necessary, a comprehensive monitoring and assessment program. A description of this program must be included in the SWMP document. The monitoring and assessment program must be designed to meet the following objectives:

a. Assess compliance with this permit;

b. Measure the effectiveness of the permittee's stormwater management program;

c. Assess the chemical, physical, and biological impacts to receiving waters resulting from stormwater discharges;

d. Characterize stormwater discharges;

e. Identify sources of specific pollutants;

f. Detect and eliminate illicit discharges and illegal connections to the MS4; and

g. Assess the overall health and evaluate long-term trends in receiving water quality.

NOTE: Because monitoring programs and requirements are very specific to the MS4 and local water quality impairments, permit writers are directed to the "Recommendations to the Permit Writer" section below for examples of comprehensive monitoring program Permit Requirements.

Example Permit Requirement Rationale for the Fact Sheet

Without clear monitoring objectives and a detailed monitoring plan, it will be difficult for permittees and permitting authorities to evaluate the effectiveness of the municipal stormwater program.

There are numerous factors that should be examined while setting up the water quality monitoring portion of the comprehensive program. Understanding and considering climatic conditions such as precipitation patterns, temperature, and seasonal variations will ensure the study design will collect data that are representative of typical storms in the area and that sampling occurs during times of the year when it is most logical to do so. Acknowledging the different types of land uses within the area will also help the permittee to prioritize monitoring efforts based on the areas most likely to be impacted by stormwater. The type of waterbody monitored must also be considered when selecting sampling locations since pollutants behave differently depending on the environment thereby impacting sampling protocols. For example, sampling in a freshwater lake involves different protocols than monitoring in a tidally influenced river or a first order stream. Waterbody type can also influence the data results and conclusions (e.g. freshwater wetlands typically have high denitrification rates that will likely impact the results of nitrate sampling).

Selection of specific sampling locations is also very important. If particular sites are of concern, then monitoring both above and below the sites to figure out their contributions to the overall water quality issues may make sense. Also, the actual location in the waterbody is important to specify for consistency. For example, should samples be taken close to the stream bank or in the center of the waterbody, in riffles or pools? The answers to these questions, of course, depend on the goals of the monitoring and the constituents (biological, chemical, hydrological) being examined.

In addition, the number and frequency of samples collected and stream assessments performed will determine how robust the data will be (see page 287 in *National Research Council's Report Urban Stormwater Management in the United States (2009*) available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf). Monitoring may or may not be tied to specific wet weather events (i.e. within 72 hours after a rainfall event). A combination of specific wet weather samples and dry weather samples may be appropriate.

Establishing objectives with associated indicators (environmental or administrative) for each minimum measure can help put each component into perspective when considering the overall program. Indicators are one way to evaluate the success of the program from the overall program level. Developing standard environmental indicators is a critical step to evaluate the SWMP. Permittees need practical tools, such as these indicators, in order to determine if their stormwater programs are working, and that help elucidate where additional efforts may be most critical. Environmental indicators should be selected based on the type (estuarine/freshwater/brackish) and condition (impaired/non-impaired) of the waterbody to which stormwater is discharged as well as the intended use of the area where the stormwater is discharged (source water protection area, etc.).

In addition, permittees should document certain administrative efforts associated with developing and implementing their SWMPs. In this context 'administrative' is considered quite broad, including such things as control measures, inspection programs, policies and rules, MS4 system scope and condition, educational efforts and any other variable or outcome that could reflect on the quality of a stormwater program other than the actual environmental quality outcomes, which are covered under 'Environmental Indicators'.

Good administrative indicators are numerous, and good suites of indicators will vary from one community to another. More information can be obtained on each of the environmental and administrative indicators listed by going to the Stormwater Manager's Resource Center (www.stormwatercenter.net) and selecting "Monitor/Assess" on the left navigation bar.

Several protocols have been developed to assess the effectiveness of stormwater control measures:

- Guidance for Evaluating Emerging Stormwater Treatment Technologies, Technology Assessment Protocol - Ecology (TAPE) www.ecy.wa.gov/biblio/0210037.html . This guidance document's primary purpose is to establish a testing protocol and process for evaluating and reporting on the performance and appropriate uses of emerging stormwater treatment technologies.
- Technology Acceptance Reciprocity Partnership (TARP) Protocol for Stormwater Best Management Practice Demonstrations www.dep.state.pa.us/dep/deputate/pollprev/techservices/tarp/pdffiles/Tier2protocol.pdf . The purpose of the TARP

Protocol is to provide a uniform method for demonstrating stormwater technologies and developing test quality assurance (QA) plans for certification or verification of performance claims.

- BMP Performance Verification Checklist. This is a tool that helps permittees provide a consistent set of questions for applicants proposing to use manufactured and proprietary BMP. It is available as Tool # 8 of the Center for Watershed Protection's *Managing Stormwater in Your Community*. The checklist is accompanied by an explanation and instructions for using the checklist, technical appendices, and a matrix that compares existing verification protocols, such as TARP and TAPE.

Additional monitoring resources include:

- CWP, 2008, *Monitoring to Demonstrate Environmental Results: Guidance to Develop Local Stormwater Monitoring Studies Using Six Example Study Designs* (www.cwp.org)
- Geosyntec Consultants and Wright Water Engineers, 2009, *Urban Stormwater BMP Performance Monitoring*, (bmpdatabase.org/MonitoringEval.htm)
- CASQA, 2007, *Municipal Stormwater Program Effectiveness Assessment Guidance* (www.casqa.org)

Recommendations for the Permit Writer

Because of the site-specific nature and variability of these monitoring programs between permittees, the detailed requirements should be provided by each permit writer. For example, the Phase I regulations included specific monitoring requirements while the Phase II regulations allow, but do not specifically require monitoring. To assist permit writers, several examples of monitoring requirements from existing MS4 permits are listed below:

- Baltimore County, MD Phase I MS4 permit (issued 2005); see the watershed assessment and planning requirements (Part II.F) and assessment of controls (Part II.H) www.mde.state.md.us/assets/document/sedimentStormwater/MSSPermit/BA%20final%20permit.pdf
- Southern California Regional Bioassessment Monitoring Program (this is a regional monitoring program involving coastal counties in Southern California) www.socalsmc.org/Docs/SMC-DesignofBioassessmentRegionalMonitoringProgram.pdf
- San Diego, CA Phase I MS4 Permit (issued 2007); see Receiving Waters and Urban Runoff Monitoring and Reporting Program. www.waterboards.ca.gov/sandiego/water_issues/programs/stormwater/docs/sd_permit/r9_2007_0001/2007_0001final.pdf

The permit writer could consider the role of partnerships among the MS4s in establishing and implementing the monitoring programs so that any data collected is robust, useful, and meaningful. In addition, communities may benefit more by working with local organizations and/or neighboring communities who are already collecting similar data. By doing so resources may be used more efficiently and results of testing may be more robust.

The permit writer should also require the permittee to assess the effectiveness of the SWMP in meeting applicable Permit Requirements. The sampling protocols developed must support the goals of the monitoring program. The monitoring and assessment program must include water quality monitoring as well as an assessment of environmental and administrative indicators. Along these lines, the permit writer could also add requirements such as the ones provided below:

Water Quality Monitoring

a. *The Permittee must develop a water quality monitoring program that includes [insert specific monitoring programs and requirements, such as:*

   - Ambient receiving water monitoring,
   - Biological monitoring,
   - Control measure performance monitoring, or
   - Discharge (wet weather) monitoring

   Because the detailed monitoring program requirements are very unique to each MS4, the permitting authority should insert here the specific details of the relevant monitoring program, such as monitoring type, frequency, location, etc.]

b. When determining water quality monitoring components, the permittee must examine and consider a variety of factors, including, but not limited to:

   - Climatic conditions, including precipitation patterns, temperature, and seasonal variations
   - Land uses in the MS4
   - Waterbody type

c. The permittee must consider and address specific sampling quality assurance/quality control protocols, including, but not limited to:

   - Specific chemical constituents (pollutants), biological stream indicators, and physical stream indicators that will be monitored to best achieve the purpose of the monitoring
   - Sampling locations
   - Number and frequency of sample collection and assessments
   - Timing of sample collection

d. The permittee must determine if any similar monitoring is occurring within the MS4 and if it is logical to link efforts.

Environmental Indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least [*insert number of indicators to be tracked*] environmental

indicators from each category listed below (physical and hydrologic indicators; biological indicators; water quality indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Physical and hydrological indicators

- Stream widening/ downcutting
- Physical habitat quality
- Impacted dry weather flows
- Increased flooding frequency
- Stream temperature monitoring

Biological indicators

- Fish assemblage analysis
- Macro-invertebrate assemblage
- Single species indicator
- Composite indicators
- Other biological indicators

Water quality indicators

- Water quality pollutant constituent monitoring
- Toxicity testing
- Non-point source loadings
- Exceedance frequencies of water quality standards
- Sediment contamination
- Human health criteria

Administrative indicators

As part of the comprehensive monitoring and assessment program, the permittee must identify and track at least [*insert number of indicators to be tracked*] administrative indicator from each category listed below (social indicators; programmatic indicators; site indicators). The indicators must be appropriate to assess if the SWMP is meeting goals and objectives:

Social indicators

- Public attitude surveys
- Industrial/commercial pollution prevention
- Public involvement and monitoring
- User perception

Programmatic indicators

- Number of illicit connections identified and corrected
- Number of control measures installed, inspected, and maintained
- Permitting and compliance
- Growth and development

Site indicators

- Control measure performance monitoring
- Industrial site compliance monitoring

Performance Monitoring of Stormwater Controls

When monitoring the performance of stormwater controls, EPA recommends that percent removal efficiencies are not calculated and compared since results can be misleading because the percentages may be based on differing levels of the influent concentration (see cfpub.epa.gov/npdes/stormwater/urbanbmp/bmptopic.cfm#percentremoval for further discussion; also see *National Research Council's Report Urban Stormwater Management in the United States (2009*) available at www.epa.gov/npdes/pubs/nrc_stormwaterreport.pdf).

Modeling can also be a useful tool to quantify the impacts of municipal stormwater management. The following resources provide summaries and reviews of different types of models available to

determine existing loading from an MS4 as well as the effects expected from various stormwater controls.

1. USEPA Handbook for Developing Watershed Plans to Restore and Protect Our Waters
   www.epa.gov/nps/watershed_handbook/

   Chapter 8 of this document focuses on methods for estimating pollutant loads, including the use of watershed models. This chapter provides assistance in selecting and applying watershed models to estimate pollutant loads from existing conditions.

2. USEPA TMDL Model Evaluation and Research Needs
   www.epa.gov/nrmrl/pubs/600r05149/600r05149.htm

   This report documents the review of more than 60 available watershed and receiving water models. It discusses model selection on the basis of model capabilities and provides a series of tables rating the capabilities or applicability the models using the categories of TMDL endpoints, general land and water features, special land processes, special water processes, and application considerations including the selection of appropriate best management practices and their water quality impacts. The document also provides individual fact sheets for each reviewed model.

8.3 Evaluation of Overall Program Effectiveness

Example Permit Provision

8.3.1 *Annual Effectiveness Assessment* – The annual effectiveness assessment must:

a. Use the monitoring and assessment data described in Part 8.2 to specifically assess the effectiveness of each of the following:

   1. Each significant activity/control measures or type of activity/control measure implemented;
   2. Implementation of each major component of the Stormwater Management Program (Public Education/Involvement, Illicit Discharges, Construction, Post-Construction, Good Housekeeping); and
   3. Implementation of the Stormwater Management Program as a whole.

b. Identify and use measurable goals, assessment indicators, and assessment methods for each of the items listed in Part 8.3.1.a above.

c. Document the permittee's compliance with permit conditions.

8.3.2 Based on the results of the effectiveness assessment, the permittee must annually review its activities or control measures to identify modifications and improvements needed to maximize SWMP effectiveness, as necessary to achieve compliance with this permit. The permittee must develop and implement a plan and schedule to address the identified modifications and improvements. Municipal activities/control

measures that are ineffective or less effective than other comparable municipal activities/control measures must be replaced or improved upon by implementation of more effective municipal activities/control measures.

8.3.3 As part of its Annual Reports, the permittee must report on its SWMP effectiveness assessment as implemented under Part 8.3.1 above.

Example Permit Requirement Rationale for the Fact Sheet

A key requirement in the stormwater Phase II rule is a report (40 CFR 122.34(g)(3)) that includes "the status of compliance with permit conditions, an assessment of the appropriateness of identified [control measures] and progress towards achieving identified measurable goals for each of the minimum control measures." This assessment is critical to the stormwater program framework which uses the iterative approach of implementing controls, conducting assessments, and designating refocused controls leading toward attainment of water quality standards.

Building on the monitoring and assessment program developed in Part 8.2, the permittee must conduct an annual effectiveness assessment to assess the effectiveness of significant control measures, SWMP components, and the SWMP as a whole. The California Stormwater Quality Association's (CASQA) *Municipal Stormwater Program Effectiveness Guidance* describes strategies and methods for assessing effectiveness, including examples of effectiveness assessment for each SWMP program component. The CASQA Effectiveness Guidance is available at www.casqa.org for purchase. A two-hour EPA webcast focusing on the CASQA Guide is also available (available at www.epa.gov/npdes/training under "Assessing the Effectiveness of Your Municipal Stormwater Program"). A resources document from the webcast includes a 10 page summary of the Guide and example pages from the municipal chapter (www.epa.gov/npdes/outreach_files/webcast/jun0408/110961/municipal_resources.pdf).

The *Municipal Stormwater Program Effectiveness Assessment Guidance* synthesizes information on designing and conducting program effectiveness assessments. The document also explains how to select certain methods based on programmatic outcomes and goals. The reader is led through a series of questions and case studies to demonstrate how proper assessments are selected. Techniques are related to different level of outcomes: level one – documenting activities, level two – raising awareness, level 3 – changing behavior, level 4 – reducing loads from sources, level 5 – improving runoff quality, and level 6 – protecting receiving water quality. The Guide includes fact sheets for all six NPDES program elements, outlining methods and techniques for assessing effectiveness of each program.

Recommendations for the Permit Writer

Adaptive management is the appropriate process for assessing new opportunities for improving program effectiveness in controlling stormwater pollution. The permit writer should require the permittee to use adaptive management throughout the permit term to assess options for improving controls on stormwater discharges as compared with measurable goals and demonstrated by monitoring and assessment protocols. The permit writer should have the permittee monitor and

assess the data and analyses required under the permit as well as applicable information from other sources in the adaptive management process.

In addition, the permit writer should have the permittee assess and modify, as necessary, any or all existing SWMP components and adopt new or revised SWMP components to optimize reductions in stormwater pollutants through an iterative process. This iterative process should include routine assessment of the need to further improve water quality and protect beneficial uses, review of available technologies and practices to accomplish the needed improvement, and evaluate resources available to implement the technologies and practices.

8.4 Requirements for Annual Reporting of MS4 Activities

Example Permit Provision

8.4.1 Summary Annual Report - The Permittee must submit annual reports on or before [*specify deadline, e.g., the anniversary date of this permit*] for the reporting period [*specify the reporting period, e.g., July 1-June 30*]. The Permittee must use the Summary MS4 Annual Report template in Appendix A to document a summary of the past year activities. All of the information required on this form must be completed.

8.4.2 Detailed Annual Report - The Permittee must also submit a detailed annual report that addresses, for the activities described in the SWMP document required in Part 1.1, the following:

- A summary of past year activities, including where available, specific quantities achieved and summaries of enforcement actions. See Part 8.4.3 for required information specific to certain SWMP areas.
- A description of the effectiveness of each SWMP program component or activity (see Part 8.3); and
- Planned activities and changes for the next reporting period, for each SWMP program component or activity.
- Detailed fiscal analysis described in Part1.4.2.

8.4.3 [*Specify any additional information and/or data pertaining to implementation of priority activities the Permitting Authority would like to see in Annual Reports, e.g. a list of green roofs (with square footage) installed in the MS4, a summary of water quality monitoring data collected for a specific waterbody, etc*.]

The Annual Report must clearly refer to the Permit Requirements, and describe in quantifiable terms, the status of activities undertaken to comply with each requirement.

Example Permit Requirement Rationale for the Fact Sheet

In general, an annual report must document and summarize implementation of the SWMP during the previous year and evaluate program results and describe planned changes towards continuous improvement. The annual report also can serve as a "state of the SWMP" report for the general public or other stakeholders in the community. While records are to be kept and made available to the public, the annual report is an excellent summary document to provide as well.

Recommendations for the Permit Writer

EPA recommends using its Summary Annual Report Template (see Appendix A) in this guidance in order to obtain summary information about the status of MS4 programs. In addition to the summary annual report template, permittees must also submit a more detailed annual report.

The permit writer may determine that additional, more detailed, information is needed to determine compliance with the Permit Requirements. Even if these reporting details are not required within the permit, the permitting authority and enforcement officials can still request them at any time or during a program audit.

MS4 permits should require permittees to summarize and analyze data concerning the effectiveness of the SWMP and submit the analysis to the permitting authority. For example, the permittees should address such questions as:

- For illicit discharge data, what are the most prevalent sources and pollutants in the illicit discharge data, and where are these illicit discharges occurring? How many illicit discharges have been identified, and how many of those have been resolved? How many outfalls or screening points were visually screened, how many had dry weather discharges or flows, at how many were field analyses completed and for what parameters, and at how many were samples collected and analyzed? Does the MS4 need to conduct more inspections in these areas, or develop more specific outreach targeting these sources and pollutants?

- For the construction data, what are the most common construction violations, and are there any trends in the data (e.g., construction operators who receive more violations than others, areas of the MS4 with more violations, need to refine guidance or standards to more clearly address common violations). How has the permittee responded to these trends? Over the last year, how many construction site plan reviews were completed and approved? How many inspections were conducted, how many noncompliant sites were identified, and how many enforcement actions (and of what type) were taken?

At a minimum, the permit should require that the annual report clearly illustrate three key items for each SWMP area:

- **Summary of the Year's Activities**. The summary should describe and quantify program activities for each SWMP component. Responsible persons, agencies, departments or co-permittees should be included. Each activity should be described in relation to achievement of established goals or performance standards.

- **Description of SWMP Effectiveness**. An annual report should not only describe the previous year's activities, but should also highlight the SMWP's effectiveness (see Part 8.3) using the indicators required in Part 8.2.

- **Planned Activities and Changes**. The annual report should describe activities planned for the next year highlighting any changes made to improve control measures or program effectiveness.

Also, although the stormwater Phase II rule requires reports, after the first permit term, to be submitted in only years two and four of the permit term, EPA strongly encourages annual reports for all permittees.

APPENDIX A: SUMMARY ANNUAL REPORT TEMPLATE

National Pollutant Discharge Elimination System Stormwater Program
Small MS4 Report Form

The purpose of this report is to contribute information to an evaluation of the NPDES small municipal separate storm sewer system (MS4) permit program. Consistent with 40 CFR §122.37 the U.S. Environmental Protection Agency is assessing the status of the program nation-wide. A "no" answer to a question does not necessarily mean noncompliance with your permit or with the federal regulations. In order to establish the range of variability in the program it is necessary to ask questions along a fairly broad performance continuum. Your permitting authority may use some of this information as one component of a compliance evaluation.

1. MS4 Information

_____

Name of MS4

_____ _____ _____

Name of Contact Person (First) (Last) (Title)

_____ _____

Telephone (including area code) Email

_____

Mailing Address

_____ ____ _____

City State ZIP code

What size population does your MS4 serve? _____ NPDES number _____

What is the reporting period for this report? (mm/dd/yyyy) From _____ to _____

2. Water Quality Priorities

A. Does your MS4 discharge to waters listed as impaired on a state 303(d) list? ☐ Yes ☐ No

B. If yes, identify each impaired water, the impairment, whether a TMDL has been approved by EPA for each, and whether the TMDL assigns a wasteload allocation to your MS4. Use a new line for each impairment, and attach additional pages as necessary.

Impaired Water	Impairment	Approved TMDL		TMDL assigns WLA to MS4	
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No
		☐ Yes	☐ No	☐ Yes	☐ No

C. What specific sources contributing to the impairment(s) are you targeting in your stormwater program?

_____

D. Do you discharge to any high-quality waters (e.g., Tier 2, Tier 3, outstanding natural resource waters, or other state or federal designation)? ☐ Yes ☐ No

E. Are you implementing additional specific provisions to ensure their continued integrity? ☐ Yes ☐ No

3. Public Education and Public Participation

A. Is your public education program targeting specific pollutants and sources of those pollutants? ☐ Yes ☐ No

B. If yes, what are the specific sources and/or pollutants addressed by your public education program?

_____

C. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

_____

D. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your stormwater program? ☐ Yes ☐ No

4. Construction

A. Do you have an ordinance or other regulatory mechanism stipulating:

Erosion and sediment control requirements? ☐ Yes ☐ No

Other construction waste control requirements? ☐ Yes ☐ No

Requirement to submit construction plans for review? ☐ Yes ☐ No

MS4 enforcement authority? ☐ Yes ☐ No

B. Do you have written procedures for:

Reviewing construction plans? ☐ Yes ☐ No

Performing inspections? ☐ Yes ☐ No

Responding to violations? ☐ Yes ☐ No

C. Identify the number of active construction sites ≥ 1 acre in operation in your jurisdiction at any time during the reporting period. _____

D. How many of the sites identified in 4.C did you inspect during this reporting period? _____

E. Describe, on average, the frequency with which your program conducts construction site inspections.

_____

F. Do you prioritize certain construction sites for more frequent inspections? ☐ Yes ☐ No

If Yes, based on what criteria? _____

G. Identify which of the following types of enforcement actions you used during the reporting period for construction activities, indicate the number of actions, or note those for which you do not have authority:

☐ Yes Notice of violation #____ No Authority ☐

☐ Yes Administrative fines #____ No Authority ☐

☐ Yes Stop Work Orders #____ No Authority ☐

☐ Yes Civil penalties #____ No Authority ☐

☐ Yes Criminal actions #____ No Authority ☐

☐ Yes Administrative orders #____ No Authority ☐

☐ Yes Other _____ #____

H. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results, and enforcement actions of active construction sites in your jurisdiction? ☐ Yes ☐ No

I. What are the 3 most common types of violations documented during this reporting period?

_____

J. How often do municipal employees receive training on the construction program? _____

5. Illicit Discharge Elimination

A. Have you completed a map of all outfalls and receiving waters of your storm sewer system? ☐ Yes ☐ No

B. Have you completed a map of all storm drain pipes and other conveyances in the storm sewer system? ☐ Yes ☐ No

C. Identify the number of outfalls in your storm sewer system. _____

D. Do you have documented procedures, including frequency, for screening outfalls? ☐ Yes ☐ No

E. Of the outfalls identified in 5.C, how many were screened for dry weather discharges during this reporting period?

_____

F. Of the outfalls identified in 5.C, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? _____

G. What is your frequency for screening outfalls for illicit discharges? Describe any variation based on size/type.

_____

H. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges? ☐ Yes ☐ No

I. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action and/or recover costs for addressing illicit discharges? ☐ Yes ☐ No

J. During this reporting period, how many illicit discharges/illegal connections have you discovered? _____

K. Of those illicit discharges/illegal connections that have been discovered or reported, how many have been eliminated?

_____

L. How often do municipal employees receive training on the illicit discharge program? _____

6. Stormwater Management for Municipal Operations

A. Have stormwater pollution prevention plans (or an equivalent plan) been developed for:

All public parks, ball fields, other recreational facilities and other open spaces ☐ Yes ☐ No

All municipal construction activities, including those disturbing less than 1 acre ☐ Yes ☐ No

All municipal turf grass/landscape management activities ☐ Yes ☐ No

All municipal vehicle fueling, operation and maintenance activities ☐ Yes ☐ No

All municipal maintenance yards ☐ Yes ☐ No

All municipal waste handling and disposal areas ☐ Yes ☐ No

Other _____

B. Are stormwater inspections conducted at these facilities? ☐ Yes ☐ No

C. If Yes, at what frequency are inspections conducted? _____

D. List activities for which operating procedures or management practices specific to stormwater management have been developed (e.g., road repairs, catch basin cleaning).

_____

E. Do you prioritize certain municipal activities and/or facilities for more frequent inspection? ☐ Yes ☐ No

F. If Yes, which activities and/or facilities receive most frequent inspections? _____

G. Do all municipal employees and contractors overseeing planning and implementation of stormwater-related activities receive comprehensive training on stormwater management? ☐ Yes ☐ No

H. If yes, do you also provide regular updates and refreshers? ☐ Yes ☐ No

I. If so, how frequently and/or under what circumstances? _____

7. Long-term (Post-Construction) Stormwater Measures

A. Do you have an ordinance or other regulatory mechanism to require:

Site plan reviews for stormwater/water quality of all new and re-development projects?	☐ Yes	☐ No
Long-term operation and maintenance of stormwater management controls?	☐ Yes	☐ No
Retrofitting to incorporate long-term stormwater management controls?	☐ Yes	☐ No

B. If you have retrofit requirements, what are the circumstances/criteria?

_____

C. What are your criteria for determining which new/re-development stormwater plans you will review (e.g., all projects, projects disturbing greater than one acre, etc.) _____

D. Do you require water quality or quantity design standards or performance standards, either directly or by reference to a state or other standard, be met for new development and re-development? ☐ Yes ☐ No

E. Do these performance or design standards require that pre-development hydrology be met for:

Flow volumes	☐ Yes	☐ No
Peak discharge rates	☐ Yes	☐ No
Discharge frequency	☐ Yes	☐ No
Flow duration	☐ Yes	☐ No

F. Please provide the URL/reference where all post-construction stormwater management standards can be found.

_____

G. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? _____

H. How many of the plans identified in 7.G were approved? _____

I. How many privately owned permanent stormwater management practices/facilities were inspected during the reporting period? _____

J. How many of the practices/facilities identified in I were found to have inadequate maintenance? _____

K. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections?

_____

L. Do you have authority to take enforcement action for failure to properly operate and maintain stormwater practices/facilities? ☐ Yes ☐ No

M. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate and/or maintain stormwater management practices? _____

N. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☐ Yes ☐ No

O. Do all municipal departments and/or staff (as relevant) have access to this tracking system? ☐ Yes ☐ No

P. How often do municipal employees receive training on the post-construction program? _____

8. Program Resources

A. What was the annual expenditure to implement MS4 permit requirements this reporting period? _____

B. What is next year's budget for implementing the requirements of your MS4 NPDES permit? _____

C. This year what is/are your source(s) of funding for the stormwater program, and annual revenue (amount or percentage) derived from each?

Source: _____ Amount $_____ OR %_____

Source: _____ Amount $_____ OR %_____

Source: _____ Amount $_____ OR %_____

D. How many FTEs does your municipality devote to the stormwater program (specifically for implementing the stormwater program; not municipal employees with other primary responsibilities)? _____

E. Do you share program implementation responsibilities with any other entities? ☐ Yes ☐ No

Entity	Activity/Task/Responsibility	Your Oversight/Accountability Mechanism

9. Evaluating/Measuring Progress

A. What indicators do you use to evaluate the overall effectiveness of your stormwater management program, how long have you been tracking them, and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	**Began Tracking (year)**	**Frequency**	**Number of Locations**

B. What environmental quality trends have you documented over the duration of your stormwater program? Reports or summaries can be attached electronically, or provide the URL to where they may be found on the Web.

10. Additional Information

In the space below, please include any additional information on the performance of your MS4 program. If providing clarification to any of the questions on this form, please provide the question number (e.g., 2C) in your response.

Certification Statement and Signature

I certify that all information provided in this report is, to the best of my knowledge and belief, true, accurate and complete. ☐ Yes

Federal regulations require this application to be signed as follows: **For a municipal, State, Federal, or other public facility**: by either a principal executive or ranking elected official.

Name of Certifying Official, Title

Date (mm/dd/yyyy)

Submit

APPENDIX B: DEFINITIONS

Commencement of Construction – the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities (e.g., stockpiling of fill material). (Source: 2008 CGP)

Control Measure – any best management practice (BMP) or other method used to prevent or reduce the discharge of pollutants to waters of the United States. (Source: 2008 CGP)

Discharge – when used without qualification means the "discharge of a pollutant." (Source: 2008 CGP)

Discharge of Stormwater Associated with Construction Activity – as used in this permit, refers to a discharge of pollutants in stormwater from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck chute washdown, fueling), or other industrial stormwater directly related to the construction process (e.g., concrete or asphalt batch plants) are located. (Source: 2008 CGP)

Illicit Discharge - any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities. (Source: 40 CFR 122.26)

Large Construction Activity – is defined at 40 CFR §122.26(b)(14)(x) and incorporated here by reference. A large construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five acres of land or will disturb less than five acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five acres. Large construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Non-Structural Controls – preventative actions that involve management and source controls. Refer also to 40 CFR 122.34(b)(5)(c)(iii). (Source: 40 CFR 122.26)

Qualified Personnel – A person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality and to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity. (Source: EPA's 2008 Construction General Permit)

Receiving Water – the "Water of the United States" as defined in 40 CFR §122.2 into which the regulated stormwater discharges. (Source: 2008 CGP)

Small Construction Activity –includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb

less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. (Source: 2008 CGP)

Stormwater control measure – see control measure.

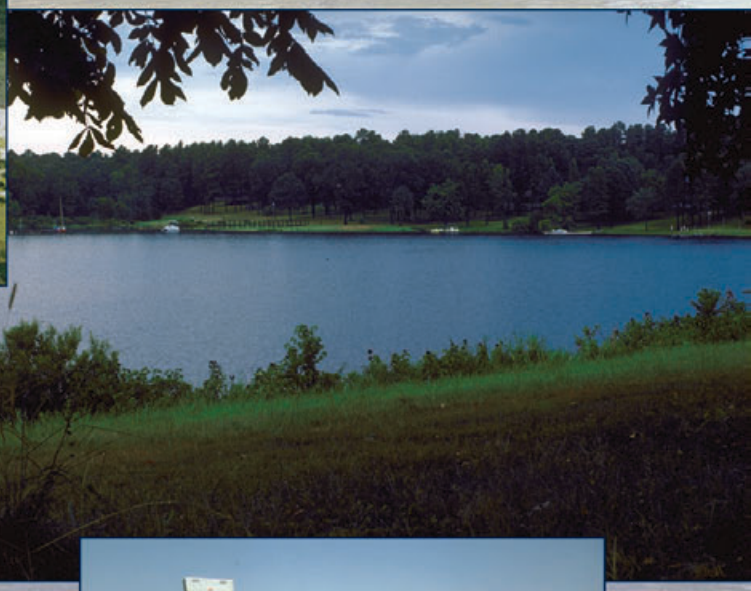
Structural Control - physically designed, installed, and maintained practices used to prevent or reduce the discharge of pollutants in stormwater, to minimize erosion, and/or to minimize the impacts of stormwater on waterbodies.

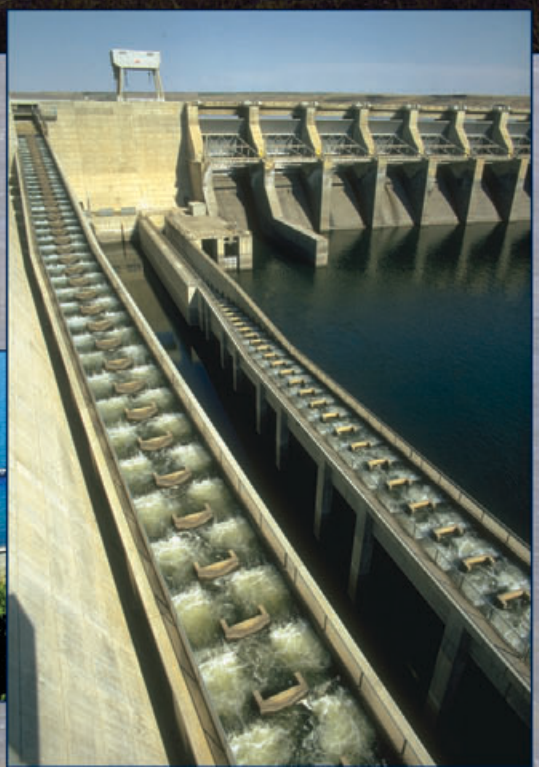
Wasteload Allocation – the portion of a receiving water's loading capacity that is allocated to one of its existing or future point sources of pollution. Wasteload allocations constitute a type of water quality-based effluent limitation. (40 CFR 130.2)

ATTACHMENT
56

Administrative Record Page No. 036016

National Management Measures to Control Nonpoint Source Pollution from Hydromodification





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United States Environmental Protection Agency
Office of Water
Washington, DC 20460
(4503T)

EPA 841-B-07-002
July 2007

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National Management Measures to Control Nonpoint Source Pollution from Hydromodification

Nonpoint Source Control Branch
Office of Wetlands, Oceans and Watersheds
U.S. Environmental Protection Agency
Office of Water

July 2007

Disclaimer

This document provides technical guidance to states, territories, authorized tribes, and the public for managing hydromodification and reducing associated nonpoint source pollution of surface and ground water. At times, this document refers to statutory and regulatory provisions, which contain legally binding requirements. This document does not substitute for those provisions or regulations, nor is it a regulation itself. Thus, it does not impose legally-binding requirements on EPA, states, territories, authorized tribes, or the public and may not apply to a particular situation based upon the circumstances. EPA, state, territory, and authorized tribe decision makers retain the discretion to adopt approaches to manage hydromodification and reduce associated NPS pollution of surface and ground water on a case-by-case basis that differ from this guidance where appropriate. EPA may change this guidance in the future.

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Chapter 1: Introduction

The Nation's aquatic resources are among its most valuable assets. Although environmental protection programs in the United States have improved water quality during the past 35 years, many challenges remain. Significant strides have been made in reducing the impacts of discrete pollutant sources, but some aquatic ecosystems remain impaired, due in part to complex pollution problems caused by nonpoint source (NPS) pollution.[1] Of special concern are the problems in our streams, lakes, estuaries, aquifers, and other water bodies caused by runoff that is inadequately controlled or treated. These problems include changes in flow, increased sedimentation, higher water temperature, lower dissolved oxygen, degradation of aquatic habitat structure, loss of fish and other aquatic populations, and decreased water quality due to increased levels of nutrients, metals, hydrocarbons, bacteria, and other constituents.

What is Hydromodification?

USEPA (1993) defines hydromodification as the "alteration of the hydrologic characteristics of coastal and non-coastal waters, which in turn could cause degradation of water resources." Examples of hydromodification in streams include dredging, straightening, and, in some cases, complete stream relocation. Other examples include construction in or along streams, construction and operation of dams and impoundments, channelization in streams, dredging, and land reclamation activities. Hydromodification can also include activities in streams that are being done to maintain the stream's integrity such as removing snags.[2] Some indirect forms of hydromodification, such as erosion along streambanks or shorelines, are caused by the introduction or maintenance of structures in or adjacent to a waterbody and other activities, including many upland activities, that change the natural physical properties of the waterbody.

EPA has grouped hydromodification activities into three categories: (1) channelization and channel modification, (2) dams, and (3) streambank and shoreline erosion. The following definitions are offered to clarify the hydromodification activities associated with these three categories:

> Channelization and channel modification include activities such as straightening, widening, deepening, and clearing channels of debris and sediment. Categories of channelization and channel modification projects include flood control and drainage, navigation, sediment control, infrastructure protection, mining, channel and bank instability, habitat improvement/enhancement, recreation, and flow control for water supply (Watson et al., 1999). Channelization activities can play a critical role in NPS pollution by increasing the timing and delivery of pollutants, including sediment, that enter the water. Channelization can also be a cause of higher flows during storm events, which potentially increases the risk of flooding.

[1] For more information on NPS pollution, go to EPA's website at http://www.epa.gov/owow/nps.
[2] A tree or branch embedded in a lake or stream bed and constituting a hazard to navigation; a standing dead tree.

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Dams[3] are artificial barriers on waterbodies that impound or divert water and are built for a variety of purposes, including flood control, power generation, irrigation, navigation, and to create ponds, lakes, and reservoirs for uses such as livestock watering, municipal water supply, fish farming, and recreation. While these types of dams are constructed to provide benefits to society, they can contribute to NPS pollution. For example dams can alter flows, which ultimately can cause impacts to water quality (changes to temperature or dissolved gases) and biological/habitat (disruption of spawning or altering of plant and benthic communities) above and below the dam.

Streambank and shoreline erosion are the wearing away of material in the area landward of the bank along non-tidal streams and rivers. Streambank erosion occurs when the force of flowing water in a river or stream exceeds the ability of soil and vegetation to hold the banks in place. Eroded material is carried downstream and redeposited in the channel bottom or in point bars located along bends in the waterway. Shoreline erosion occurs in large open waterbodies, such as the Great Lakes or coastal bays and estuaries, when waves and currents sort coarser sands and gravels from eroded bank materials and move them in both directions along the shore away from the area undergoing erosion. While the underlying forces causing the erosion may be different for streambank and shoreline erosion, the results (erosion and its impacts) are usually similar. It is also important to note that streambank and shoreline erosion are natural processes and that natural background levels of erosion also exist. However, human activities along or adjacent to streambanks or shorelines may increase erosion and other nonpoint sources of pollution.

Why is NPS Guidance on Hydromodification Important?

Hydromodification is one of the leading sources of impairment in our nation's waters. According to the *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a), there are almost 3.7 million miles of rivers and streams[4] in the United States. Approximately 280,000 miles of assessed rivers and streams in the United States are impaired for one or more designated uses, which include aquatic life support, fish consumption, primary and contact recreation, drinking water supply, and agriculture. Many of the pollutants causing impairment are delivered to surface and ground waters from diffuse sources, such as agricultural runoff, urban runoff, hydrologic modification, and atmospheric deposition of contaminants. The leading causes of

[3] Dams are defined according to Title 33 of the Code of Federal Regulations, section 222.6(h) (2003) as all artificial barriers together with appurtenant works which impound or divert water and which (1) are 25-feet or more in height or (2) have an impounding capacity of 50 acre-feet or more. Barriers that are six-feet or less in height, regardless of storage capacity or barriers that have a storage capacity at maximum water storage elevation of fifteen acre-feet or less regardless of height are not included. Federal regulations define dams for the purpose of ensuring public safety. For example, 33 CFR 222.6 states objectives, assigns responsibilities, and prescribes procedures for implementation of a National Program for Inspection of Non-Federal Dams. Most states use this or a very similar definition, which creates a category of dams that requires some form of inspection to ensure that they are structurally sound. Dams smaller than those defined above, such as those used to create farm ponds, are authorized under the NRCS program.

[4] Approximately 700,000 miles (19%) of the total 3.7 million miles of rivers and streams in the United States were assessed for the *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a).

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beneficial use impairment (partially or not supporting one or more uses) are nutrients, sediment, pathogens (bacteria), metals, pesticides, oxygen-depleting materials, and habitat alterations (USEPA, 2002a).

The *National Water Quality Inventory: 2000 Report to Congress* (USEPA, 2002a) identified hydrologic modifications (i.e., hydromodification) as a leading source of water quality impairment in assessed surface waters. Of the 11 pollution source categories listed in the report, hydromodification was ranked as the second leading source of impairment in assessed rivers, second in assessed lakes, and sixth in assessed estuaries (Table 1.1). Three major types of hydromodification activities—channelization and channel modification, dams, and streambank and shoreline erosion—change a waterbody's physical structure as well as its natural functions.

Many hydromodification activities are necessary because of human activities. For example, hardening of streambanks to correct headcutting and streambank erosion is often necessary because of changes in landuse that increase impervious surfaces. While hydromodification activities are intended to provide some form of benefit (e.g., levees for reducing flooding, electricity from hydroelectric dams, or bulkheads to reduce shoreline erosion and protect valuable property), there may be unintended consequences resulting from the activity. To illustrate, levees may provide local flood reduction by keeping storm flows from spreading onto flood plains. However, these same levees may alter riparian wetland habitat that once relied on seasonal flooding.

Table 1.1 Leading Sources of Water Quality Impairment Related to Human Activities for Rivers, Lakes, and Estuaries (USEPA, 2002a)

	Rivers and Streams	Lakes, Ponds, and Reservoirs	Estuaries
Sources[a]	Agriculture (48%)[b]	Agriculture (41%)	Municipal Point Sources (37%)
	Hydrologic Modification (20%)[c]	**Hydrologic Modification (18%)**	Urban Runoff/Storm Sewers (32%)
	Habitat Modification (14%)[d]	Urban Runoff/Storm Sewers (18%)	Industrial Discharges (26%)
	Urban Runoff /Storm Sewers (13%)	Nonpoint Sources (14%)	Atmospheric Deposition (23%)
	Forestry (10%)	Atmospheric Deposition (13%)	Agriculture (18%)
	Municipal Point Sources (10%)	Municipal Point Sources (12%)	**Hydrologic Modification (14%)**
	Resource Extraction (10%)	Land Disposal (10%)	Resource Extraction (12%)

[a] Excluding unknown, natural, and "other" sources.
[b] Values in parentheses represent the approximate percentage of surveyed river miles, lake acres, or estuary square miles that are classified as impaired due to the associated sources.
[c] Hydrologic modifications include flow regulation and modification, dredging, and construction of dams. These activities may alter a lake's habitat in such a way that it becomes less suitable for aquatic life (USEPA, 2002a).
[d] Habitat modifications result from human activities, such as flow regulation, logging, and land-clearing practices. Habitat modifications—changes such as the removal of riparian (stream bank) vegetation—can make a river or stream less suitable for the organisms inhabiting it (USEPA, 2002a).

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Purpose and Scope of the Guidance

National summaries, such as those shown in Table 1.1, are useful in providing an overview of the magnitude of problems associated with hydromodification. Solutions, however, are usually applied at the local level. For example, in Maryland, the Shore Erosion Task Force, after investigating shore erosion in the state, published recommendations to be implemented under a Comprehensive Shore Erosion Control Plan. To initiate statewide planning, the Maryland Department of Natural Resources established partnerships with two coastal counties that were significantly affected by shoreline erosion. These state-local partnerships enable the state to better identify and correct shoreline erosion problems throughout Maryland (MDNR, 2001).

State and local elected officials and agencies, landowners, developers, environmental and conservation groups, and others play a crucial role in working together for protecting, maintaining, and restoring water resources that are impacted by hydromodification activities. These local efforts, in aggregate, form the basis for changing the status of hydromodification as a national problem.

This guidance document provides background information about NPS pollution and offers a variety of solutions for reducing NPS pollution resulting from hydromodification activities. The background information provided in Chapter 2 includes a discussion of sources of NPS pollution associated with hydromodification and how the generated pollutants enter the Nation's waters. Chapter 3 (Channelization and Channel Modification), Chapter 4 (Dams), and Chapter 5 (Streambank and Shoreline Erosion) present technical information about how certain types of NPS pollution can be reduced or eliminated.

Since hydromodification is not associated with localized impacts and solutions, Chapter 6 provides a discussion on the broad concept of assessing and addressing water quality problems on a watershed level. Chapter 7 provides detailed information for practices that can be used to implement the management measures presented in this guidance. Chapter 8 provides a discussion of available models and assessment approaches that could be used to determine the effects of hydromodification activities. Chapter 9 summarizes additional dam removal information, including permitting requirements, process, and techniques for dam removal. The primary goal of this guidance document is to provide technical assistance to states, territories, tribes, local governments, and the public for managing hydromodification and reducing associated NPS pollution.

Document Organization

This document is divided into the following chapters:

- Chapter 1: Introduction
- Chapter 2: Background
- Chapter 3: Channelization and Channel Modification
- Chapter 4: Dams
- Chapter 5: Streambank and Shoreline Erosion

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- Chapter 6: Guiding Principles
- Chapter 7: Practices for Implementing Management Measures
- Chapter 8: Modeling Information
- Chapter 9: Dam Removal Requirements, Process, and Techniques
- References Cited
- Additional Resources
- Appendix A: Federal, State, Nonprofit, and Private Financial and Technical Assistance Programs
- Appendix B: U.S. Environmental Agency Contacts

Activities to Control NPS Pollution

Historical Perspective

During the first 15 years of the national program to abate and control water pollution (1972–1987), EPA and the states focused most of their water pollution control activities on traditional point sources, which are stationary locations or fixed facilities from which pollutants are discharged; any single identifiable source of pollution (e.g., a pipe, ditch). EPA and the states have regulated these point sources through the National Pollutant Discharge Elimination System (NPDES) permit program established by section 402 of the Clean Water Act (CWA).[5] The NPDES program functions as the primary regulatory tool for assuring that state water quality standards are met. NPDES permits, issued by an authorized state or EPA, contain discharge limits designed to meet water quality standards and national technology-based effluent regulations.

In 1987, in view of the progress achieved in controlling point sources and the growing national awareness of the increasingly dominant influence of NPS pollution on water quality, Congress amended the CWA to focus greater national efforts on nonpoint sources.

Federal Programs and Funding

The CWA establishes several reporting, funding, and regulatory programs that address pollutants carried in runoff that is not subject to confinement or treatment. These programs relate to watershed management and nonpoint source control. Readers are encouraged to use the information contained in this guidance to develop nonpoint source management programs/plans that comprehensively address the following EPA programs:

- *Section 319 Grant Program*. Under section 319 of the CWA, EPA awards funds to states and eligible tribes to implement NPS management programs. These funds can be used for projects that address nonpoint source related sources of pollution, including hydromodification.[6]

- *Clean Water State Revolving Fund*. The Clean Water State Revolving Fund (CWSRF) program is an innovative method of financing environmental projects. Under the

[5] For more information on the NPDES program, refer to EPA's NPDES website at http://cfpub.epa.gov/npdes.
[6] More information about the section 319 program is provided at http://www.epa.gov/owow/nps/cwact.html.

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program, EPA provides grants or "seed money" to all 50 states plus Puerto Rico to capitalize state loan funds. The states, in turn, make loans to communities, individuals, and others for high-priority water quality activities. As money is paid back into the revolving fund, new loans are made to other recipients. When funded with a loan from this program, a project typically costs much less than it would if funded through the bond market. Many states offer low or no interest rate loans to small and disadvantaged communities. In recent years, state programs have begun to devote an increasing volume of loans to nonpoint source, estuary management, and other water-quality projects. Eligible NPS projects include almost any activity that a state has identified in its nonpoint source management plan. Such activities include projects to control runoff from agricultural land; conservation tillage and other projects to address soil erosion; development of streambank buffer zones; and wetlands protection and restoration.[7]

- *Total Maximum Daily Loads*. Under section 303(d) of the CWA, states are required to compile a list of impaired waters that fail to meet any of their applicable water quality standards. This list, called a 303(d) list, is submitted to Congress every 2 years, and states are required to develop a Total Maximum Daily Load (TMDL) for each pollutant causing impairment for waterbodies on the list.[8]

- *Water Quality Certification.* Section 401 of the CWA requires that any applicant for a federal license or permit to conduct any activity that "may result in any discharge" into navigable waters must obtain a certification from the state or tribe in which the discharge originates that the discharge will comply with various provisions of the CWA, including sections 301 and 303. The federal license or permit may not be issued unless the state or tribe has granted or waived certification. The certification shall include conditions, e.g., "effluent limitations or other limitations" necessary to assure that the permit will comply with the state's or tribe's water quality standards or other appropriate requirements of state or tribal law. Such conditions must be included in the federal license or permit.

- *National Estuary Program.* Under the National Estuary Program, states work together to evaluate water quality problems and their sources, collect and compile water quality data, and integrate management efforts to improve conditions in estuaries. To date, 28 estuaries have been accepted into the program. Estuary programs can be an excellent source of water quality data and can provide information on management practices.[9]

- *Safe Drinking Water Act.* Many areas, especially urban fringe areas, need to maintain or improve the quality of surface and ground waters that are used as drinking water sources. This act requires states to develop Source Water Assessment Reports and implement Source Water Protection Programs. Low- or no-interest loans are available under the Drinking Water State Revolving Fund (SRF) Program.[10]

[7] Additional information about CWSRF is available at http://www.epa.gov/OWM/cwfinance/cwsrf/index.htm.
[8] More information on the TMDL program and 303(d) lists is provided at http://www.epa.gov/owow/tmdl.
[9] More information on the National Estuary Program is provided at http://www.epa.gov/nep.
[10] More information about the Safe Drinking Water Act and Source Water Protection Programs can be found at http://www.epa.gov/safewater/sdwa/index.html and http://www.epa.gov/safewater/protect.html.

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- *Wildlife Habitat Incentives Program (WHIP)*. WHIP[11] is a voluntary program authorized by the Farm Security and Rural Investment Act of 2002 (Farm Bill)[12] that enables landowners to apply for technical and financial assistance to improve wildlife habitat. The program is administered by the Natural Resources Conservation Service (NRCS), which works with private landowners and operators, conservation districts, and federal, state, and tribal agencies to improve terrestrial and aquatic habitats. NRCS and participants work together to create a wildlife habitat development plan that includes a cost-share agreement. Continued assistance after habitat development includes monitoring, review of management guidelines, and technical advice. WHIP funds may also be used for dam removal. Additional information is available from an NRCS WHIP fact sheet.[13]

Two excellent resources for learning more about the CWA and the many programs established under it are *The Clean Water Act: An Owner's Manual* (Killam, 2005) and *The Clean Water Act Desk Reference* (WEF, 1997).

Introduction to Management Measures

Management measures may be implemented as part of state, tribal, or local programs to control nonpoint source pollution for a variety of purposes, including protection of water resources, aquatic wildlife habitat, and land downstream from increased pollution and flood risks. They can be used to guide in the development of a runoff management program. Management measures establish performance expectations and, in many cases, specify actions that can be taken to prevent or minimize nonpoint source pollution from hydromodification activities. Management measures might control the delivery of NPS pollutants to receiving water resources by:

- Minimizing pollutants available (source reduction)
- Retarding the transport and/or delivery of pollutants, either by reducing water transported, and thus the amount of the pollutant transported, or through deposition of the pollutant
- Remediating or intercepting the pollutant before or after it is delivered to the water resource through chemical or biological transformation

Management measures are generally designed to control a particular type of pollutant from specific activities and land uses. The intent of the six management measures in this guidance document is to provide information for addressing and considering the NPS pollution potential associated with hydromodification activities. Implementation of management measures can minimize and control hydromodification NPS pollution through erosion and sediment control, chemical and pollutant control, management of instream and riparian habitat restoration, and protection of surface water quality.

[11] http://www.nrcs.usda.gov/programs/whip
[12] http://www.nrcs.usda.gov/programs/farmbill/2002
[13] http://www.nrcs.usda.gov/programs/farmbill/2002/pdf/WHIPFct.pdf

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Activities associated with these management measures may be regulated by federal, state, or local law (e.g., section 404 of the Clean Water Act). These measures do not supersede such requirements. Sometimes regulatory authorities may appear to conflict, as is sometimes the case of the CWA and water use and distribution. CWA sections 101(g) and 510 specifically allow for resolution of the conflict by placing water use and its distribution under the authority of the states, thus protecting any state agreements on "water rights." Users of this NPS guidance should recognize that the applicability of the guidance provided in this document will remain subject to state statutes, interstate compacts, and international treaties. As such, this guidance does not recommend or require any management measures or practices that hinder a state's ability to exercise existing water rights, which provide water for municipal, industrial, and agricultural needs. For further information regarding specific state policies on water rights and regulations of water use, contact the appropriate state water agency. Contact information is generally provided on state government Web sites.

This document also lists and describes management practices for each management measure. Management practices are specific actions taken to achieve, or aid in the achievement of, a management measure. A more familiar term might be best management practice (BMP). The word "best" has been dropped for the purposes of this guidance (as it was in the Coastal Management Measures Guidance (USEPA, 1993)) because the adjective is too subjective. The "best" practice in one area or situation might be entirely inappropriate in another area or situation. The practices listed in this document have been found by EPA to be representative of the types of practices that can be applied successfully to achieve the management measures. EPA recognizes that there is often site-specific, regional, and national variability in the selection of appropriate practices, as well as in the design constraints and pollution control effectiveness of practices. The practices presented for each management measure are not all-inclusive. States or local agencies and communities might wish to apply other technically and environmentally sound practices to achieve the goals of the management measures.

Channelization and Channel Modification (Chapter 3)

Channelization can cause a variety of instream flow changes and may result in the faster delivery of pollutants to downstream areas. Channel modification might result in a combination of harmful effects (higher flows or increased risk of downstream flooding) and beneficial effects (local flood control or enhanced flushing in a stream channel). The management measures for channelization and channel modification are intended to protect waterbodies by ensuring proper planning before a proposed project is implemented. Planning and evaluation can help to identify and prevent local and downstream problems before a project is started. An added benefit of planning and evaluation is to correct or prevent detrimental changes to the instream and riparian habitat associated with the project. Implementation of the management measures can also ensure that operation and maintenance programs for existing projects improve physical and chemical characteristics of surface waters and restore or maintain instream and riparian habitat when possible.

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Management Measure 1: Physical and Chemical Characteristics of Surface Water: Ensure that the planning process for new hydromodification projects addresses changes to physical and chemical characteristics of surface waters that may occur as a result of the proposed work. For existing projects, ensure that operation and maintenance programs use any opportunities available to improve the physical and chemical characteristics of surface waters.

Management Measure 2: Instream and Riparian Habitat Restoration: Correct or prevent detrimental changes to instream and riparian habitat from the impacts of channelization and channel modification projects, both proposed and existing.

Dams (Chapter 4)

Because of their instream locations, any construction activities associated with dams have the potential to introduce sediment and other pollutants into adjacent waterbodies. Construction activities, chemical spills during dams operation or maintenance, and changes in the quantity and quality of water held and released by a dam may alter the nature of the waterbody. The management measures for dams are intended to be applied to the construction of new dams, as well as any construction activities associated with the maintenance of existing dams. They can also be applied to dam operations that result in the loss of desirable surface water quality, and instream and riparian habitat.

Management Measure 3: Erosion and Sediment Control: Prevent sediment from entering surface waters during the construction or maintenance of dams.

Management Measure 4: Chemical and Pollutant Control: Prevent downstream contamination from pollutants associated with dam construction and operation and maintenance activities.

Management Measure 5: Protection of Surface Water Quality and Instream and Riparian Habitat: Protect the quality of surface waters and aquatic habitat in reservoirs and in the downstream portions of rivers and streams that are influenced by the quality of water contained in the releases (tailwaters) from reservoir impoundments.

Streambank and Shoreline Erosion (Chapter 5)

NPS pollution might result from the rapid increase in erosion of streambanks caused by increased flow rates associated with urbanization in a watershed. Not only is the land adjacent to these eroding streambanks unnaturally carried away, but these eroded soils are carried downstream and deposited in often undesirable locations. Shorelines erode more severely as the result of poorly planned and implemented shoreline protection projects located nearby. Habitats can be buried and wetlands can be filled. As runoff upstream increases, more erosion results on downstream streambanks. The streambank and shoreline erosion management measure promotes the necessary actions required to correct streambank and shoreline erosion where it must be controlled. Because erosion is a natural process, this management measure is not intended to be applied to all erosion occurring on streambanks and shorelines.

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Management Measure 6: Eroding Streambanks and Shorelines: Protect streambanks and shorelines from erosion and promote institutional measures that establish minimum setback requirements or measures that allow a buffer zone to reduce concentrated flows and promote infiltration of surface water runoff in areas adjacent to the shoreline.

Channelization and channel modification and dams represent forms of hydromodification that are direct results of human activities—someone performs a construction activity directly in or along a stream, river, or shoreline. For example, a town constructs concrete lined channels along a stream passing through the city limits to reduce stream meandering and prevent flooding. Another example is the construction (many years ago) of a dam in a stream for hydropower at a grist mill. Streambank and shoreline erosion are forms of hydromodification that result from direct and indirect human activities. For example, a streambank is eroding at a much faster rate because of recent development activities on shore that result in increased runoff, which is causing increased bank erosion. Another example is a concrete seawall that is protecting property at one location, but causing increased erosion on adjacent properties.

This distinction between forms of hydromodification and impacts from hydromodification is important when contrasting the relationship between Chapter 3 (Channelization and Channel Modification) and Chapter 5 (Streambank and Shoreline Erosion). Many of the operation and maintenance solutions presented in Chapter 3 are also practices that can be used to stabilize streambanks and shorelines as presented in Chapter 5. For example, a stream channel that has been hardened with vertical concrete walls to prevent local flooding and limit the stream to its existing channel (to protect property built along the stream channel), may benefit from operation and maintenance practices that use opportunities to replace the concrete walls with an appropriate vegetative or combined vegetative and non-vegetative structures along the streambank when possible. These same practices may be applicable to stabilize downstream streambanks that are eroding and creating a nonpoint source pollution problem because of the upstream development and hardened streambanks.

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Chapter 2: Background

There are differing views on defining the stability of a stream channel and other waterbodies. From a navigation perspective, a stream channel is considered stable if shipping channels are maintained to enable safe movement of vessels. Landowners with property adjacent to a stream or shoreline might consider the waterbody to be stable if it does not flood and erosion is minimal. Ecologists might find some erosion of streambanks and meandering channels to be a part of natural evolution (i.e., changes that are not induced by humans) and consider long-term changes like these to be quite acceptable (Watson et al., 1999). In any case, new and existing channelization projects, construction and maintenance of dams, and streambank and shoreline erosion problems should be evaluated with these differing perspectives in mind and a balance of these perspectives should be taken into account when constructing or maintaining a project. Often, multiple priorities can be maintained with good up-front planning and communication among the different stakeholders involved.

Key Geomorphic Functions of Streams

Discharge, Slope, and Sinuosity

Figure 2.1 is a cross-section of a typical stream channel. The thalweg is the deepest part of the channel. The sloped bank is known as the scarp. The term discharge is used to describe the volume of water moving down the channel per unit time (usually described in the United States as cubic foot per second (cfs)). Discharge is the product of the area through which the water is flowing (in square feet) and the average velocity of the water (in feet per second). If discharge in a channel increases or decreases, there must be a corresponding change in streamflow velocity and/or flow area.

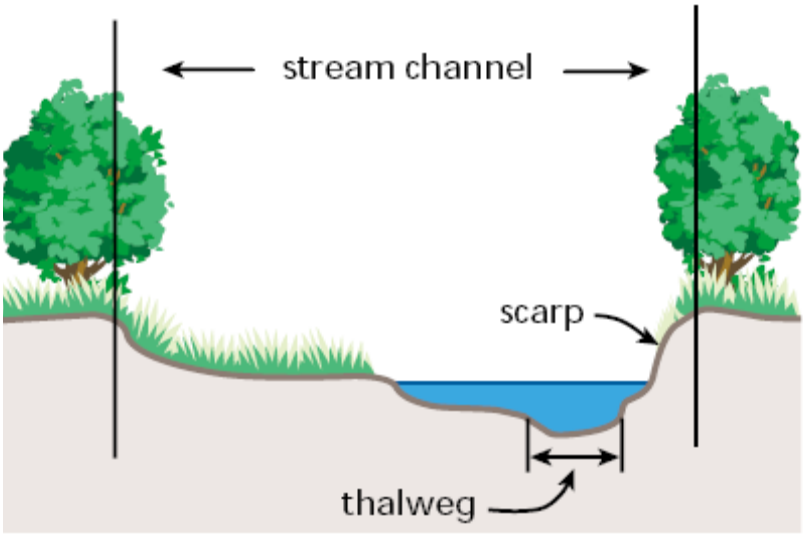

Figure 2.1 Cross-section of a Stream Channel (FISRWG, 1998)

Channel slope is an especially key concept when dealing with hydromodification projects. It is the difference in elevation between two points in the stream divided by the stream length

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between the two points. Stream sinuosity greatly affects stream slope. Sinuosity is the stream length between two points on a stream divided by the valley length between the two points. A meandering stream moving through a valley has a lower slope than a straight stream.

Erosion, Transport, and Deposition of Sediment

All streams accomplish three basic geomorphic tasks:

- *Erosion*—the detachment of soil particles along the stream bed and banks
- *Sediment transport*—the movement of eroded soil particles in streamflow
- *Sediment deposition*—the settling of eroded soil particles in the water or on land as water recedes

These processes largely determine the size and shape of the channel, both laterally and longitudinally. The ability to accomplish these geomorphic tasks is related to stream power, the product of slope and discharge. Slope directly affects flow velocity. Consequently, a shallow, meandering stream with low slope generates less stream power, and has lower erosion and sediment-transport capacity, than a deep, straight stream.

In addition to sinuosity, roughness along the boundaries of a stream area is also important in determining streamflow velocity and stream power. The rougher the channel bottom and banks, the more they are able to slow down the flow of water. The level of roughness is determined by many conditions including:

- Type and spacing of bank vegetation
- Size and distribution of sediment particles
- Bedforms
- Bank irregularities
- Other miscellaneous obstructions

Tractive stress, also known as shear stress, describes the lift and drag forces that work to create erosion along the stream bed and banks. In general, the larger the sediment particle, the more stream power is needed to dislodge it and transport it downstream. When stream power decreases in the channel, larger sediment particles are deposited back to the stream bed.

Dynamic Equilibrium

One of the primary functions of a stream is to move particles out of the watershed. Erosion, sediment transport, and deposition occur all the time at both large and small scales within a channel. A channel is considered stable when the average tractive stress maintains a stable streambed and streambanks. That is, sediment particles that erode and are transported downstream from one area are replaced by particles of the same size and shape that have originated in areas upstream. Lane (1955) qualitatively described this relationship as:

$$Qs * D \propto Qw * S$$

Where: Qs = Sediment discharge, D = Sediment particle size, Qw = Streamflow, S = Stream slope

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When all four variables are in balance, the channel is stable, or in dynamic equilibrium.

Lane's channel variable relationships can be visualized as a pan balance with sliding weights (Figure 2.2). Sediment discharge is placed on one pan and streamflow on the other. The hook holding the sediment load pan can slide back and forth based on changes in sediment size. Likewise, the hook holding the streamflow can slide according to changes in slope.

If a disturbance or stream modification occurs that causes a variable to change, one or more of the other variables must change in order to maintain the balance. During an imbalanced phase, the scale indicator will point to either degradation or aggradation. This indicates that the channel will try to adjust and regain equilibrium by either increasing sediment discharge by scouring the bottom or eroding its banks (degradation) or decreasing sediment discharge by depositing sediment on the bottom (aggradation), depending on the circumstance.

For example, if stream slope is decreased and streamflow remains the same (i.e., streamflow pan slides toward the center), the balance will tip and aggradation will occur (Figure 2.3). Alternatively, if streamflow increases and slope remains the same (i.e., more weight on the streamflow pan), degradation will occur. No matter the scenario, this basic relationship between the variables will hold true and aggradation or degradation will cease only when the system reaches equilibrium. This can occur naturally over time, or through management practices designed to deal with the "balancing" issue.

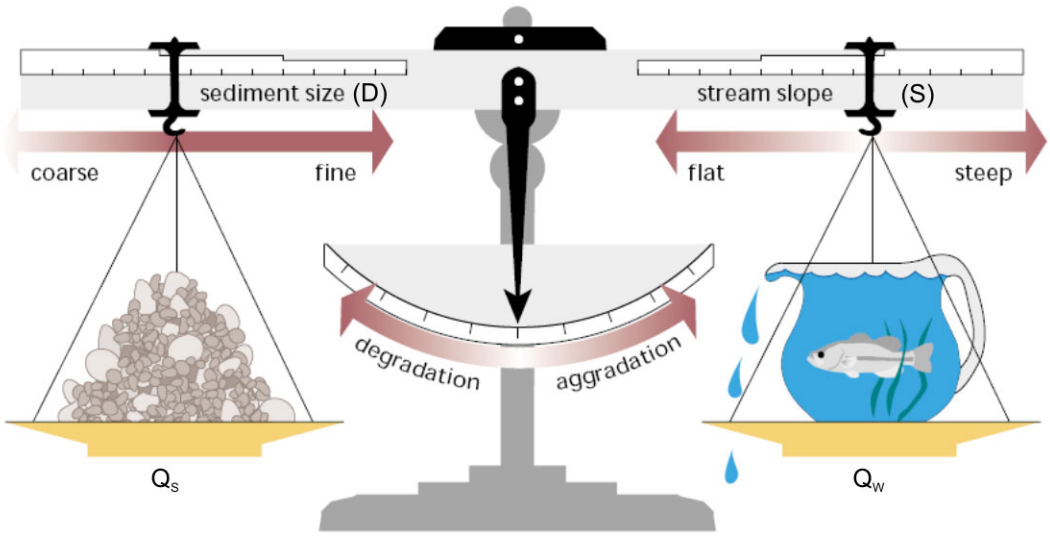

Figure 2.2 Factors Affecting Channel Degradation and Aggradation (FISRWG, 1998)

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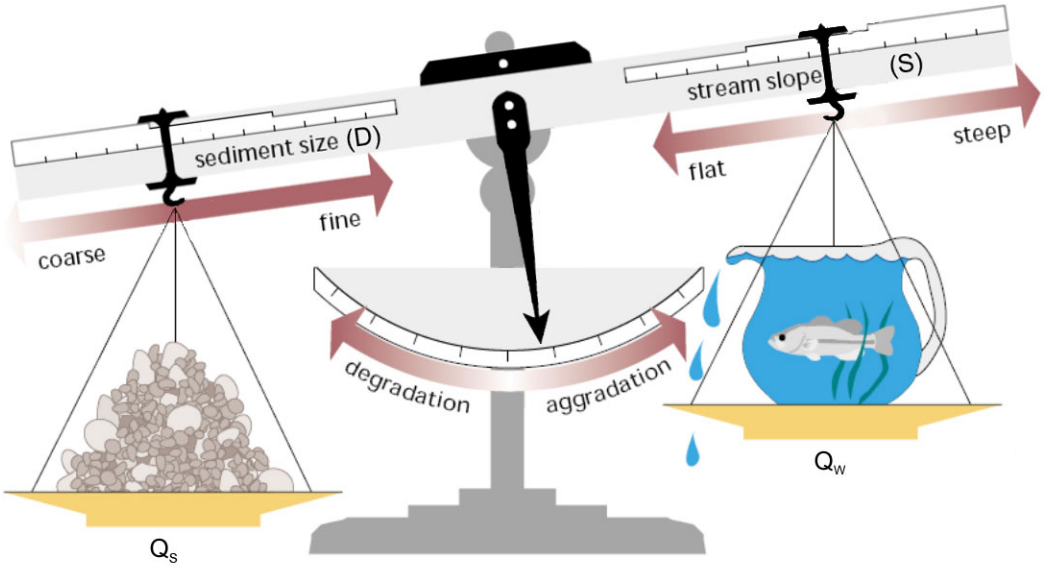

Figure 2.3 Example of Aggradation (Adapted from FISRWG, 1998)

Longitudinal View of Channels

The geomorphic processes that define the size and shape of channels can be observed in large and small scale longitudinal views. The overall longitudinal view of many streams can be divided into three general zones (Schumm, 1977):

- *Headwater zone*—characterized by steep slopes with sediment erosion as the most dominant geomorphic process.
- *Transfer zone*—characterized by more sinuous channel patterns and wider floodplains with sediment transfer as the most dominant geomorphic process.
- *Deposition zone*—characterized by lower slope and higher channel sinuosity than the other zone and is the primary deposition area for watershed sediment.

Key characteristics of each zone are summarized in Figure 2.4.

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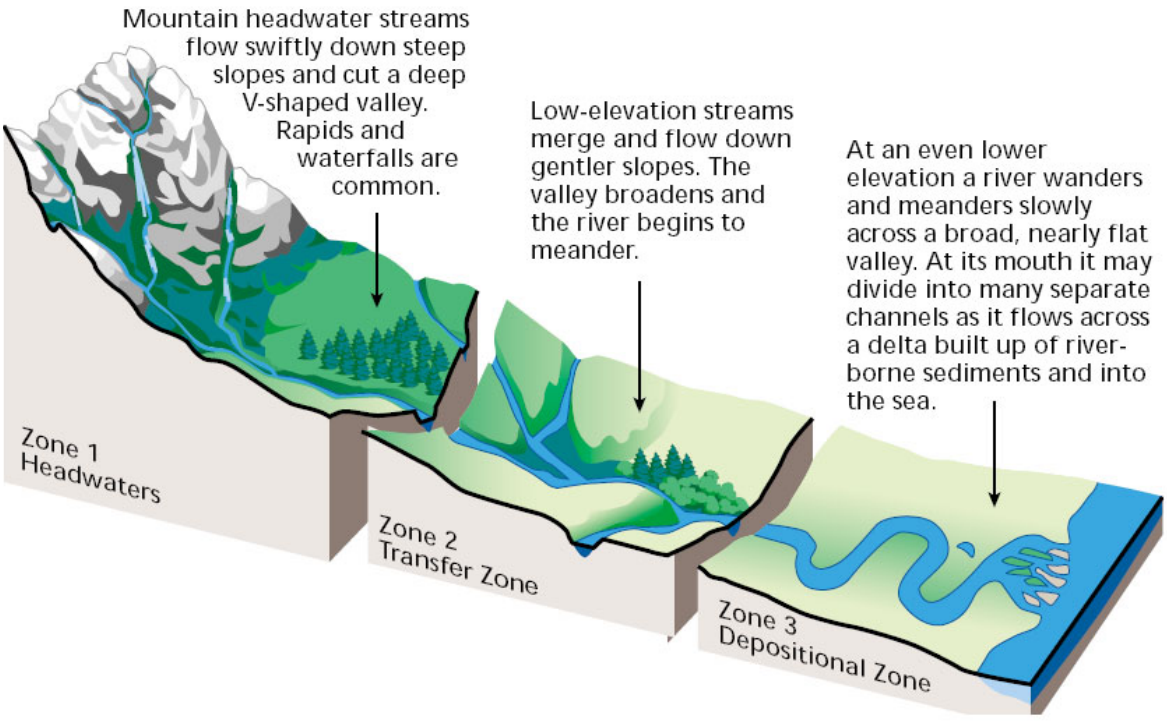

Figure 2.4 Three Longitudinal Profile Zones (FISRWG, 1998)

At a smaller scale, natural-forming channels are usually characterized by a series of riffles, pools, and runs. These structures are primarily associated with the thalweg, which meanders within the channel (Figure 2.5). Riffles are shallow, turbulent, and swiftly flowing stretches of water that flow over partially or totally submerged rocks. Deeper areas at stream bends are the pools and can be classified as large-shallow, large-deep, small-shallow, and small-deep. Runs are the sections of a stream with little or no surface turbulence that connect pools and riffles.

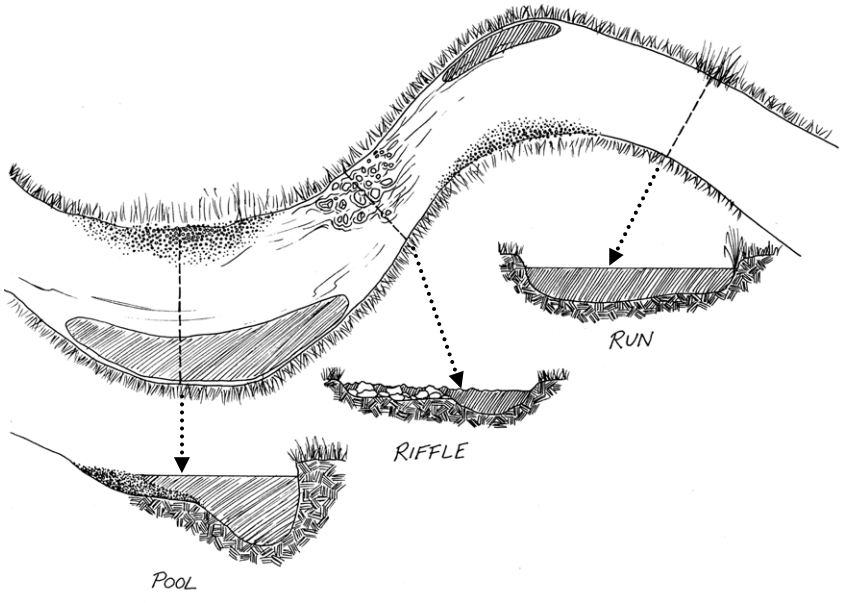

Figure 2.5 Overview of a Pool, Riffle, and Run (USEPA, 1997b)

The distribution in streamflow velocity and stream power throughout the riffle/pool/run sequence impact the geomorphic tasks. The stream bottom of a riffle is at a higher

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elevation than the stream areas surrounding it. Consequently, the water flowing in a run from riffle to pool has the highest velocity near the center of the channel just under the surface (i.e., away from the roughness associated with channel boundaries). On reaching a bend, angular momentum forces the highest velocity flow to the outside of the bend and, given enough tractive stress, causes erosion to the bank (cutbanks). Meanwhile on the inside of the bend deposition often occurs because of decreasing flow velocity. Importantly, these and other characteristics of the riffle/pool/run sequence create unique habitats which allow different species to live, reproduce, and feed.

Disruption of Dynamic Equilibrium

Changes caused by (or exacerbated by) hydromodification projects and other human activities can lead to a disruption of the dynamic equilibrium of the stream channel. If, for example, a modification occurs that causes a change in sediment discharge, channel slope, or streamflow, one or more of the other variables will be imbalanced and the channel will usually try to adjust and regain equilibrium by either increasing sediment discharge by scouring the bottom or eroding its banks (degradation) or decreasing sediment discharge by depositing sediment on the bottom (aggradation) (Biedenharn et al., 1997; Watson et al., 1999). In some cases, alterations to a stream channel can result in local or system-wide channel instability (FISRWG, 1998).

General Impacts of Channelization and Channel Modifications

Channelization and channel modifications are undertaken for many purposes including flood control, navigation, drainage improvement, and reduction of channel migration potential. Modifications also occur in association with the installation of culverts and bridges, urbanization of the watershed, and agricultural drainage. These changes may result in several physical and chemical impacts.

Physical Impacts

The most significant physical impact of channelization and channel modifications is the movement or deposition of sediment. Sediment erodes from stream banks and beds, is washed downstream in faster moving water, deposited in areas of slower flows, and transported into new areas of streams or other receiving waters. Critical habitat can be changed when channelization or channel modification projects alter the dynamic equilibrium of a stream and change sediment transport or deposition characteristics. Re-establishing equilibrium may take some time to occur and have long-lasting effects to habitat and water quality conditions.

Channel modification and channelization can lead to increased erosion in some areas of the stream, which produces sediment. Sediment can be dislodged and transported directly from the waterbody's shoreline, bank, or bottom. Sediment being transported by a stream is referred to as the sediment load, which is further classified as the bed load (those particles moving on or near the bed, or bottom of the channel) and the suspended load (those particles moving in the water column). Hydromodification typically results in more uniform channel cross-sections, steeper stream gradients, and reduced average pool depths.

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An increase in the sediment load could lead to increased turbidity, which then may cause an increase in stream temperature because the darker sediment particles absorb heat (USEPA, 1997b). Changes in water temperature can influence several abiotic chemical processes, such as dissolved oxygen concentrations, sorption of chemicals onto particles, and volatilization rates. Water temperature influences reaeration rates of oxygen from the atmosphere. Dissolved oxygen concentrations in water are inversely related to temperature; solubility of oxygen decreases with increasing water temperature. In addition, sorption of chemicals to particulate matter and volatilization rates are influenced by changes in water temperature. Sorption often decreases with increasing temperature and volatilization increases with increasing temperature (University of Texas, 1998).

An increased sediment load that contains significant organic matter can increase the sediment oxygen demand (SOD). The SOD is the total of all biological and chemical processes in sediment that consume oxygen (USEPA, 2003a). These processes occur at or just below the sediment-water interface. Most of the SOD at the surface of the sediment is due to the biological decomposition of organic material and the bacterially facilitated nitrification of ammonia, while the SOD several centimeters into the sediment is often dominated by the chemical oxidation of species such as iron, manganese, and sulfide (Walker and Snodgrass, 1986 from USGS, 1997; Wang, 1980). Increases in SOD can lead to lower levels of dissolved oxygen, which can be harmful to aquatic life.

A channel that is deepened or widened can result in slower and/or shallower flow. Reduced stream velocities can result in more sediment deposits to a stream segment. When more sediment is deposited in an area of a stream, critical habitats can be buried, channels may become unstable, and flooding increases. In tidal areas, channel modification activities, such as deepening a channel to allow for larger ships to access a shoreline, may require frequent maintenance to remove accumulating sediment because of changes in flow patterns.

Chemical Impacts

A variety of chemicals can be introduced into surface waters when channelization and channel modification activities alter flow and sediment transport characteristics. Nutrients, metals, toxic organic compounds, pesticides, and organic materials can enter the water in eroding soils along banks and move throughout a stream as flow characteristics change. Changing temperatures and dissolved oxygen levels may lead to alterations in the bioavailability of metals and toxic organics. Complex chemical conditions can significantly change when stream flow and sedimentation characteristics change, resulting in new and/or potentially harmful forms of chemicals affecting instream or benthic organisms.

It is important to remember that many of the physical and chemical changes are interrelated. For a more detailed discussion of the impacts associated with chemical and physical changes to surface waters, see *Restoration of Aquatic Ecosystems* (NRC, 1992). The following discussion provides examples of impacts that may be present as a result of different kinds of channelization. For a more detailed discussion of types of channelization projects and potential impacts, see Watson et al. (1999).

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Biological and Habitat Impacts

Pools, riffles, and runs create a mixture of flows and depths and provide a variety of habitats to support fish and invertebrate life (USEPA, 1997b). The shallow, turbulent, and swiftly flowing stretches of riffle water are well oxygenated and have a "patchy distribution of organisms," which means that different types of organisms are naturally found in different parts of the riffle. Pools can also be large or small and shallow or deep and support a wide variety of aquatic species. Sediments can deposit in pools, which can lead to the formation of islands, shoals, or point bars.

Changes in habitat and biological communities following hydromodification of a channel can be highly site-specific and complex. The physical and chemical alterations resulting from channelization impact various habitats and biological communities, including instream algae, fish, macroinvertebrate populations, and bank or floodplain vegetation. Mathias and Moyle (1992) compared unchannelized and channelized sections of the same stream and found a much higher diversity of many organisms, including aquatic invertebrates, fish, and riparian vegetation, in the unchannelized sections of the stream. Adams and Maughan (1986) compared the benthic community in a small headwater stream, prior to and after channelization. They found that the pathways of organic input shifted from materials associated with leaf fall and runoff to materials associated with periphyton production. Accompanying this change was a shift of the assemblage from shredder domination to grazer domination and a decrease in diversity. Biological and habitat impacts caused by channelization can result from increased stream velocity, decreases in pool and riffle habitat complex, decrease in canopy cover, increase in the solar radiation reaching the channel, channel incision, and increases in sediment.

Channelization of a stream may increase velocity due to increased channel slope and decreased friction with the bank and bed material. Changes in the velocity may cause an impact to organisms within the channel. For example, fish may have to expend more energy to stay in swifter currents and their source of food may be swept downstream. Studies have demonstrated that fisheries associated with channelized streams can be far less productive that those of non-channelized streams (Jackson, 1989). Increased rates of erosion as a result of increased velocities downstream of a channelization feature can also create unstable streambanks, which could lead to increased streambank erosion, higher risks of flooding, and ultimately negative impacts to aquatic organisms.

Channelization can result in a more uniform stream channel that is void of the pool and riffle habitat complex or obstructions, such as woody debris inputs. As repeatedly observed, this can result in changes to the biological community. Negishi et al. (2002) observed a decrease in the total density of macroinvertebrates in the middle of a channelized stream and a decrease in taxon richness in the middle and edge of a channelized stream. An overall reduction in habitat heterogeneity is likely responsible for the reduction in species diversity and the increased abundance of those species favored by the altered flows that is typically observed (Allan, 1995). On medium-sized, unregulated rivers, Benke (2001) found that habitat-specific invertebrate biomass was highest on snags, followed by the main channel and then the floodplain. It was concluded that invertebrate productivity from these habitats has likely been significantly diminished as a result of snag removal, channelization, and floodplain drainage (Benke, 2001).

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The survival of the Gulf Coast walleye (*Stizostedion vitreum*) relies on the availability of appropriate spawning habitat, such as large woody debris, that locally reduce current velocity. Channelization and the removal of structures have been identified as activities of concern that could threaten the survival of the species (VanderKooy and Peterson, 1998). In one experiment, an assessment of water quality using environmental indices, such as macroinvertebrate communities, found that channelization and deforestation resulted in a completely different and less varied biocommunity (Bis et al., 2000). A lower persistence of the macroinvertebrate assemblage in the channelized stream was attributed to the lower availability of flow such as backwaters and inundated habitats (Negishi et al., 2002). In a study by Kubecka and Vostradovsky (1995), low fish populations were attributed to channelization of the riverbed.

The channelization of a river can also result in a decrease in canopy cover and an increase in the solar radiation reaching the channel. Bis et al. (2000) found that an increase in incident radiation on a river resulted in increased algal productivity and a significant decrease in scrapers, a macroinvertebrate that feeds on periphyton or algae growing on plant surfaces. Increased water temperatures can also lead to a shift in the algal community to predominately planktonic algal communities, which disrupts the aquatic food chain (Galli, 1991). The combination of increased water temperatures and loss of riparian vegetation falling into the stream (which provides both food and cover) may be responsible for the decrease in macroinvertebrates. Increased solar radiation on a channelized stream can act to decrease productivity by reaching the level of photoinhibition; a decrease in productivity due to excessive amounts of solar radiation. The temperature of the water can also be increased to the extent that it adversely impacts organisms. Elevated temperatures disrupt aquatic organisms that have narrow temperature limits, such as trout, salmon, and many aquatic insects.

Incision of a channel, a common impact of channelization, disconnects the channel from the floodplain by lowering the riverbed relative to the floodplain and decreasing the occurrence of overbank flow. Channel incision or downcutting has rarely been found to directly affect the biotic ecosystem, but indirect changes in habitat conditions are significant. Channel incision decreases habitat heterogeneity and, as a result, biodiversity (Tachet, 1997). An analysis of forest overstory, understory, and herbaceous strata along a channelized and unchannelized stream showed that there was a difference in terms of size-class structure and woody debris quantity (Franklin et al., 2001). Loss of woody vegetation along riparian zones on a channel that is incised because of upstream channelization was attributed to a decrease in over bank flooding and a lowering of the water table as the stream became incised (Steiger et al., 1998). A comparison of a regulated and an unregulated river in Colorado's Green River Basin found a difference in riparian vegetation composition. The regulated river supported banks with wetland species that survive in anaerobic soils and terraces with desert species adapted to xeric soil conditions. The unregulated river supported riparian vegetation that changed along a more gradual environmental continuum from a river channel to a high floodplain (Merritt and Cooper, 2000).

Sediment affects the use of water in many ways. When the rate of erosion changes, transport and deposition of sediment also changes. Excessive quantities of sediment can bury benthic organisms and the habitat of fish and waterfowl. Suspended solids in the water reduce the amount of sunlight available to aquatic plants, cover fish spawning areas and food supplies, fill

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rearing pools, reduce beneficial habitat structure in stream channels, smother coral reefs, clog the filtering capacity of filter feeders, and clog and harm the gills of fish. Those fish species that rely on visual means to get food may be restricted by increased turbidity. Sedimentation effects combine to reduce fish, shellfish, coral, and plant populations and decrease the overall productivity of lakes, streams, estuaries, and coastal waters.

Impacts Associated with Specific Hydromodification Actions

Channel Straightening and Deepening

Channels are straightened for a multitude of reasons, such as directing water away from a particular structure or area and reducing local flooding. Channelization that involves straightening of the stream channel increases the slope of the channel, which results in higher discharge velocities. Impacts associated with increased water velocities include more streambank and streambed erosion, higher sediment loads, changes in pools, riffle, and run structure, and increased transport of nutrients and other pollutants (FISRWG, 1998; Simons and Senturk, 1992).

Channelization can also result in alterations to the base level of the stream, including channel downcutting or incision of a section of the stream, which raise the height of the floodplain relative to the riverbed and decrease the frequency of overbank flow. When streams reach flood stage and flow into the floodplain, velocities decrease. The reduction in overbank flow reduces sediment deposition and the sediment storage potential of the floodplain (Wyzga, 2001). A change in the downstream base level of a stream can create an unstable stream system (Biedenharn et al., 1997).

Headcutting is the deepening of a waterway caused by channelization or localized stream-bed mining. Headcutting severely impacts the physical integrity of a stream, as streambanks become unstable and are more prone to eroding and sloughing. Bank failures may result, removing streamside vegetation and introducing significant amounts of sediment into the waterway. As sediments build on the stream bottom, natural substrate is covered and stream depth decreases. Water quality often diminishes as temperatures rise due to less shading by riparian vegetation and increased water surface area with decreased depth. The rapid alteration to stream habitat caused by headcutting is usually detrimental to aquatic wildlife. Various organizations, such as the U.S. Army Corps of Engineers, the Natural Resources Conservation Service (NRCS), and the Missouri Department of Conservation, are involved in projects to reduce headcutting (CSU, n.d.; MDC, 2007; USGS, 2000).

Channel Lining

The sides of channels can be lined with materials such as metal sheeting, concrete, wood, or stone to prevent erosion of a particular section of stream channel or stream bank. The artificially lined areas can reduce the friction between the channel and flowing water, leading to an increase in velocity. The increased velocity and thus the increased erosive potential of the flowing water are not able to erode the artificially lined channel area and can result in augmented erosion downstream as well as increased downstream flooding (Brookes, 1998). Lining the channel also removes aquatic habitat and important substrates that are essential to aquatic life.

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Channel Narrowing

Narrowing of a stream channel often occurs when flood control measures such as levees and floodwalls are implemented. By narrowing a stream channel, the water is forced to flow through a more confined area and thus travels at an increased velocity (FISRWG, 1998). The increased velocity in turn increases the stream's erosive potential and ability to transport sediment. This can lead to increased erosion of the streambank and shoreline in downstream locations.

When a channel is made narrower, the water depth increases and the surface area exposed to the solar radiation and ambient temperature decreases, especially in the warmer months. This can cause a decrease in the water temperature. Increased depth may also reduce the surface area of the water in contact with the atmosphere and affect the transfer of oxygen into the water.

In a naturally flowing stream, floods are responsible for such processes as redistributing sediment from the river bottom to form sandbars and point bar deposits. Stream channel modifications to reduce flood damage, such as levees and floodwalls, often narrow the stream width, increasing the velocity of the water and thus its erosive potential. This can lead to increased erosion of the streambank and shoreline in downstream locations (FISRWG, 1998).

Channel Widening

Channel widening is often performed to increase a channel's ability to transport a larger volume of water. The design is often based on volumes of water that occur during flood events. The design of a channel modification project to increase the channel's ability to transport a large volume of water will determine the characteristic of the water flow. The widening of a channel can result in a channel with a capacity to transport water that far exceeds the typical daily discharge. This results in a typical flow that is shallow and wide. As a result of increased contact with the streambed and streambank, there is increased friction and a decreased water velocity. The decrease in velocity causes sediment to settle out of the water column and accumulate within the stream channel. This accumulation of sediment can decrease the capacity of the stream channel. The decreased depth and increased surface area of the water exposed to solar radiation and ambient air temperatures can lead to an increase in water temperature. A change in water temperature can influence dissolved oxygen concentrations as dissolved oxygen solubility decreases with increasing water temperature.

Where tidal flow restrictors cause impoundments, there may be a loss of streamside vegetation, disruption of riparian habitat, changes in the historic plant and animal communities, and decline in sediment quality. Restricted flows can impede the movement of fish or other aquatic life. Flow alteration can reduce the level of tidal flushing and the exchange rate for surface waters within coastal embayments, with resulting impacts on the quality of surface waters and on the rates and paths of sediment transport and deposition.

Culverts and Bridges

The presence of culverts and bridges along a channel can have an impact on the physical and chemical qualities of the water. A culvert can be in the form of an arch over a channel or a pipe that encircles a channel, and it functions to direct flow below a roadway or other land use. A culvert or the supports of a bridge can confine the width of a channel forcing the water to flow in a smaller area and thus at a higher velocity. Impacts associated with a higher flow velocity

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include increased erosion. An arch culvert maintains the natural integrity of the stream bottom. In addition, as compared with the natural substrate that can be found using an arch culvert without concrete inverts (floors), a pipe culvert may create less friction with the water flow and result in an increased flow velocity. The chemical and physical changes associated with increased erosion and sediment transport capacity would then result.

The culvert acts as a fixed point with a fixed elevation within the stream channel and as the stream attempts to adjust over time, the culvert remains stationary. Placement of this type of structure disturbs the natural equilibrium of a channel. A culvert sometimes may have beneficial attributes when it acts as a grade control structure, and as such, may serve to prevent upstream migrating incision (headcutting) from moving further up the channel. Depending on the watershed processes, the culvert may act to preserve the natural equilibrium of a channel.

Urbanization

As humans develop watersheds, the proportions of pervious and impervious land within the watershed change (most often increasing impervious areas and decreasing pervious areas). Development also results in reductions in vegetative cover in exchange for increases in houses, buildings, roads, and other non-vegetative cover. The result is a change in the fate of water from rainfall events. Generally, as imperviousness increases and vegetative cover is lost:

- Runoff increases
- Soil percolation decreases
- Evaporation decreases
- Transpiration decreases

Increased volumes of runoff resulting from some types of watershed development can result in hydraulic changes in downstream areas including bank scouring, channel modifications, and flow alterations (Anderson, 1992; Schueler, 1987). The resulting changes to the distribution, amount, and timing of flows caused by flow alterations can affect a wide variety of living resources. As urbanization occurs, changes to the natural hydrology of an area are inevitable. During urbanization, pervious spaces, including vegetated and open forested areas, are converted to land uses that usually have increased areas of impervious surface, resulting in increased runoff volumes and pollutant loadings. Hydrologic and hydraulic changes occur in response to site clearing, grading, and change in landscape. Water that previously infiltrated the ground and was slowly released runs off quickly into stream networks. Development, with corresponding increases in imperviousness, can lead to:

- Increased magnitude and frequency of bankfull and subbankfull floods
- Dimensions of the stream channel that are no longer in equilibrium with its hydrologic regime
- Enlargement of channels
- Highly modified stream channels (from human activity)
- Upstream channel erosion that contributes greater sediment load to the stream
- Reduced dry weather flow to the stream
- Decreased wetland perimeter of the stream
- Degraded in-stream habitat structure

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- Reduced large woody debris
- Increased stream crossings and potential fish barriers
- Fragmented riparian forests that are narrower and less diverse
- Decline in water quality
- Increased summer stream temperatures
- Reduced aquatic diversity

The hydraulic changes associated with urbanization have often been addressed with channelization and channel modification as a solution. Evaluating impacts from urbanization on a watershed scale and planning solutions on the same watershed scale can often prevent the transference of upstream problems to downstream locations. There are a variety of management activities that can reduce the impacts associated with urban development. When these urban impacts are reduced, additional hydromodification impacts, such as channelization and channel modification or streambank and shoreline erosion effects, may be reduced. Changes in urban development practices that result in reduced sediment in runoff can enhance reservoir quality and lessen the need for management activities to reduce nonpoint source impacts associated with the operation of dams.[1]

Agricultural Drainage

Some activities, including channelization and channel modification, that take place within a watershed, can lead to unintended adverse effects on watershed hydrology. Even when the intended effect of the watershed activity is to reduce pollution or erosion for an area within a watershed, the impact of the project to the entire watershed's hydrology should be evaluated. Since hydrology is important to the detachment, transport, and delivery of pollutants, better understanding of these effects can lead to reduction of nonpoint source pollution problems (USEPA, 2003b).

One example of an activity that has been shown to provide localized nonpoint source benefits, but can negatively affect the hydrology of a watershed, is an agricultural drainage system. The main purpose of agricultural drainage is to provide a root environment suitable for plant growth, but it can also be used as a means of reducing erosion and improving water quality. Despite the localized positive effects of drainage, when drainage water is poor in quality or contains elevated levels of pollutants, adverse impacts may occur downstream within a watershed. Concentrations of salts, nutrients, and other crop-related chemicals, such as fertilizers and pesticides can damage downstream aquatic ecosystems. Many agricultural drainage systems include drain tiles placed strategically throughout a field to create a network of gravity fed drains. The drain tiles empty into a collection pipe that drains to a waterbody nearby. With the drain system in place and operating, water will leave the affected area quicker and at one or more focused points. Water from the drainage system may erode the banks of unlined surface drains, contribute to flashier runoff events in the receiving water or downstream, and increase the load of sediment in drainage water (USEPA, 2003b).

[1] For additional information on hydrologic problems associated with urbanization and management practices that address urbanization issues, refer to *National Management Measures to Control Nonpoint Source Pollution from Urban Areas* (USEPA, 2005d): http://www.epa.gov/owow/nps/urbanmm/index.html.

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Because of these adverse effects, drainage planners should analyze effluents from these systems for nutrients and pesticides to determine possible downstream impacts. Care should also be taken with drainage water so that it does not negatively alter the hydrology of a watershed (FAO, 1997). The degree to which management activities, such as agricultural drainage systems, affect watersheds beyond their intended purpose should be evaluated. In some cases, a thorough assessment and thoughtful discussion with key stakeholders is enough to evaluate the potential impacts of a project on hydrology. However, in many instances, some form of modeling is probably needed to integrate various small and large impacts of watershed activities. For more information on agricultural drainage and management practices related to agricultural drainage, refer to *National Management Measures for the Control of Nonpoint Pollution from Agriculture* (USEPA, 2003b).[2]

Shorelines

A shoreline is defined as the areas between low tide and the highest land affected by storm waves. The shape and position of shorelines are constantly being modified by the processes of erosion and deposition by waves and currents (Tarbuck and Lutgens, 2005). NOAA's Coastal Services Center defines shoreline as "the line of contact between the land and a body of water. On Coast and Geodetic Survey nautical charts and surveys the shoreline approximates the mean high water line" (NOAA, 2006).

The shoreline can be divided into three major areas:

1) *Coast*—the land inland from the base of the sea cliff (produced by the undercutting of bedrock at sea level by wave erosion).
2) *Beach (shore)*—the area between low tide level and dunes, sea cliff, or permanent vegetation. This can be separated into backshore and foreshore.
3) *Offshore*—the area continuously underwater, which can include a wave build platform.

Shoreline Processes

As mentioned above, the shape and position of shorelines are constantly modified by erosion and deposition by waves and currents. Waves are agents of erosion, transportation, and deposition of sediments. Waves can be formed by the following processes (Tulane University, n.d.; University of Alabama, 2006):

- *Wind-generated waves*—formed by shear stress between water and air when the wind speed is higher than about 3 km/hr. Factors that determine the size of waves are wind velocity, wind duration, and fetch (distance the wind blows over a continuous water surface).
- *Displacement of water*—can be caused by activities such as landslides.
- *Displacement of seafloor*—can be caused by faulting and volcanic eruptions.

[2] Available online at: http://www.epa.gov/owow/nps/agmm/index.html.

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Wave refraction occurs where wave fronts approach the shore at an angle, but are bent to become more parallel to the shoreline by frictional drag on the bottom. The part of the wave in shallow water slows down because of bottom friction, while the part in the deep water keeps moving at regular speed. Wave refraction causes headland erosion and deposition in bays (Tulane University, n.d.; University of Alabama, 2006).

Nearshore currents occur in the area from the shoreline to beyond the surf zone and consist of (Tulane University, n.d.; University of Alabama, 2006):

- *Longshore currents* move parallel to shore in the same general direction as the approaching waves. They are produced by the movement of oblique waves in the surf zone, and can transport large amounts of sediment by longshore drift.
- *Rip currents* are strong, narrow currents of surface water that flow seaward through the surf into deeper water. The currents develop in areas with lower wave heights (deeper water depths).

Deposition and Erosion

Wave erosion and rivers that open into the ocean or lakes can deposit sediment, transported by longshore currents, developing the following depositional features (Tulane University, n.d.; University of Alabama, 2006):

1) *Beaches*—Any strip of sediment that extends from the low-water line inland to a cliff or zone of permanent vegetation, which is built of material eroded by waves from the headlands, and material brought down by rivers that carry the products of weathering and erosion from the land masses. Beaches are protected from the full force of water waves but are continually modified by wave and current erosion.
2) *Spits*—A narrow ridge or embankment of sediment forming a finger-like projection from the shore into the open ocean. Spits typically develop when the sediment being carried by long-shore drift is deposited where water becomes deeper, such as the mouth of a bay.
3) *Baymouth bars*—Sand bars that form as a result of longshore drift and completely cross a bay, sealing it off from the open ocean.
4) *Tombolo*—A ridge of sand that connects two islands or an island with the mainland, formed as the result of wave refraction around an island.
5) *Tidal inlet*—A break in a spit or baymouth bar, caused by storm erosion, through which tidal currents rush.
6) *Barrier islands*—Low offshore ridges of sediments that parallel the coast and are separated from the mainland by lagoons.

Wave erosion can also wear away land features, causing the following types of features to form (Tulane University, n.d.; University of Alabama, 2006):

1) *Sea cliffs*—formed by storm wave erosion which undercuts higher land, making it susceptible to mass wasting. Sea cliffs can erode very slowly or rapidly, depending on the rock type and wave energy.
2) *Wave-cut terrace or platform*—produced by the retreat of a sea cliff which slopes gently in a seaward direction.

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3) *Headlands*—occur due to the seaward projections of shore eroded by wave refraction.

Common Natural and Anthropogenic Causes of Coastal Land Loss

Primary causes of coastal land loss, including both natural and anthropogenic causes, are summarized in Table 2.1 below (USGS, 2004).

Table 2.1 Common Causes of Coastal Land Loss

Agent	Examples
Natural Causes	
Erosion	Waves and currents, storms, landslides
Sediment reduction	Climate change, stream avulsion, source depletion
Submergence	Land subsidence, sea-level rise
Wetland deterioration	Herbivory, freezes, fires, saltwater intrusion
Anthropogenic Causes	
Transportation	Boat wakes, altered water circulation
Coastal construction	Sediment deprivation (bluff retention), coastal structures (jetties, groins, seawalls)
River modification	Control and diversion (dams, levees)
Fluid extraction	Water, oil, gas, sulfur
Climate alteration	Global warming and ocean expansion, increased frequency and intensity of storms
Excavation	Dredging (canals, pipelines, drainage), mineral extraction (sand, shell, heavy mines)
Wetland destruction	Pollutant discharge, traffic, failed reclamation, burning

Shorelines can also experience increased rates of erosion as a result of hydromodification activities. Alterations to the sediment sources for beaches can result in erosion. The sediment supplied to beaches or shorelines can come from a variety of sources including rivers, cliff and rocky foreshores, the seafloor, or windblown dune materials. Beaches and shorelines at the mouth of a river are often replenished by fluvial sediment. When changes within the river system decrease the sediment load carried to the mouth of the river, the result may be decreased sediment supplies to the shoreline or beach. While the design of each hydromodification system determines the impacts that will ensue, streambank and shoreline erosion is a common consequence.

Impacts Associated with Dams

The physical presence and operation of dams can result in changes in water quality and quantity. Some of the water quality impacts include changes in erosion, sedimentation, temperature, dissolved gases, and water chemistry. Examples of biological and habitat impacts, which may result from a combination of physical and chemical changes, include loss of habitat for existing or desirable fish, amphibian, and invertebrate species; changes from cold water to warm water species (or inversely, changes from warm water to cold water species); blockage of fish passage; or loss of spawning or necessary habitat.

The impacts associated with dams occur above (upstream) and below (downstream) the dam. Upstream impacts occur primarily in the impoundment/reservoir created by the presence and operation of the dam. The area and depth of the impoundment will determine the extent and

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complexity of the upstream and downstream impacts. For example, small, low-head dams with little impounded areas will exhibit different impacts than large storage dams. Sedimentation and fish passage issues at the smaller, low-head dam contrast with sedimentation, temperature, fish passage, flow regulation, and water quality issues that may be associated with the larger storage dam. The existence of the dam and associated impoundment results in much different water quality interactions than those associated with the preexisting naturally flowing streams or rivers.

Above dams, activities within the watershed can have significant impacts on water quality within impoundments and in releases from dams to downstream areas. Watershed activities, such as agricultural land use, unpaved rural roads, forestry harvesting, or urbanization can lead to changes in runoff water quantity and quality. Agricultural and forestry practices that lead to sediment-laden runoff may result in increased sediment accumulation within an impoundment. Chemicals (e.g., pesticides and nutrients) that are applied on agricultural crops can be carried with sediment in runoff. Increases in urbanization that result in more impervious areas within a watershed often result in dramatic changes in the quantity and timing of runoff flows. These external sources are integrated by the dam and may result in short- and long-term water quality changes within an impoundment and dam releases.

Water quality in reservoirs and releases from dams are closely linked and scrutinized to uses of the water. Often, there are multiple potential users who may have differing quality needs and perceptions. Management of dams includes balancing dam operations, watershed activities, reservoirs, and downstream water and uses. Dortch (1997) provides an excellent assessment on water quality considerations in *Reservoir Management*. Dortch (1997) notes the following about water quality:

- *Temperature* regulates biotic growth rates and life stages and defines fishery habitat (warm, cool, and cold water).
- *Oxygen* sustains aquatic life.
- *Turbidity* affects light transmission and clarity.
- *Nutrient enrichment* is linked to primary productivity (algal growth) and can cause oxygen depletion, poor taste, and odor problems.
- *Organic chemicals and metals* may be toxic and accumulate when bound to sediment that settles in the reservoir.
- *Total dissolved solids* may be problematic for water supplies and other users.
- *Total suspended solids* are a transport mechanism for nutrients and contaminants. Solids may settle in reservoirs and displace water storage volume.
- *pH* regulates many chemical reactions.
- *Dissolved iron, manganese, and sulfide* can accumulate in reservoir hypolimnions that are depleted of oxygen and can cause water quality problems in the reservoir and release water.
- *Pathogens* include bacteria, viruses, and protozoa that can cause public health problems.

Water uses include water supply, flood control, hydropower, navigation, fish and wildlife conservation, and recreation (Dortch, 1997). All of the uses have varying water quality requirements, ranging from almost none for flood control to high quality needs for water supply, fish and wildlife conservation, and recreation.

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Dams act as a barrier to the flow of water, as well as to materials being transported by the water. This can impact water quality both in the impoundment/reservoir created by the dam and downstream of the dam. Alteration to the chemical and physical qualities of water held behind a dam is often a function of the retention time of a reservoir or the amount of time the water is retained and not able to flow downstream. Water held in a small basin behind a run-of-river dam may undergo minimal alteration. In contrast, water stored for months or even years behind a large storage dam can undergo drastic changes that impact the downstream environment when released (McCully, 2001). A storage dam that impounds a large reservoir of water for an extended time period will cause more extensive impacts to the physical and chemical characteristics of the water than a smaller dam with little storage capacity.

Several physical changes are possible when dams are introduced into a stream or river, including changes in:

- Instream water velocities
- Timing and duration of flows
- Flow rates
- Sediment transport capacities
- Turbidity
- Temperature
- Dissolved gasses

Similarly, changes to water chemistry are possible as a result of damming rivers and streams, including changes to:

- Nutrients
- Alkalinity and pH
- Metals and other toxic pollutants
- Organic matter

The nature and severity of impacts will depend on the location in the river or stream, in relation to the upstream or downstream side of the dam, the storage time of the impounded water, and the operational practices at the dam. Many of the above impacts are also interrelated. For example, changes in temperature may result in changes in dissolved oxygen levels or changes to pH may result in changes to nutrient dynamics and the solubility of metals.

Water Quality in the Impoundment/Reservoir

As water approaches a dam from upstream, the stream velocity slows down considerably, creating a lake-like environment. The water builds up behind the dam and forms a basin (i.e., impoundment, reservoir) that is deeper than the previous stream flow. The height of the dam and its operational characteristics will determine how much water is stored and the length of storage. The extent of impacted stream area above the dam is influenced by the size of the dam installed, how much water is released, and how often water is released. For example, a small run-of-the river dam constructed to divert water for a millrace will have minimal storage capacity and may only store water for several hours or less. In this case, instream water velocities may decrease,

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but with minimal upstream and downstream effects. Thus, the length of upstream channel that is impacted should be relatively small.

In contrast, a large flood control dam and reservoir may have many months of storage and severely alter instream velocities for long distances upstream. Topography surrounding the original stream channel and storage volume will be important parameters determining the length of stream channel affected by the large dam. The volume and frequency of discharges from the dam will also determine how much of the upstream channel is impacted with lower instream velocities as a result of the dam.

Dams act as a physical barrier to the movement of suspended sediments and nutrients downstream (McCully, 2001). When the stream flow behind a dam slows, the sediment carrying capacity of the water decreases and the suspended sediment settles onto the reservoir bottom. Any organic compounds, nutrients, and metals that are absorbed to the sediment also settle and can accumulate on the reservoir bottom.

Turbidity associated with sediment varies, depending on particle sizes of the sediment and the length of time water is held. Longer holding times in the reservoir could result in periodic episodes of high turbidity from upstream storm events that carry sediment rich stormwater, especially if the sediment is predominantly very fine clay particles. Turbidity may also increase as a result of planktonic algal growth in a reservoir.

The increased depth of the water in reservoirs reduces the volume of water exposed to solar radiation and ambient temperatures. Once the flow is controlled by the operation of the dam and the reservoir is mixed primarily by winds, temperature variations can become established within the reservoir. This can cause thermal stratification where, compared to the bottom, surface layers become warmer in the summer and cooler in the winter. In deeper reservoirs, the deepest layers may become nearly constant in temperature throughout the year. Changes in temperature can impact water quality and biological processes in the reservoir, including changes in predominant fish species. Since the density of water is a function of water temperature, thermal stratification creates density gradients within the impoundment. As density gradients become established, exchanges of gases and chemicals between gradients decrease. In a stratified impoundment well aerated surface waters often do not mix with hypolimnetic water and result in poorly oxygenated strata below the surface waters.

Nutrient transport is affected by dams, which can trap the nutrients in the impoundment/reservoir. When nutrients accumulate, the reservoir might become nutrient enriched (i.e., eutrophic). In warmer seasons, concentrated nutrients in waters exposed to light can promote growth of algae and other aquatic plants, which consume nutrients and release oxygen (during photosynthesis) and carbon dioxide (during respiration). When algae and other aquatic plants complete their growth cycles, they die and sink to the bottom of an impoundment. Microbial decomposition of the highly organic dead plant materials may release nutrients back into the water column. Microbial decomposition of the dead plant and algal cells in aerobic conditions consumes oxygen, which can rapidly deplete bottom waters of dissolved oxygen. Under anaerobic conditions, microbial decomposition can produce potentially toxic concentrations of gases, such as hydrogen sulfide.

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The operational characteristics of a dam will influence nutrient levels in water releases. For example, water released from the surface of an impoundment may contain seasonally varying forms and levels of nutrients. During periods of algal growth, releases may contain lower levels of dissolved nutrients and higher levels of organic materials (algae) containing nutrients. When algal growth is not occurring, releases may contain higher levels of dissolved nutrients.

Anaerobic (oxygen-depleted) environments, which are typical of deeper waters in reservoirs, can result in several changes to the water chemistry. For example, as by-products of organic matter decomposition in an anaerobic environment, ammonia and hydrogen sulfide concentrations can become elevated (Freeman, 1977; Pozo et al., 1997). Highly acidic (or highly alkaline) waters tend to convert insoluble metal sulfides to soluble forms, which can increase the concentration of toxic metals in reservoir waters (FISRWG, 1998).

Changes in one water quality parameter in a reservoir/impoundment can impact other water quality parameters, causing a cycling of events to occur. For example, increased sedimentation (from internal or external sources) can lead to more organic matter remaining in the reservoir, resulting in more biochemical oxygen demand, potentially lower dissolved oxygen, and other changes to water chemistry, such as pH and metal solubility. Periodic growth and then die-off of aquatic plants and algae creates additional variable cycling of organic matter in the reservoir. The following references may provide additional detail on the complex water quality changes that can occur in impoundments and reservoirs:

- Holdren, C., W. Jones, and J. Taggart. 2001. *Managing Lakes and Reservoirs*. North American Lake Management Society and Terrene Institute, in cooperation with the Office of Water, Assessment and Watershed Protection Division, U.S. Environmental Protection Agency, Madison, WI.
- Thornton, K.W., B.L. Kimmel, and F.E. Payne. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley & Sons, Inc., New York.
- U.S. Army Corps of Engineers. N.d. *The WES Handbook on Water Quality Enhancement Techniques for Reservoirs and Tailwaters*. U.S. Army Corps of Engineer Research and Development Center Waterways Experiment Station, Vicksburg, MS.

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Water Quality Downstream of a Dam

The physical and chemical changes that occur to the water quality in an impoundment/reservoir have a large impact on the water released downstream of a dam. As previously stated, the presence of a dam can alter water velocities above and below the dam. In smaller dams with little storage capacity, velocities may slow locally and recover to an undisturbed state shortly downstream from the dam. When dams store large volumes of water in a reservoir, the operation of the dam will have a major impact on the downstream velocities and flows. Unless the dam is operated to consistently release water at flows near pre-dam levels, downstream areas will have flows and velocities that are directly related to the volume of water released in a given time period. The downstream flow characteristics will become a function of the operation of the dam, including the timing and duration of releases, the depth of reservoir intakes, and other physical characteristics of the release.

On the Columbia River, research found that prior to construction of dams, average water temperatures fluctuated more diurnally with cooler nighttime temperatures as compared with the existing average water temperatures. With the dams in place, cooler weather tends to cool the free flowing river but have little effect on the average temperature of the impounded river (USEPA, 2003c).

When dams trap sediment upstream, water released from the dam may be starved of sediment and have an increase in erosive capacity. Along with trapping sediment, nutrients may also be trapped above the dam. When the nutrients are trapped and unavailable, sensitive downstream habitats and populations may be affected.

Whether the water is released from the surface or bottom of the reservoir can have a large impact on the characteristics of the water. The impacts of water outflows below a dam are an outcome of the seasonal temperature fluctuations and the outflow positioning. Seasonal temperature profiles in reservoirs are highly variable and dependent upon a complex set of factors including tributary inflow, basin morphometry, drawdown and discharge characteristics, and the degree of stratification (Wetzel, 2001). Compared to natural temperatures, in summer elevated temperatures in surface water releases can increase downstream river temperatures, whereas bottom water releases can be expected to decrease water temperatures. The opposite effect is generally observed in the winter due to changes in the water temperature gradient (USACE, 1999 in Fidler and Oliver, 2001).

Suspended Sediment and Reduced Discharge

Whether the release water originates from the surface or the bottom of the reservoir, the suspended sediment has typically settled out of the water column and thus the water released from behind the dam is usually relatively free from sediment (Simons and Senturk, 1992). This sediment-free water can easily pick up and carry a sediment load and have an increase in erosive capacity. Because of the rock lined channels of bank stabilization and navigation projects that usually occur below these reservoirs, the only place that the clear waters can find the sediments they need is in the streambed or navigation channel. This leads to channel deepening or bed degradation, which in turn lowers water tables and drains floodplain channels and backwaters (Rasmussen, 1999). Streambed and streambanks will continue to erode until an equilibrium suspended sediment load is established. Without sediment from upstream sources, downstream streambanks, streambeds, sandbars, and beaches can erode away more quickly (FISRWG, 1998).

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A reduction in the discharge and sediment load generally results in degradation of the channel close to the dam and sedimentation downstream due to the increased supply from the erosion near the dam. Degradation may eventually migrate downstream, but is typically most dramatic the first few years following construction of the dam (Biedenharn et al., 1997). In addition, the physical impact of the discharge will depend, in part, on the channel substrate. A fine silt and sand channel bottom may experience more extensive erosion than a bed rock or cobble substrate.

Lower flow conditions below a dam within a tidally influenced basin can lead to changes in water chemistry. The impact of lower freshwater flow into estuaries was extensively studied in San Francisco Bay. Nichols et al. (1986) provide a detailed history of changes to freshwater inflows to San Francisco Bay. They also provide a summary of the impacts, which include the ecological and water quality effects. A study comparing an unregulated river and a dam regulated river found a significant difference in the water quality chemistry, including an analysis of levels of sodium, potassium, calcium, phosphorus, electrical conductivity, and pH in the middle and lower reaches of the rivers. These differences were attributed to increased tidal influence as a result of lower outflow volumes of fresh water from the dam (Colonnello, 2001). In addition, a decreased discharge from the dam and increased tidal influence can prolong the flushing time or the time it takes water to move through a system. This causes the nutrients and pollutants within the water to remain concentrated in areas below the dam near an estuary.

Biological and Habitat Impacts

The presence of a dam may cause physical and chemical changes to the water quality. These, in turn, can have an impact on the entire biological community including fish, macroinvertebrates, algae, and streamside vegetation. Impacts to the biological community differ upstream and downstream of a dam. Dams may disrupt spawning, increase mortalities from predation, change instream and riparian habitat, and alter plant and benthic communities. Resulting fish populations after dam construction may thrive and become well established, but could be very different than populations prior to installing the dam. For example, upstream of the dam, a fish population may change from a cold-water salmonid fishery to one that is dominated by cool- or warm-water species. A once thriving native trout population may become a largemouth bass (*Micropterus salmoides*) and bluegill (*Lepomis macrochirus*) dominated system. Similarly, downstream conditions may also change. In southern states, streams that once supported catfish and other tolerant warm-water species may now be able to support a trout fishery because of cold-water releases from bottom waters behind a dam. Although the trout fishery may be viewed as positive by some, the displaced native warmwater species may not be perceived as beneficial.

Dams prevent the movement of organisms throughout the river system (Morita and Yamamoto, 2002). Researchers found that fragmenting habitat by damming a river caused the disappearance of a fish species in several upstream locations and further disappearances were predicted (Morita and Yamamoto, 2002). Recently, some individual cases involving movement of invasive, non-native aquatic species note the presence of dams as a positive factor. In these cases, dams have blocked the movement of potentially harmful invasive species.

Flood control and hydropower projects influence a river's hydrograph. For example, in some regions normal river hydrographs featured a rise in water level elevation corresponding to spring

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rains. Other geographic areas had stream hydrographs corresponding to snowmelt in the mountains, or fall rainfall. Native species evolved under these scenarios and used such water level rises to trigger spawning movements onto floodplains and in the case of birds, for nesting on islands. Additionally, the stream water level fluctuations were important in providing feeding and resting areas for spring and fall waterfowl migrations. Under managed scenarios for commercial navigation, river water level elevations are raised in the spring and held stable throughout the navigation season, virtually eliminating the triggering mechanisms native species used to reproduce and complete their life cycles. Because of this, many native riverine species often fail to spawn or nest, and are becoming increasingly threatened (Rasmussen, 1999). Additionally, stabilization of periodic flooding has also lead to the loss of ephemeral wetlands and may lead to the accumulation of sediments in nearshore areas, thus negatively affecting fish spawning areas (NRC, 1992).

Dams may lead to increased predation of fish in several ways. A dam may cause populations of fish to concentrate on the upstream and downstream sides, which might lead to the likelihood of increased predation. Changes in the habitat adjacent to a dam can make conditions more suitable to predation. Dams may cause the migration process to be delayed, which also leads to increased predation (Larinier, 2000).

The physical and chemical changes to water released from a dam, including reduced streamflow variability and decreased sediment loads, may also impact benthic communities. Increased water clarity and reduced streamflow variability just below a dam may result in a greater abundance of periphyton or other plants as compared with other locations in the river (Stanford and Ward, 1996). A slowed stream flow velocity with decreased turbulence can also encourage the growth of phytoplankton blooms (Décamps et al., 1988). In contrast, the operation of some hydroelectric dams with large, sudden releases of water may scour the bottom of the downstream channel to the extent that there is a nearly complete removal of the plant communities (Allan, 1995).

Impacts Associated with Dam Removal

Removing a dam affects the flow of water, movement of sediment and chemical constituents, and the overall channel morphology (Academy of Natural Sciences, 2002) on the waterway where the dam was located. The impacts of removing a dam differ for the upstream and downstream sections of a waterway.

Changes in the biological community following the removal of a dam are difficult to generalize, as they are highly site specific and can vary in recovery time from a few months to

The effects of river damming were evaluated in a study comparing a regulated river to an unregulated river in the Green River Basin in Colorado. Prior to installation of the dam in Green River in 1962, Green River and the Yampa River were similar in riparian vegetation and fluvial processes. Comparison of the now regulated Green River and the free-flowing Yampa River found distinctive vegetation differences between the parks that surround the rivers. The channel form of Green River has undergone three stages of morphologic change that have transformed the historically deep river into a shallow braided channel. The Yampa River has remained relatively unchanged. The land surrounding the Green River now consists of marshes with anaerobic soil that supports wetland species and terraces with desert species adapted to xeric soil conditions. The meandering Yampa River has maintained its original surroundings. Its frequently flooded bars and high floodplains provide a wide range of habitats for succession of riparian vegetation (Merritt and Cooper, 2000).

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more than a decade. With the removal of a dam, there are changes in the vegetative community surrounding the stream channel and changes in the biological community within the stream itself.

Physical Changes: Upstream Impacts

The removal of a dam allows the water formerly held behind the dam to flow and will likely cause the extent of the impoundment area or reservoir area to decrease. As a dam is removed and the water recedes, sediment is scoured from the bottom and a stream channel returns sometimes to its pre-dam pathway and sometimes to a newly carved channel. As a channel is formed, areas that were formerly beneath the impoundment area become exposed. This can leave large areas of unvegetated and unstable land exposed, which makes these areas likely to undergo erosion and gully development, increasing the sediment load to the stream.

In time, vegetation will stabilize the newly formed stream banks, reducing erosion and allowing sediment transport levels to return to natural levels. The nutrient and metal constituents associated with the sediment will also return to natural levels. As the newly established channel-like flow develops and the stagnant and deep conditions are removed, the natural temperature and oxygen levels will be reestablished.

Physical Changes: Downstream Impacts

Once the physical barrier of the dam is removed, a river can flow unrestricted. As the channel is reformed, the water discharge volume and the stream channel can reach equilibrium. As a result, a more natural stream flow rate is maintained.

With the removal of a dam, the fate of the trapped sediments is of concern because flooding and downstream pollution problems can result. On a short-term time scale, the redistribution of the fine silt and sand sediments that accumulated behind the dam wall may cause an increase in turbidity and water quality problems. In addition, the impact can be greater if the sediments contain toxic pollutants, such as metals or bioaccumulative compounds such as mercury or PCBs. On a short-term time scale, the redistribution of the fine silt and sand sediments increases the turbidity and can damage spawning grounds, water quality, habitat, and food quality (American Rivers, 2002a). Suspended sediment loads can have a negative impact on a biological community and reach lethal levels during dam removal if preventive measures are not implemented (Doyle et al., 2000).

After a dam is removed and the sediment that has been trapped behind the dam is redistributed, natural sediment transport levels return. As a result, the constituents typically sorbed to sediment, including nutrients and metals, are no longer found localized in excess. Normal sediment transport levels typically result in a river bottom with a higher percentage of rocky substrate. Gravel and cobblestones located below the sediment may be exposed or may be transported from upstream locations as the flow rate of the river increases. This unrestricted flow and transport of sediment and gravel may also play a key role in restoring sediments to downstream locations and coastal beaches (USDOI, 1995). The removal of a dam and the return of natural flow rates should also help to restore a river's natural water temperature range and oxygen levels.

Short-term chemical changes to the water quality, including the possibility of supersaturation of nitrogen gas directly following the removal of a dam, can cause aquatic animals to experience

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adverse conditions. This can include gas bubble disease, in which nitrogen bubbles form in the blood and tissues and block capillaries by embolism (Colt, 1984; Soderberg, 1995). Adverse effects can be seen when the dissolved nitrogen level reaches 102% and at 105% widespread fish mortalities are possible (Dryden Aqua, 2002). Supersaturation was an issue in the 1992 removal of Little Goose Dam on the Snake River (American Rivers, 2002a). If a reservoir is drawn down slowly, the severity of the impact of supersaturation on aquatic organisms can be lessened (American Rivers, 2002a).

Biological Changes: Upstream Impacts

Following the removal of a dam, a return to the normal temperature range, flow rates, and oxygen levels supports the return of native aquatic vegetation species. Still water impoundments support aquatic vegetation that is free floating or that does not need to be strongly rooted, while free-flowing systems support plants that are rooted strongly enough to resist being uprooted by the water current (WRM, 2000).

As the water recedes and the formerly impounded area becomes exposed, vegetation can begin to colonize the area. Sometimes, the exposed area may be colonized by invasive plant species, which are able to remain for several years and prevent other vegetation from becoming established.

The removal of a dam and the subsequent drawdown of water from the impoundment area can affect the wetlands formerly bordering the impoundment area. As the dam is removed, the water table typically begins to drop. The elevation of the wetlands and the extent of the water table drawdown determine whether the wetland areas dry up and what changes will occur in the wetland species composition. Wetlands that develop alongside the newly carved channel are likely to be different than the wetlands formerly bordering the impoundment area in terms of plant and animal species composition.

The biological changes associated with the removal of a dam can be described in phases, as the waterbody makes the transition from reservoir to river. This includes a pattern of relatively rapid recovery for invertebrates or short-lived taxa, followed by a second phase of slower recovery for fish or longer-lived taxa if the dam removal is not an especially large or disruptive event. Overall, the initial impacts, such as colonization by invasive species, typically determine the ecological recovery that follows (Doyle et al., 2000).

Dam removal can allow for improved fish passage and unrestricted fish movement that provides access to spawning habitat upstream. For coastal rivers, the removal of a dam may enable tidal waters to reach upper portions of the stream that were formerly cut off by the dam, creating a spawning environment preferred by certain fish species. Access to upstream sections is particularly beneficial for some anadromous fish that live most of their lives in saltwater and swim upstream toward freshwater to spawn (Massachusetts River Restore Program, 2002).

A dam can also act as a barrier between upstream and downstream fish populations. If a downstream community of fish is an invasive fish species the dam serves as a physical barrier to separate the invasives from the upstream community (American Rivers, 2002a). Thus, the removal of the dam can negatively impact the ecosystem if it allows for the movement of a

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population of an invasive species that was previously prevented from traveling to a section of the stream because of the presence of a dam.

Biological Changes: Downstream Impacts

Downstream of the former dam, wetlands are likely to reappear along side the stream channel where they occurred prior to the construction of the dam (WRM, 2000). Revegetation of river beds and banks typically occurs within one growing season, following removal of a dam (Massachusetts River Restore Program, 2002).

Recolonization of the stream banks by vegetation affects the biological community within the stream by providing shade, reducing water temperatures, and supplying a source of woody debris and organic matter to the stream.

As streamside vegetation begins to recover and suitable habitat is restored, fish begin to return. Changes in flow as a result of dam removal lead to the development of side channels and ponds that provide habitat for fish and wildlife. Increased flow rates also allow for the transport of larger debris, including gravel and logs, which create spawning beds and pool and riffle habitat (River Recovery, 2001). In addition, the rocky substrate environment, which is typically exposed as a result of dam removal, provides habitat for aquatic insects and spawning fish. In the long term, the return to natural stream temperatures, oxygen levels, and flow rates all contribute to the reestablishment of a healthy aquatic and riparian ecosystem.

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Chapter 3: Channelization and Channel Modification

Channelization and channel modification describe river and stream channel engineering undertaken for flood control, navigation, drainage improvement, and reduction of channel migration potential. Activities that fall into this category include straightening, widening, deepening, or relocating existing stream channels and clearing or snagging operations. These forms of hydromodification typically result in more uniform channel cross-sections, steeper stream gradients, and reduced average pool depths. Channelization and channel modification also refer to the excavation of borrow pits, canals, underwater mining, or other practices that change the depth, width, or location of waterways, or embayments within waterways.

Channelization and channel modification activities can play a critical role in nonpoint source pollution by increasing the downstream delivery of pollutants and sediment that enter the water. Some channelization and channel modification activities can also cause higher flows, which increase the risk of downstream flooding.

Channelization and channel modification can:

- Disturb stream equilibrium
- Disrupt riffle and pool habitats
- Create changes in stream velocities
- Eliminate the function of floods to control channel-forming properties
- Alter the base level of a stream (streambed elevation)
- Increase erosion and sediment load

Many of these impacts are related. For example, straightening a stream channel can increase stream velocities and destroy downstream pool and riffle habitats. As a result of less structure in the stream to retard velocities, downstream velocities may continue to increase and lead to more frequent and severe erosion.

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Management Measure 1: Physical and Chemical Characteristics of Channelized or Modified Surface Waters

Management Measure 1
1) Evaluate the potential effects of proposed channelization and channel modification on the physical and chemical characteristics of surface waters. 2) Plan and design channelization and channel modification to reduce undesirable impacts. 3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to improve physical and chemical characteristics of surface waters in those channels.

This management measure applies to proposed channelization or channel modification projects and is intended to occur concurrently with the implementation of Management Measure 2 (Instream and Riparian Habitat Restoration). The intent of the management measure is for project planners to consider potential changes in surface water characteristics when evaluating proposed channelization or channel modification projects. Also, for existing modified channels, the planning process can include consideration of opportunities to improve the surface water characteristics necessary to support desired fish and wildlife.

The purpose of the management measure is to ensure that the planning process for new hydromodification projects addresses changes to physical and chemical characteristics of surface waters that may occur as a result of proposed work. For existing projects, this management measure can be used to ensure the operation and maintenance program uses any opportunities available to improve the physical and chemical characteristics of the surface waters.

Changes created by channelization and channel modification activities are problematic if they unexpectedly alter environmental parameters to levels outside normal or desired ranges. The physical and chemical characteristics of surface waters that may be influenced by channelization and channel modification include sedimentation, turbidity, salinity, temperature, nutrients, dissolved oxygen, oxygen demand, and contaminants. Changes in natural sediment supplies, reduced freshwater availability, and accelerated delivery of pollutants are examples of the types of changes that can be associated with channelization and channel modification.

Published case studies of existing channelization and channel modification projects describe alterations to physical and chemical characteristics of surface waters (Burch et al., 1984; Petersen, 1990; Reiser et al., 1985; Roy and Messier, 1989; Sandheinrich and Atchison, 1986; Sherwood et al., 1990; Shields et al., 1995). Frequently, the post-project conditions are intolerable to desirable fish and wildlife. The literature also describes instream benefits for fish and wildlife that can result from careful planning of channelization and channel modification

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projects (Bowie, 1981; Los Angeles River Watershed, 1973; Sandheinrich and Atchison, 1986; Shields et al., 1990; Swanson et al., 1987; USACE, 1989).

Management Practices for Management Measure 1

Implementation of this management measure should begin during the planning process for new projects. For existing projects, implementation of this management measure can be included as part of a regular operation and maintenance program. The approach is two-pronged and should include:

1. *Planning and evaluation*, with numerical models for some situations, of the types of nonpoint source (NPS) pollution related to instream changes and watershed development.

2. *Operation and maintenance programs that apply* a combination of nonstructural and structural practices to address some types of NPS problems stemming from instream changes or watershed development.

Planning and Evaluation

In planning-level evaluations of proposed hydromodification projects, it is critical to understand that the surface water quality and ecological impact of the proposed project will be driven primarily by the alteration of physical transport processes. In addition, it is critical to realize that the most important environmental consequences of many hydromodification projects will occur over a long-term time scale of years to decades.

> Use models/methodologies as one means to evaluate the effects of proposed channelization and channel modification projects on the physical and chemical characteristics of surface waters. Evaluate these effects as part of watershed plans, land use plans, and new development plans.

The key element in the selection and application of models for the evaluation of the environmental consequences of hydromodification projects is the use of appropriate models to adequately characterize circulation and physical transport processes. Appropriate surface water quality and ecosystem models (e.g., salinity, sediment, cultural eutrophication, oxygen, bacteria, fisheries, etc.) are then selected for linkage with the transport model to evaluate the environmental impact of the proposed hydromodification project. There are several sophisticated two-dimensional (2D) and three-dimensional (3D) time-variable hydrodynamic models available for environmental assessments of hydromodification projects. Two-dimensional depth or laterally averaged hydrodynamic models can be routinely applied to assist with environmental assessments of beneficial and adverse effects on surface water quality by knowledgeable teams of physical scientists and engineers (Hamilton, 1990). Three-dimensional hydrodynamic models are also beginning to be more widely applied for large-scale environmental assessments of aquatic ecosystems (e.g., EPA/USACE-WES Chesapeake Bay 3D hydrodynamic and surface water quality model).

Refer to Chapter 8 for a list of some models available for studying the effects of channelization and channel modification activities (Table 8.1). Chapter 8 also provides examples of channelization and channel modification activities and associated models that can be used in the planning process.

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Operation and Maintenance Programs

Several management practices can be implemented to avoid or mitigate the physical and chemical impacts generated by hydromodification projects. Many of these practices have been engineered and used for several decades, not only to mitigate human-induced impacts but also to rehabilitate hydrologic systems degraded by natural processes.

In cases where existing channelization or channel modification projects can be changed to enhance instream or streamside characteristics, several practices can be included as a part of regular operation and maintenance programs. New channelization and channel modification projects that are predicted to cause unavoidable physical or chemical changes in surface waters can also use one or more practices to mitigate the undesirable changes. Some of the types of practices include:

- Grade control structures
- Levees, setback levees, and floodwalls
- Noneroding roadways
- Streambank protection and instream sediment load controls
- Vegetative cover

Grade Control Structures

There are two basic types of grade control structures. The first type can be referred to as a bed control structure because it is designed to provide a hard point in the streambed that is capable of resisting the erosive forces of the degradational zone. The second type can be referred to as a hydraulic control structure because it is designed to function by reducing the energy slope along the degradational zone to the point where the stream is no longer capable of scouring the bed. The distinction between the operating processes of these two types is important whenever grade control structures are considered (Biedenharn and Hubbard, 2001).

Design considerations for siting of grade control structures include determining the type, location, and spacing of structures along the stream, along with the elevation and dimensions of structures. Siting grade control structures can be considered a simple optimization of hydraulics and economics. However, these factors alone are usually not sufficient to define optimum siting conditions. Hydraulic considerations must be integrated with a host of other factors that can vary from site to site to determine the final structure plan. Some of the more important factors to be considered when siting grade control structures are discussed more specifically in the U.S. Army Corps of Engineers' *Design Consideration for Siting Grade Control Structures* (Biedenharn and Hubbard, 2001).

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to be reclaimed (CASQA, 2003).

In some cases, grade control structures can be designed to allow fish passage. However, some grade control structures can obstruct fish passage. In many instances, fish passage is a primary consideration and may lead engineers to select several small fish passable structures in lieu of

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one or more high drops that would restrict fish passage. In some cases, particularly when drop heights are small, fish are able to migrate upstream past a structure during high flows. In situations where structures are impassable, and where the migration of fish is an important concern, openings, fish ladders, or other passageways must be incorporated into the structure's design (Biedenharn and Hubbard, 2001). Fish passage practices are described in Chapter 7.

A type of grade control structure is a check dam. Refer to Chapter 7 for more information about this practice.

Levees, Setback Levees, and Floodwalls

Levees are embankments or shaped mounds constructed for flood control or hurricane protection (USACE, 1981). Setback levees and floodwalls are longitudinal structures used to reduce flooding and minimize sedimentation problems associated with fluvial systems. These practices can be used to reduce the impacts of channelization and channel modification. A more detailed discussion of levees, setback levees, and floodwalls is available in Chapter 7.

Noneroding Roadways

Disturbances along the streambank that result from activities associated with operation and maintenance of channelization projects can lead to additional nonpoint source pollution impacts to the stream. An example of human-induced activities is erosion associated with roadways. Rural road construction, streamside vehicle operation, and stream crossings usually result in significant soil disturbance and create a high potential for increased erosion processes and sediment transport to adjacent streams and surface waters. Erosion during and after construction of roadways can contribute large amounts of sediment and silt to runoff waters, which can deteriorate water quality and lead to fish kills and other ecological problems (USEPA, 1995b).

Road construction involves activities such as clearing of existing native vegetation along the road right-of-way; excavating and filling the roadbed to the desired grade; installation of culverts and other drainage systems; and installation, compaction, and surfacing of the roadbed.

Although most erosion from roadways occurs during the first few years after construction, significant impacts may result from maintenance operations using heavy equipment, especially when the road is located adjacent to a waterbody. In addition, improper construction and lack of maintenance may increase erosion processes and the risk for road failure. To minimize erosion and prevent sedimentation impacts on nearby waterbodies during construction and operation periods, streamside roadway management needs to combine proper design for site-specific conditions with appropriate maintenance practices. A discussion of how roadways can impact fish habitat and passage is available from EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry* (USEPA, 2005a).

More information about suggested practices to consider during design, construction, operation and maintenance, and general maintenance of noneroding roadways, is available from EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry* (USEPA, 2005a). This EPA guidance document also provides some suggested permanent control BMPs that may be used to prevent erosion from roadways. Additional information about noneroding roadways is available in Chapter 7 and the Resources section of this document.

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Streambank Protection and Instream Sediment Load Controls

Streambank erosion is a natural process that occurs in fluvial systems. Streambank erosion can also be induced or exaggerated as a result of human activities. There are several factors within a watershed that can contribute to human induced streambank erosion. Accelerated streambank erosion related to human activity can typically be attributed to three major causes including channel modifications, reservoir construction, and land use changes (Henderson, 1986). When possible, streambank erosion problems should be addressed in the context of the entire watershed, using a systems approach that considers and accommodates natural stream processes. Approaches to addressing streambank erosion problems associated with channelization and channel modification activities can involve efforts to identify and address all significant contributing factors in addition to treating the immediate symptom, bank erosion.

In general, the design of streambank protection may involve the use of several techniques and materials. Nonstructural or programmatic management practices for the prevention of streambank failures include:

- Protection of existing vegetation along streambanks
- Careful use or regulation of irrigation near streambanks, such as rerouting of overbank drainage
- Minimization of loads on top of streambanks (such as prevention of building within a defined distance from the streambed)

Several structural practices are used to protect or rehabilitate eroded banks. These practices are usually implemented in combination to provide stability of the stream system, and they can be grouped into direct and indirect methods. Direct methods place protecting material in contact with the bank to shield it from erosion. Indirect methods function by deflecting channel flows away from the bank or by reducing the flow velocities to nonerosive levels (Henderson, 1986; Henderson and Shields, 1984). Indirect bank protection requires less bank grading and tree and snag removal. However, some structural methods like stone toe protection, as discussed below, can be placed with minimal disturbance to existing slope, habitat, and vegetation.

Feasibility of the practices at a site depends on the engineering design of the structure, availability of the protecting material, extent of the bank erosion, and specific site conditions such as the flow velocity, channel depth, inundation characteristics, and geotechnical characteristics of the bank. The use of vegetation alone or in combination with other structural practices, when appropriate, could further reduce the engineering and maintenance efforts.

Vegetation can be considered with respect to site-specific characteristics. When vegetation is combined with low cost building materials or engineered structures, numerous techniques can be created for streambank erosion control. It is important to consider the assets and limitations when planning to use planted vegetation for streambank protection. Advantages of vegetation include the following (Allen and Leech, 1997):

- Reinforces soil (increases bank stability).
- Increases resistance to flow and reduces flow velocities (from exposed stalks), causing the flow to dissipate energy against the plant (rather than the soil).

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- Intercepts water.
- Enhances water infiltration.
- Depletes soil water by uptake and transpiration.
- Acts as a buffer against the abrasive effect of transported materials.
- Induces sediment deposition (from close-growing vegetation).
- Reduces costs, in some cases, when compared to most structural methods.
- Improves conditions for fisheries and wildlife.
- Improves water quality.
- Protects cultural/archeological resources.

Limits of vegetation include failure to grow; being subject to undermining; being uprooted by wind, water, and the freezing and thawing of ice; ingestion by wildlife or livestock; and maintenance requirements. Chapter 3 of *Bioengineering for Streambank Erosion Control* discusses plant acquisition, handling, and timing of planting (Allen and Leech, 1997).

Streambanks can be protected or restored either by increasing resistance of the bank to erosion or by decreasing the energy of the water at the point of contact with the bank, for example by deflecting or interrupting flows (Henderson, 1986). Instream sediment can be controlled by using several structural, vegetative, or bioengineered practices, depending on the management objective and the source of sediment. Streambank protection and channel stabilization practices, including various types of revetments, grade control structures, and flow restrictors, have been effective in controlling sediment production caused by streambank erosion. Designs should match the protection capability of the treatment to the erosion potential of each stream zone. For example, riprap may be needed at the toe of a slope to protect it from undercutting combined with tree revetments to deflect flows and provide protection for live stakings that will develop permanent support. The growing body of research indicates management techniques that emulate nature and work with natural stream processes are more successful and economical.

Significant amounts of instream sediment deposition can be prevented by controlling bank erosion processes and streambed degradation. Channel stabilization structures can also be designed to trap sediment and decrease the sediment delivery to desired areas by altering the transport capacity of the stream and creating sediment storage areas. In regulated streams, alteration of the natural streamflow, particularly the damping of peak flows caused by surface water regulation and diversion projects, can increase streambed sediment deposits by impairing the stream's transport capacity and its natural flushing power. Sediment deposits and reduced flow alter the channel morphology and stability, the flow area, the channel alignment and sinuosity, and the riffle and pool sequence. Such alterations have direct impacts on the aquatic habitat and the fish populations in the altered streams (Reiser et al., 1985).

Vegetative Cover

Streambank protection using vegetation is a commonly used practice, particularly in areas of low water velocities. Vegetative cover, also used in combination with structural practices, is often relatively easy to establish and maintain, and is visually attractive (USACE, 1983). Emergent vegetation provides two levels of protection. First, the root system helps hold soil together and increases overall bank stability by forming a binding network. Second, the exposed stalks, stems, branches, and foliage provide resistance to streamflow, causing the flow to lose part of its energy

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by deforming the plants rather than by removing the soil particles. Above the waterline, vegetation protects against rainfall impact on the banks and reduces the velocity of the overland flow during storm events.

Vegetative controls are not suitable for all sites, especially those sites with severe erosion due to high flow rates or channel velocities. Refer to the Washington State Department of Transportation's (WSDOT's) *Hydraulics Manual*, Chapter 4[1] for information on calculating flow rates or channel velocities. Stabilization measures should only be implemented after a careful evaluation of the stream and the surrounding area. A knowledgeable fluvial geomorphologist may be helpful with this evaluation. In addition, plant species should be selected with care; native plant species should be used whenever possible. Appropriate species can be determined by consulting horticulturalists and botanists for plant selection assistance. The USDA-Forest Service guide, *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*[2] provides a list of plants for soil bioengineering associated systems. The International Erosion Control Association (IECA)[3] publishes a products and services directory listing sources of plant material and professional assistance.

In addition to bank stabilization, vegetation can also offer pollutant filtering capacity. Pollutants and sediment transported by overland flow may be partly removed as a result of a combination of processes including reduction in flow pattern and transport capacity, settling and deposition of particulates, and eventual nutrient uptake by plants.

Summary of Physical and Chemical Practices

All of the following practices can be used to address the effects of channelization and channel modification activities on the physical and chemical characteristics of a waterbody:

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattressing
- Bulkheads and seawalls
- Check dams
- Coconut fiber roll
- Dormant post plantings
- Erosion and Sediment Control (ESC) Plans
- Joint plantings
- Levees, setback levees, and floodwalls
- Live cribwalls
- Live fascines
- Live staking
- Noneroding roadways
- Return walls

[1] http://www.wsdot.wa.gov/eesc/design/hydraulics/Manual/Rev3Publications/Chapter%204.pdf
[2] http://www.fs.fed.us/publications/soil-bio-guide
[3] http://ieca.org

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- Revetments
- Riprap
- Root wad revetments
- Rosgen's Stream Classification Method
- Setbacks
- Toe protection
- Tree revetments
- Vegetated buffers
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wing deflectors

Additional information about each of the above practices is available in Chapter 7. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

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Management Measure 2: Instream and Riparian Habitat Restoration

Management Measure 2
1) Evaluate the potential effects of proposed channelization and channel modification on instream and riparian habitat. 2) Plan and design channelization and channel modification to reduce undesirable impacts. 3) Develop an operation and maintenance program for existing modified channels that includes identification and implementation of opportunities to restore instream and riparian habitat in those channels.

Implementation of this management measure is intended to occur concurrently with the implementation of the Management Measure for Physical and Chemical Characteristics of Channelized or Modified Surface Waters (see previous management measure discussion). This management measure pertains to surface waters where channelization and channel modification have altered or have the potential to alter instream and riparian habitat, such that historically present plants, fish, or wildlife are adversely affected. This management measure is intended to apply to any proposed channelization or channel modification project to determine changes in instream and riparian habitat and to existing modified channels to evaluate possible improvements to instream and riparian habitat. The purpose of this management measure is to correct or prevent detrimental changes to instream and riparian habitat from the impacts of channelization and channel modification projects.

Management Practices for Management Measure 2

Implementation of this management measure should begin during the planning process for new projects. For existing projects, implementation of this management measure can be included as part of a regular operation and maintenance program. Ensuring the involvement and participation of all partners is a place to start on any restoration project. Determining the extent of the restoration activity can help identify potential partners and other interested stakeholders. Each stakeholder may bring a certain expertise, historical information and data, and possibly funding to a project. Development of a stream corridor restoration plan can help organize the group, set goals for implementation of management practices, secure funding or other types of support, and facilitate the sharing of ideas and accomplishments within the group and to others in the community. The approach is two-pronged and should include:

1. *Planning and evaluation*, with numerical models for some situations, of the types of NPS pollution related to instream and riparian habitat changes and watershed development.

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2. *Operation and maintenance* activities that restore habitat through the application of a combination of nonstructural and structural practices to address some types of NPS problems stemming from instream and riparian habitat changes or watershed development.

Planning and Evaluation

Several tools can be used to evaluate the instream and riparian health of a stream system. These approaches include:

- Biological methods/models
- Temperature restoration practices
- Geomorphic assessment techniques
- Expert judgment and checklists

Biological Methods/Models

To assess the biological impacts of channelization, it is necessary to evaluate both physical and biological attributes of the stream system. Assessment studies should be performed before and after channel modification, with samples being collected upstream from, within, and downstream from the modified reach to allow characterization of baseline conditions. It also may be desirable to identify and sample a reference site within the same ecoregion as part of the rapid bioassessment procedures discussed below.

> Use models/methodologies to evaluate the effects of proposed channelization and channel modification projects on instream and riparian habitat and to determine the effects after such projects are implemented.

There are a number of different methods that can be used to assess the biological impacts of channelization. Rapid Bioassessment Protocols (RBPs) were developed as inexpensive screening tools for determining whether a stream is supporting a designated aquatic life use (Barbour et al., 1999; Plafkin et al., 1989). One component of these protocols is an instream habitat assessment procedure that measures physical characteristics of the stream reach (Barbour and Stribling, 1991). An assessment of instream habitat quality based on 12 instream habitat parameters is performed in comparison to conditions at a "reference" site, which represents the "best attainable" instream habitat in nearby streams similar to the one being studied. The RBP habitat assessment procedure has been used in a number of locations across the United States. A small field crew of one or two persons typically can perform the procedure in approximately 20 minutes per sampling site.

Rapid Bioassessment Protocols (Barbour et al., 1999; Plafkin et al., 1989) were designed to be scientifically valid and cost-effective and to offer rapid return of results and assessments. Protocol III (RBP III) focuses on quantitative sampling of benthic macroinvertebrates in riffle/run habitats or on other submerged, fixed structures (e.g., boulders, logs, bridge abutments, etc.) where such riffles may not be available. The data collected are used to calculate various metrics pertaining to benthic community structure, community balance, and functional feeding groups. The metrics are assigned scores and compared to biological conditions as described by either an ecoregional reference database or reference sites chosen to represent the "best attainable" biological community in similarly sized streams. In conjunction with the instream

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habitat quality assessment, an overall assessment of the biological and instream habitat quality at the site is derived. RBP III can be used to determine spatial and temporal differences in the modified stream reach. Application of RBP III requires a crew of two persons; field collections and lab processing require 4 to 7 hours per station and data analysis about 3 to 5 hours, totaling 7 to 12 hours per station. The RBP III has been extensively applied across the United States. More information about biological assessments is available from EPA's Biological Assessment Web site.[4]

Karr et al. (1986) describes an Index of Biological Integrity (IBI), which includes 12 metrics in three major categories of fish assemblage attributes: species composition, trophic composition, and fish abundance and condition. Data are collected at each site and compared to those collected at regional reference sites with relatively unimpacted biological conditions. A numerical rating is assigned to each metric based on its degree of agreement with expectations of biological condition provided by the reference sites. The sum of the metric ratings yields an overall score for the site. Application of the IBI requires a crew of two persons; field collections require 2 to 15 hours per station and data analysis about 1 to 2 hours, totaling 3 to 17 hours per station. The IBI, which was originally developed for Midwestern streams, can be readily adapted for use in other regions. It has been used in several states across the country to assess a wide range of impacts in streams and rivers.

Habitat Evaluation Procedures (HEPs) can be used to document the quality and quantity of available habitat, including aquatic habitat, for selected wildlife species. HEPs provide information for two general types of instream and riparian habitat comparisons:

- The relative value of different areas at the same point in time
- The relative value of the same area at future points in time

By combining the two types of comparisons, the impact of proposed or anticipated land and water use changes on instream and riparian habitat can be quantified (Ashley and Berger, 1997).

Additional information about the assessment methods discussed above, as well as other methods for assessing biological impacts is available in Table 8.2 of Chapter 8.

Temperature Restoration Practices

Channelization and channel modification activities can greatly impact stream temperature. All other factors remaining unchanged, when a channel is narrowed, the water depth increases and the surface area exposed to solar radiation and ambient temperature decreases. This can decrease water temperature. When a channel is widened, the opposite occurs; shallower depths and increased temperatures occur. Temperature may also be increased from increased turbidity because the sediment particles absorb heat. It is important to model how temperature will change in a stream, as a result of channelization and channel modification activities, to determine what other changes and impacts might occur in the stream.

[4] http://www.epa.gov/owow/monitoring/bioassess.html

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Stream temperature has been widely studied, and heat transfer is one of the better-understood processes in natural watershed systems. Most available approaches use energy balance formulations based on the physical processes of heat transfer to describe and predict changes in stream temperature.

More information about temperature restoration models and practices is provided in Chapter 8 (Modeling).

Geomorphic Assessment Techniques

Fluvial geomorphology is the study of stream form and function. Geomorphic assessment focuses on qualitative and quantitative observations of stream form. It provides a "moment-in-time" characterization of the existing morphology of the stream. In addition, geomorphic assessment includes a stability component. Stability assessments place the stream in the context of past, present, and anticipated adjustment processes. Geomorphic assessments can be useful in predicting changes that could be created by channelization and channel modification activities.

Stream classification is a technique that is used to show the relationship between streams and their watersheds. There are several techniques for stream classification, all of which have advantages and limitations. Advantages of geomorphic assessment include (adapted from FISRWG, 1998):

- Promotes communication.
- Enables extrapolation of data collected on a few streams to a number of channels over a broader geographical area.
- Helps the restoration practitioner consider the landscape context and determine expected ranges of parameters.
- Enables practitioners to interpret the channel-forming or dominant processes active at the site.
- Uses reference reaches as the desired outcome of restoration.
- Provides an important cross-check to verify if the selected design values are within a reasonable range.

Limitations of geomorphic assessment include (adapted from FISRWG, 1998):

- Determination of bankfull or channel-forming flow depth may be difficult or inaccurate.
- The dynamic condition or the stream is not indicated in stream classification systems.
- River response to a perturbation or restoration action is normally not determined by classifying it alone.
- Biological health is not directly determined.
- Classifying a stream should not be used alone to determine the type, location, and purpose of restoration activities.

Schumm (1960) identified straight, meandering, and braided channels and related both channel pattern and stability to modes of sediment transport. Schumm recognized that stable straight and meandering channels have mostly suspended sediment loads and cohesive bank materials, as opposed to unstable braided streams characterized by mostly bedload sediment transport and

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wide sandy channels with noncohesive bank materials. Meandering mixed-load channels are found at an intermediate condition (FISRWG, 1998).

Montgomery and Buffington (1993) proposed a classification system similar to Schumm for alluvial, colluvial, and bedrock streams in the Pacific Northwest. This system addresses channel response to sediment inputs throughout the drainage network. Six classes of alluvial channels were identified—cascade, step-pool, plane-bed, riffle-pool, regime, and braided. The stream types are differentiated based on channel response to sediment inputs. For example, steeper channels maintain their morphology while transporting sediment. Streams with lower gradients make more morphological adjustments with increased sediment loads (FISRWG, 1998).

A conceptual model of channel evolution in response to channelization (CEM-channel evolution model) was developed by Simon and Hupp (1986, 1987), Hupp and Simon (1986, 1991), and Simon (1989a, 1989b). The model identifies six geomorphic stages of channel response and was developed and extensively applied to predict empirical stream channel changes following large-scale channelization projects in western Tennessee. Data required for model application include bed elevation and gradient, channel top-width, and channel length before, during, and after modification. Gauging station data can be used to evaluate changes through time of the stage-discharge relationship and bed-level trends. Riparian vegetation is dated to provide ages of various geomorphic surfaces and thereby to deduce the temporal stability of a reach.

A component of Simon and Hupp's (1986, 1987) channel response model is the identification of specific groups of woody plants associated with each of the six geomorphic channel response stages. Their findings for western Tennessee streams suggest that the site preference or avoidance patterns of selected tree species allow their use as indicators of specific bank conditions. This method might require calibration for specific regions of the United States to account for differences in riparian zone plant communities, but it would allow simple vegetative reconnaissance of an area to be used for a preliminary estimate of stream recovery stage (Simon and Hupp, 1987).

Restoring or maintaining streams to a stable form through natural channel design requires detailed information about surface water hydrology and the interactions between rainfall and overland flow or runoff. The Rosgen classification system, developed by David L. Rosgen, and presented in *Applied River Morphology*, is currently the most comprehensive and widely used quantitative assessment method for geomorphology. It represents a compilation of much of the early work in applied fluvial geomorphology and relies largely on the identification of bankfull field indicators. The bankfull discharge is the flow event that fills a stable alluvial channel up to the elevation of the active floodplain (Rosgen, 1996). Dunne and Leopold (1978) first developed hydraulic geometry relationships for the bankfull stage, also called regional curves. Most river engineers and hydrologists work under the assumption that the bankfull discharge is equivalent to the channel forming or dominant discharge in geomorphic classification and in analog and empirical design methods. The bankfull discharge is the only discharge that can be easily identified in the field using physical indicators; therefore it is one of the most commonly used in natural channel design. Additional information about Rosgen is available in Chapter 7.

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Moment-in-time stream classifications provide insights into the existing form of the stream and can help to define design parameters and understand potential modifications in reference to existing conditions. Stream classification offers a way to categorize streams based on channel morphology. The older classification systems were largely qualitative descriptions of stream features and landforms and were difficult to apply universally. In 1994, Rosgen published *A Classification of Natural Rivers*. Because of its relative simplicity and usefulness in stream restoration, the Rosgen classification system has become popular among hydrologists, engineers, geomorphologists, and biologists working to restore the biological function and stability of degraded streams. The classification consists of 41 major stream types for which stream channel stability and stream bank erosion potential can be assessed. From the assessment, structures for in-stream and stream bank restoration or modification can be selected. When planning stream restoration projects, it is important for the planning team to use a multidisciplinary approach that includes consideration of hydraulics, hydrology, water quality, geomorphological processes, and biological interactions to develop and implement a successful restoration. Chapter 7 provides additional detailed information on stream classification practices.

In site selection, geomorphic assessments can determine if a site is unstable and in need of some form of restoration activity. During design, geomorphic assessments can be used in combination with hydrologic, hydraulic, and/or sediment transport analyses to define design elements such as channel slope and hydraulic geometry.

Sediment transport analysis in rivers and streams is used to approximate the amount of sediment being moved by flow event scenarios and to determine where it will be deposited. Modeling the sediment transport capacity of a channel and its predicted sediment deposition patterns are important for assessing existing and proposed channel design projects to estimate potential project impacts. Sediment transport analysis is also useful for determining restoration opportunities in existing channelization and channel modification projects. Sediment transport analysis is often coupled with stable channel analyses methods to refine channel geometries to estimate optimal scour and deposition characteristics (Schulte et al., 2000). A good source of technical information on sediment transport analysis can be found in *River Engineering for Highway Encroachments* (FHWA, 2001).

Sediment transport analysis has been used in many projects, including:

- Channel design projects (Schulte et al., 2000)
- Stream restoration design (Copeland et al., 2001; Shields et al., 2003)
- Flood control projects (USACE, 1994)
- Highway projects that include stream crossings (FHWA, 2001)

In the design of new channelization projects and analysis of existing projects, channels are typically evaluated using channel stability methods and then the analysis is refined using sediment transport models. Sediment transport analysis is used to refine geometry so that scour and deposition are minimized. It is also used to determine the optimum grade control structure elevation and placement and to find the excavation depths in depositional zones to minimize operational costs for maintaining the channel geometry (Schulte et al., 2000).

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The methods and techniques used to accomplish a geomorphic assessment should be project-specific and conducted by personnel trained in applied fluvial geomorphology. Geomorphic assessment of streams has evolved rapidly over the past 10–15 years. Initial methodologies tended to be tailored for localized applications and required extensive data collection and validation. Rosgen's methodology provides a more universal approach to stream classification that represents trade-offs between data collection needs and ease of application for many different stream types. The challenge to this type of modeling and assessment has always been to balance the complexity and need for extensive data collection with ease of use and reliability of the results. The key is that the geomorphic assessment must provide a fundamental understanding of the linkage between river form and process. The assessment should provide insight into where the stream has been, is now, and in what direction it is moving. It should also place the project reach in the context of broader system wide adjustment processes. Geomorphic assessment can be used to select sites for restoration and develop designs.

Expert Judgment and Checklists

Approaches using expert judgment and checklists developed based on experience acquired in previous projects and case studies may be very helpful in integrating environmental goals into project development. The USACE used this concept of incorporating environmental goals into project design (Shields and Schaefer, 1990) in the development of a computer-based system for the environmental design of waterways (ENDOW). The ENDOW system is composed of three modules: a streambank protection module, a flood control channel module, and a streamside levee module. The three modules require the definition of the pertinent environmental goals to be considered in the identification of design features. Depending on the environmental goals selected for each module, ENDOW will display a list of comments or cautions about anticipated impacts and other precautions to be taken into account in the design.

Another example of using expert judgment is the Proper Functioning Condition (PFC) technique. PFC was developed by the Bureau of Land Management (BLM) to rapidly assess whether a stream riparian area is functioning properly in terms of hydrology, landform/soils, channel characteristics, and vegetation. The assessment is performed by an interdisciplinary team and involves completing a checklist evaluating 17 factors concerning hydrology, vegetation, and erosional/depositional characteristics. The PFC field technique is not quantitative, but with adequate training, results are reproducible to a high degree (FISRWG, 1998).

Operation and Maintenance Activities

Implementation practices for instream and riparian habitat restoration in planned or existing modified channels are consistent with those management practices for physical and chemical characteristics of channelized or modified surface waters. To prevent future impacts to instream or riparian habitat or to solve current problems caused by channelization or channel modification projects, include one or more of the following practices to mitigate the undesirable changes:

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattressing
- Bulkheads and seawalls

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- Check dams
- Coconut fiber roll
- Dormant post plantings
- Erosion and Sediment Control (ESC) Plans
- Establish and protect stream buffers
- Joint plantings
- Levees, setback levees, and floodwalls
- Live cribwalls
- Live fascines
- Live staking
- Marsh creation and restoration
- Noneroding roadways
- Return walls
- Revetments
- Riparian improvements
- Riprap
- Root wad revetments
- Rosgen's Stream Classification Method
- Setbacks
- Toe protection
- Tree revetments
- Vegetated buffers
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wing deflectors

Additional information about each of the above practices is available in Chapter 7. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Operation and maintenance programs should weigh the benefits of including practices such as those for mitigating any current or future impairments to instream or riparian habitat. Additional information about these practices can be found in Chapter 7. Also, Fischenich and Allen (2000) provide a comprehensive summary of practices that can be evaluated for use in operation and maintenance programs.

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Chapter 4: Dams

Dams are a common form of hydromodification. The National Research Council estimated that there were more than 2.5 million dams in the United States in 1992 (NRC, 1992). These dams range in size from berms across small streams that create farm ponds to large concrete structures across major rivers for hydropower and flood control. The USACE estimates (of these 2.5 million dams in the United States) about 79,000 are large enough to be included in the National Inventory of Dams (USACE, n.d.b.).[1]

Dams generally were built to store and provide water for mechanical power generation (e.g., waterwheels to mill grain), industrial cooling, hydroelectric power generation, agricultural irrigation, municipal water supplies for human consumption, and impoundment-based recreation (e.g., boating and sport fishing). Dams are also used for flood control and to maintain channel depths for barge transportation.

Dams can be associated with a number of effects, including changes to hydrology, water quality, habitat, and river morphology. Lakes and reservoirs integrate many processes that take place in their contributing watersheds, including processes that contribute energy (heat), sediment, nutrients, and toxic substances. Human activities, such as agricultural and urban land use, contribute to contaminant and sediment loads to reservoirs. The presence and operation of dams can determine the fate of these pollutants in a reservoir or impoundment and potentially downstream as water is released from the dam. For example, the presence of a dam may lead to sediment accumulation in a reservoir. However, there are management practices that can mitigate this integrative effect of a reservoir. One example is selective withdrawals, which are an operational technique that can be used by some dam operators to provide water quality and temperatures necessary to sustain downstream fish populations.

When dams are built, depending on size and design, they may alter the river system structure, causing it to change from a river (flowing) to lake (static) and back to a river (flowing) system.

[1] With the National Dam Inspection Act (P.L. 92-367) of 1972, Congress authorized the U.S. Army Corps of Engineers (USACE) to inventory U.S. dams. The Water Resources Development Act of 1986 (P.L 99-662) authorized USACE to maintain and periodically publish an updated National Inventory of Dams (NID).

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Dams with large storage capacities will, by design, retain water longer than those with little storage. This can change system flow patterns, which can affect water quality and habitat upstream and downstream of the dam. Most effects from dams are observed downstream. Table 4.1 provides a description of several common types of dams.

Table 4.1 Types of Dams (FEMA, 2003)

Type of Dam	Description
Ambursen dam	A buttress dam in which the upstream part is a relatively thin, flat slab usually made of reinforced concrete
Arch dam	A concrete, masonry, or timber dam with the alignment curved upstream so as to transmit the major part of the water load to the abutments
Buttress dam	A dam consisting of a watertight part supported at intervals on the downstream side by a series of buttresses
Crib dam	A gravity dam built up of boxes, crossed timbers, or gabions, filled with earth or rock
Diversion dam	A dam built to divert water from a waterway or stream into a different watercourse
Double curvature arch dam	An arch dam that is curved both vertically and horizontally
Earth dam	An embankment dam in which more than 50% of the total volume is formed of compacted earth layers that are generally smaller than 3-inch size
Embankment dam	Any dam constructed of excavated natural materials, such as both earthfill and rockfill dams, or of industrial waste materials, such as a tailings dam
Gravity dam	A dam constructed of concrete and/or masonry, which relies on its weight and internal strength for stability
Hollow gravity dam	A dam constructed of concrete and/or masonry on the outside but having a hollow interior and relying on its weight for stability
Hydraulic fill dam	An earth dam constructed of materials, often dredged, which are conveyed and placed by suspension in flowing water
Industrial waste dam	An embankment dam, usually built in stages, to create storage for the disposal of waste products from an industrial process
Masonry dam	Any dam constructed mainly of stone, brick, or concrete blocks pointed with mortar
Mine tailings dam (or tailings dam)	An industrial waste dam in which the waste materials come from mining operations or mineral processing
Multiple arch dam	A buttress dam comprised of a series of arches for the upstream face
Overflow dam	A dam designed to be overtopped
Regulating dam (or afterbay dam)	A dam impounding a reservoir from which water is released to regulate the flow downstream
Rock-fill dam	An embankment dam in which more than 50% of the total volume is comprised of compacted or dumped cobbles, boulders, rock fragments, or quarried rock generally larger than 3-inch size
Roller compacted concrete dam	A concrete gravity dam constructed by the use of a dry mix concrete transported by conventional construction equipment and compacted by rolling, usually with vibratory rollers
Rubble dam	A stone masonry dam in which the stones are unshaped or uncoursed
Saddle dam (or dike)	A subsidiary dam of any type constructed across a saddle or low point on the perimeter of a reservoir

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Siting, construction, operation, maintenance, and removal of dams can lead to nonpoint source (NPS) effects. For example, siting of dams can result in inundation of wetlands, riparian areas, and fastland in areas upstream of the dam. During construction or maintenance, erosion and soil loss occurs. Proper siting and design help prevent erosion prone areas from being developed. For dams actively controlled by human operators, dam operation and the amount of water released can affect downstream areas when flood waters necessary to deliver sediment are restricted, or when controlled releases from dams change the timing, quantity, or quality of downstream flow. While removal of dams can lead to physical and biological impacts, such as temporary increased turbidity from redistribution of sediment previously stored behind the dam or displacement of warm-water species that prefer lake-like conditions, dam removal has many biological and habitat benefits, such as allowing for easier fish movement and a return of natural stream temperatures and dissolved oxygen. Sometimes, however, dams limit passage of undesirable invasive species. Therefore, a comprehensive evaluation of the benefits and limitations resulting from the presence of a dam should be completed when evaluating operation and maintenance procedures, as well as options for removal. A more detailed discussion of water quality, biological, habitat, physical, and chemical changes from dam removal is provided in Chapter 2.

One opportunity to evaluate and address the NPS impacts of some larger dams that are used for hydropower occurs during the licensing/relicensing process. The Federal Power Act (FPA) requires all nonfederal hydropower projects located on navigable waters to be licensed. The FPA (16 U.S.C. 791-828c) was originally enacted as the Federal Water Power Act in 1920 and was made part of the FPA in 1935. The Federal Energy Regulatory Commission (FERC) is the independent regulatory agency within the Department of Energy that has exclusive authority, under the FPA, to license such projects. The hydropower dam relicensing process offers an opportunity to assess the balance between natural resources and the generation of electricity and to address some areas that are determined to be problematic. Stakeholders, including dam owners and operators, local governments, environmental groups, and the public, often have different interests to be balanced. Through the FPA and the relicensing process, these varied interests can be evaluated and a balanced outcome can be derived. In conjunction with FPA licensing requirements, states and authorized tribes certify that discharges (including those that originate from dams) meet water quality standards under section 401 of the Clean Water Act (CWA).

The FPA also requires relicensing to be conducted in light of recent laws and regulations that are in effect at the time of renewal. As regulations related to hydropower dams change, it is possible that many dams that were previously licensed and are up for relicensing may no longer be in compliance with current regulatory standards. For example, many dams were built prior to the CWA, which includes regulatory requirements for protecting and maintaining designated uses (such as protecting desired aquatic life or maintaining bacterial water quality that is protective of human health for all recreational activities). Other regulatory requirements that may be evaluated during relicensing include protections for wetlands, aquatic habitat, and endangered species.[2]

[2] Additional information about FERC and hydropower licensing/relicensing is available at http://www.ferc.gov.

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Management Measure 3: Erosion and Sediment Control for the Construction of New Dams and Maintenance of Existing Dams

Management Measure 3
1) Reduce erosion and, to the extent practicable, retain sediment onsite during and after construction. 2) Prior to land disturbance, prepare and implement an approved erosion and sediment control plan or similar administrative document that contains erosion and sediment control provisions.

The purpose of this management measure is to prevent sediment from entering surface waters during the construction or maintenance of dams. This management measure emphasizes the importance of minimizing sediment loss to surface waters during both dam construction and maintenance. It is essential that proper erosion and sediment control practices be used to protect surface water quality because of the high potential for sediment loss directly to surface waters. Sediment and erosion control practices can be borrowed from other applications, such as urban development and construction activities.

Two broad performance goals constitute this management measure: minimizing erosion and maximizing the retention of sediment onsite. These performance goals allow for site-specific flexibility in specifying practices appropriate for local conditions. Regular inspections of a dam are valuable opportunities for dam owners to identify erosion problems and implement sediment controls to protect the integrity of the dam. Since the number of new dam construction projects is relatively small compared to the number of existing dams, operation and maintenance activities offer significantly more opportunities to prevent NPS problems associated with erosion and sediment control.

Dam owners are encouraged to establish a program of regular safety inspection of the dam's infrastructure and dam maintenance. Safety inspection of a dam is a program of regular visual inspection using simple equipment and techniques. These inspections are often an economical means of ensuring the long-term safety and survival of a dam structure. By regularly monitoring the condition and performance of the dam and its surroundings, adequate warning of potentially unsafe conditions will enable timely maintenance. Being able to recognize the signs of potential problems and failure, as well as what to do and whom to contact, is vital. Partial or total failure of a dam may cause extensive damage to downstream areas, including loss of life, property damage, and impacts to wetlands, riparian areas, stream channels, and other ecologically important lands, for which the owner may be held liable. There are also potentially expensive repair costs and lost income that may result from failures or poorly maintained dam structures.

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The primary areas of dam structural failure are:

- Loss of clay soils used in berms and other earthen structures
- Seepage and leakage at the base or along pipes
- Erosion, including wave action, stock damage and spillways
- Cracking and movement of structural components
- Defects in associated structures
- Vegetation, including catchment protection and weed control

Operation and maintenance should be applied to small, as well as large dams. Many owners of small dams, like those on farm ponds, should regularly inspect their dams for maintenance needs. Local NRCS staff can provide technical assistance to small dam owners for operation and maintenance activities.[3]

Regular operation and maintenance efforts can lead to some dams being in need of repairs and/or upgrades. Designs for repairs and upgrades can involve replacing reinforced concrete risers and impact basins, replacing rusted out corrugated metal pipe principal spillways, raising the top of the dams, widening the auxiliary spillways, and removing sediment from the flood pools. Examples of project costs for these types of maintenance activities reported in Ohio have ranged from $175,000 on a small dam to $775,000 on the largest dam (Brate, 2004).

At the state and local levels, this measure can be incorporated into existing erosion and sediment control (ESC) programs. This measure can also be effectively implemented as part of safety inspection requirements. Erosion and sediment control is also intended to be part of a comprehensive land use or watershed management program.

Management Practices for Management Measure 3

The management measure can be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices described below can be applied successfully to implement the management measure for erosion and sediment control for construction of new dams and maintenance of existing dams.

Erosion Control Practices

Successful control of erosion and sedimentation from construction and maintenance activities can involve a system of management practices that targets each stage of the erosion process. The most efficient approach involves minimizing the potential sources of sediment from the onset. This means limiting the extent and duration of land disturbance to the minimum needed, and protecting surfaces once they are exposed. The second stage of the management practice system involves controlling the amount of runoff and its ability to carry sediment by diverting incoming flows and impeding internally generated flows. The third stage involves retaining sediment that is picked up on the project site through the use of sediment-capturing devices. On most sites

[3] Contact your local USDA Service Center (http://offices.sc.egov.usda.gov/locator/app) to access NRCS in your community.

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successful erosion and sedimentation control requires a combination of structural and vegetative practices. All of these stages are better performed using advanced planning and good scheduling.

The timing of land disturbing activities and installation of erosion control measures must be coordinated to minimize water quality impacts. For large scale activities, the management practice system is typically installed in reverse order, starting with sediment capturing devices, followed by key runoff control measures and runoff conveyances, and then land clearing activities. Often, construction or maintenance activities that generate significant off-site sediment have failed to sequence activities in the proper order.

Erosion controls reduce the amount of sediment lost during dam construction and prevent sediment from entering surface waters. Erosion control is based on (1) minimizing the area and time of land disturbance and (2) quickly stabilizing disturbed soils to prevent erosion.

The effectiveness of erosion control practices can vary based on land slope, the size of the disturbed area, rainfall frequency and intensity, wind conditions, soil type, use of heavy machinery, length of time soils are exposed and unprotected, and other factors. In general, a system of erosion and sediment control practices can more effectively reduce offsite sediment transport than a single practice. Numerous nonstructural measures such as protecting natural or newly planted vegetation, minimizing the disturbance of vegetation on steep slopes and other highly erodible areas, maximizing the distance eroded material must travel before reaching the drainage system, and locating roads away from sensitive areas may be used to reduce erosion.

The following practices have proven to be useful in controlling erosion and can be incorporated into ESC plans and used during dam construction as appropriate. These practices can be used during and after construction and throughout ongoing maintenance activities.

- Bank shaping and planting
- Branch packing
- Brush layering
- Brush mattressing
- Bulkheads and seawalls
- Check dams
- Coconut fiber roll
- Construct runoff intercepts
- Construction management
- Dormant post plantings
- Erosion and sediment control (ESC) plans
- Erosion control blankets
- Joint planting
- Live cribwalls
- Live fascines
- Live staking
- Locate potential land disturbing activities away from critical areas
- Mulching

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- Noneroding roadways
- Phase construction
- Preserve onsite vegetation
- Retaining walls
- Revegetate
- Revetment
- Riparian improvements
- Riprap
- Rootwad revetments
- Scheduling projects
- Sediment fences
- Seeding
- Site fingerprinting
- Sodding
- Soil protection
- Surface roughening
- Training—erosion and sediment control
- Tree armoring, fencing, and retaining walls or tree walls
- Tree revetments
- Vegetated buffers
- Vegetated filter strips
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)
- Wildflower cover
- Wind erosions controls

A more detailed discussion of each of the above practices is provided in Chapter 7.

Runoff Control

To prevent the entry of sediment used during construction into surface waters, these precautionary steps should be followed:

- Identify areas with steep slopes, unstable soils, inadequate vegetation density, insufficient drainage, or other conditions that give rise to a high erosion potential.
- Identify measures to reduce runoff from such areas if disturbance of these areas cannot be avoided (Hynson et al., 1985).

Runoff diversions are structures that channel upslope runoff away from erosion source areas, divert sediment-laden runoff to appropriate traps or stable outlets, or capture runoff before it leaves the site, diverting it to locations where it can be used or released without erosion or flood damage. Diversions can be either temporary or permanent in nature.

Runoff control measures, mechanical sediment control measures, grassed filter strips, mulching, and/or sediment basins could be used to control runoff from the construction site. Scheduling

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construction during drier seasons, exposing areas for only the time needed for completion of specific activities, and avoiding stream fording also help to reduce the amount of runoff created during construction.

The largest surface water pollution problem during construction is suspended sediment resulting from aggregate processing, excavation, and concrete work. Preventing the entry of these materials above and/or below a dam is always the preferable alternative because runoff due to these types of construction activities can add more sediment to a reservoir, harm aquatic life above and below the dam, or affect habitat in streams below a dam. Filtration and gravitational settling during detention are the main processes used to remove sediment from construction site runoff. Methods used to control runoff and associated sedimentation from construction sites include:

- Check dams
- Constructing runoff intercepts
- Locate potential land disturbing activities away from critical areas
- Preserve onsite vegetation
- Retaining walls
- Sediment basins/rock dams
- Sediment fences
- Sediment traps
- Vegetated buffers
- Vegetated filter strips

A more detailed discussion of each of the above practices is provided in Chapter 7.

Erosion and Sediment Control (ESC) Plans

ESC plans can be used to control erosion and sediment and incorporate such control in planning. Some states call for specific requirements to be included in state ESC plans. Table 4.2 provides examples of several state ESC plan requirements. Additional detail about ESC plans, including general objectives, and management techniques for ensure proper administration of plans, is available in Chapter 7.

Table 4.2 Examples of Erosion and Sediment Control Plan Requirements for Select States

Location	General Requirements for ESC Plan
Delaware	ESC plans required for sites over 5,000 ft^2. Temporary or permanent stabilization must occur within 14 days of disturbance.
Florida	ESC plans required on all sites that need a runoff management permit.
Georgia	ESC plan required for all land-disturbing activities.
Indiana	ESC plan required for sites over 5 acres.
Maine	ESC plans required for sites adjacent to a wetland or waterbody. Stabilization must occur at completion or if no construction activity is to occur for 7 days. If temporary stabilization is used, permanent stabilization must be implemented within 30 days.
Maryland	ESC plans required for sites over 5,000 ft^2 or 100 yd^3.
Michigan	ESC plans required for sites over 1 acre or within 500 ft of a waterbody. Permanent stabilization must occur within 15 days of final grading. Temporary stabilization is required within 30 days if construction ceases.

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Location	General Requirements for ESC Plan
Minnesota	ESC plans required for land development over 1 acre.
New Jersey	ESC plans required for sites over 5,000 ft^2.
North Carolina	ESC plans required for sites over 1 acre. Controls must retain sediment on-site. Stabilization must occur within 30 days of completion of any phase of development.
Ohio	ESC plans required for sites over 5 acres. Permanent stabilization must occur within 7 days of final grading or when there is no construction activity for 45 days.
Oklahoma	ESC plans required for sites over 5 acres.
Pennsylvania	ESC plans required for all sites, but the state reviews only plans for sites over 25 acres. Permanent stabilization must occur as soon as possible after final grading. Temporary stabilization is required within 70 days if construction ceases for more than 30 days. Permanent stabilization is required if the site will be inactive for more than 1 year.
South Carolina	ESC plans required for all sites unless specifically exempted. Perimeter controls must be installed. Temporary or permanent stabilization is required for topsoil stockpiles and all other areas within 7 days of disturbance.
Virginia	For areas within the jurisdiction of the Chesapeake Bay Preservation Act, no more land is to be disturbed than necessary for the project. Indigenous vegetation must be preserved to the greatest extent possible.
Washington	ESC provisions are incorporated into the state runoff management plan.
Wisconsin	ESC plans required for all sites over 4,000 ft^3. Temporary or permanent stabilization is required within 7 days.

(Adapted from Environmental Law Institute, 1998; USEPA, 1993)

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Management Measure 4: Chemical and Pollutant Control at Dams

Management Measure 4
1) Limit application, generation, and migration of toxic substances. 2) Ensure the proper storage and disposal of toxic materials. 3) Apply nutrients at rates necessary to establish and maintain vegetation without causing significant nutrient runoff to surface waters.

This management measure is intended to be applied to the construction of new dams, as well as to construction activities associated with the maintenance of dams. This management measure addresses fuel and chemical spills associated with dam construction and operation and maintenance activities, as well as concrete washout and related construction activities. The purpose of this management measure is to prevent downstream contamination from pollutants associated with dam construction and maintenance activities.

Although suspended sediment is the major pollutant generated at a construction site, other pollutants that may be present around dams (especially during construction and operation and maintenance activities) include:

- Petroleum products—fuels and lubricants, specifically gasoline, diesel oil, kerosene, lubricating oils, grease, and asphalt
- Pesticides—insecticides, herbicides, fungicides, and rodenticides
- Fertilizers
- Construction chemicals—acids, soil additives, and concrete-curing compounds
- Wastewater—aggregate wash water, herbicide wash water, concrete-curing water, core-drilling wastewater, or clean-up water from concrete mixers
- Solid wastes—paper, wood, metal, rubber, plastic, and roofing materials
- Garbage
- Sanitary wastes
- Cement
- Lime

This management measure is important because most erosion and sediment control practices are ineffective at retaining soluble NPS pollutants on a construction site. Many of the NPS pollutants, other than suspended sediment, generated at a construction site are carried offsite in solution or attached to clay particles in runoff. Some metals (e.g., manganese, iron, and nickel) attach to larger sediment particles and usually can be retained onsite. Other metals (e.g., copper, cobalt, and chromium) attach to fine clay particles and have greater potential to be carried offsite. Insoluble pollutants (e.g., oils, petrochemicals, and asphalt) form a surface film on runoff water and can be easily washed away (USEPA, 1973; USEPA, 2002b; USEPA, 2005d). Factors that influence the pollution potential of construction chemicals include:

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- The nature of the construction and maintenance activity
- The physical characteristics of the construction site
- The characteristics of the receiving water

Dam construction sites are particularly sensitive areas and have the potential to severely impact surface waters with runoff containing construction chemical pollutants. Because dams are located on rivers or streams, pollutants generated at these construction sites have a much shorter distance to travel before entering surface waters. Therefore, chemicals and other NPS pollutants generated at a dam construction site should be controlled.

Management Practices for Management Measure 4

The management measure generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. The practices described below can be applied successfully to implement the control of chemicals and pollutants at dams. This includes dam construction as well as routine maintenance. Practices for controlling chemicals and pollutants include the following:

- Equipment runoff control
- Fuel and maintenance staging areas
- Locate potential land disturbing activities away from critical areas
- Pesticide and fertilizer management
- Pollutant runoff control
- Spill prevention and control program

A more detailed discussion of each of the above practices is provided in Chapter 7.

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Management Measure 5: Protection of Surface Water Quality and Instream and Riparian Habitat

Management Measure 5
Develop and implement a program to manage the operation of dams that includes an assessment of: 1) Surface water quality and instream and riparian habitat and potential for improvement. 2) Significant nonpoint source pollution problems that result from excessive surface water withdrawals.

This management measure is intended to be applied to dam operation, maintenance, and removal activities that result in the loss of desirable surface water quality, and of desirable instream and riparian habitat.

The purpose of the management measure is to protect the quality of surface waters and aquatic habitat (including riparian habitat) in the portion of rivers and streams that are impacted by dams. Operation, maintenance, and dam removal activities can be assessed to determine opportunities for potential improvements in water quality and aquatic habitat. These activities, as well as actions within the watershed, that contribute NPS pollutants to an impoundment should be collectively and periodically evaluated to help identify opportunities for cost-effective change.

The recommended overall programmatic approach is to evaluate a set of practices that can be applied individually or in combination to protect and improve surface water quality and aquatic habitat in reservoirs, as well as in areas downstream of dams. Then, a program can be implemented using the most cost-effective operation, maintenance, and removal activities to protect and improve surface water quality and aquatic and riparian habitat.

The individual application of any particular technique, such as aeration, change in operational procedure, restoration of an aquatic or riparian habitat, or implementation of a watershed protection best management practice (BMP), will, by itself, probably not improve water quality to an acceptable level within the reservoir impoundment or in tailwaters flowing through downstream areas. The individual practices discussed in this portion of the guidance may have to be implemented in some combination in order to improve water quality in the impoundment or in tailwaters to acceptable levels.

Selection of the management measure for the protection of surface water and instream and riparian habitat was based on:

- The availability and demonstrated effectiveness of practices to improve water quality in impoundments and in tailwaters of dams.

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- The level of improvement in water quality of impoundments and tailwaters that can be measured from implementation of engineering practices, operational procedures, watershed protection approaches, or aquatic or riparian habitat improvements.

Successful implementation of the management measure should generally involve the following categories of practices undertaken individually or in combination to improve water quality and aquatic and riparian habitat in reservoir impoundments and in tailwaters:

- Artificial destratification and hypolimnetic aeration of reservoirs with deep withdrawal points that do not have multilevel outlets to improve dissolved oxygen (DO) levels in the impoundment and to decrease levels of other types of NPS pollutants, such as manganese, iron, hydrogen sulfide, methane, ammonia, and phosphorus in reservoir releases.

- Aeration of reservoir releases, through turbine venting, injection of air into turbine releases, installation of reregulation weirs, use of selective withdrawal structures, or modification of other turbine start-up or pulsing procedures.

- Providing both minimum flows to enhance the establishment of desirable instream habitat and scouring flows as necessary to maintain instream habitat.

- Establishing adequate fish passage or alternative spawning ground and instream habitat for fish species.

- Improving watershed protection by installing and maintaining BMPs in the drainage area above the dam to remove phosphorus, suspended sediment, and organic matter and otherwise improve the quality of surface waters flowing into the impoundment.

- Removing dams, which are unsafe, unwanted, or obsolete, after careful consideration of alternatives.

Since the presence and operation of a dam have the potential to cause impacts, periodic assessments of reservoir water quality, watershed activities, and operational practices may provide valuable information for evaluating management strategies. The types and severity of the impacts can serve as an indicator of the frequency and magnitude of the assessments. There are a variety of assessment tools that are available to assist decision-makers in the evaluation of impacts associated with dams. Watershed-related impacts and management activities can be evaluated with a variety of models. EPA supports several models that may be useful for watershed assessments, such as BASINS.[4]

[4] More information about EPA-supported watershed assessment tools can be found at http://www.epa.gov/waterscience/wqm.

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Reservoir water quality can also be assessed with various models. Table 8-1 in this document provides a list of models that may be used to assess reservoir water quality. Also presented in Table 8-1 are models that could be used to evaluate downstream impacts of dams.[5]

Management Practices for Management Measure 5

The management measure generally can be implemented by applying one or more management practices appropriate to the source, location, and climate. Management practices that can be used to achieve the management measure include practices to improve water quality, restore or maintain aquatic and riparian habitat, and maintain fish passage, as well as possible removal of dams. The subsection on dam removal includes planning and evaluation considerations, descriptions of the removal process, permitting requests, sediment removal techniques, descriptions of changes associated with dam removal, and a discussion of potential biological impacts.

Practices for Improving Water Quality

Management practices for improving water quality associated with the operation and maintenance of dams can be categorized as:

- Watershed Protection Practices—activities to reduce NPS pollution that take place within the watershed surrounding a dam. Reduced NPS pollutant inputs, such as sediment or nutrients, can have a significant, positive effect on water quality within a reservoir and often in reservoir releases, as well.

- Practices for Aeration of Reservoir Water—aeration activities within the reservoir. The primary goal for aerating a large portion of reservoir water is to increase oxygen levels throughout the reservoir. Other water quality factors may also improve, including levels of dissolved metals and nutrients, destratification of the water column, and improved oxygen levels in releases.

- Practices for Aeration of Reservoir Releases — a variety of aeration techniques for improving water quality, specifically dissolved oxygen levels, are presented.

Improving water quality in impoundments and tailwaters often requires consideration of the interaction of several different factors. For example, achievement of desired DO levels at specific projects may require evaluation of several different technologies and management activities. The U.S. Army Corps of Engineers created a computer-modeling program, AERATE, that performs calculations to

Management practices to protect surface water quality and instream and riparian habitat are discussed in the following subsections:

- Improving Water Quality
  - Watershed Protection
  - Aeration of Reservoir Water
  - Aeration of Reservoir Releases
- Improving Aquatic Habitat
- Maintaining Fish Passage
- Dam Removal

[5] The USACE Environmental Laboratory develops and supports several models, such as QUAL2E, Bathtub, and CE-QUAL-RI that can be found at http://el.erdc.usace.army.mil/products.cfm?Topic=none.

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evaluate several direct (e.g., active aeration technologies) and indirect (e.g., activities such as watershed management to reduce nitrogen and phosphorous runoff, which result in improved DO) reservoir aeration techniques. The program considers the following aeration techniques: improving water quality in the reservoir, modifying the withdrawal outlet location (and thereby changing which water is withdrawn and released from the reservoir), treating the release water to eliminate the poor quality as the flow passes through the outlet structure, and treating the release water in the tail water area (Wilhelms and Yates, 1995).

Watershed Protection Practices

Many NPS pollution problems in reservoirs and dam tailwaters frequently result from sources in the contributing watershed (e.g., sediment, nutrients, metals, and toxics). Management of pollution sources from a watershed has been found to be a cost-effective solution for improving reservoir and dam tailwater water quality (TVA, 1988). Watershed protection practices can be effective in producing long-term water quality benefits and lack the high operation and maintenance costs associated with structural controls.

> Additional information about watershed protection, specifically developing and implementing watershed plans, is available from EPA's draft *Handbook for Developing Watershed Plans to Restore and Protect Our Waters*. The handbook is available at http://www.epa.gov/nps.

Watershed protection is a technique that provides long-term water quality benefits, and many states and local communities have adopted this practice. Numerous state and local governments have already legislated and implemented detailed watershed planning programs that are consistent with this management measure. For example, Oregon, New Jersey, Delaware, and Florida have passed legislation that requires county and municipal governments to adopt comprehensive plans, including requirements to direct future development away from sensitive areas. Many municipalities and regions have adopted land use and growth controls, including the towns of Amherst and Norwood and the Cape Cod region of Massachusetts; Narragansett, Rhode Island; King County, Washington; and many others.

Watershed protection management practices fall under the following four categories:

- Encourage drainage protection—includes descriptions and applications of zoning techniques that can be used to limit development density or redirect density to less environmentally sensitive areas.
- Establish and protect stream buffers—describes important steps for protecting or establishing riparian buffer zones to enhance water quality and pollutant removal.
- Identify and address NPS contributions—involves identifying potential upstream sources of nonpoint source pollution, as well as providing solutions to minimize those impacts.
- Identify and preserve critical areas—entails identifying properties that if preserved or enhanced could maintain or improve water quality and reduce the impacts of urban runoff, as well as, preserving environmentally significant areas (includes land acquisition, easements, and development restrictions of various types).

Refer to Chapter 7 for additional information about each of the above practices.

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Reservoir Aeration Practices

Systems that have been developed and tested for reservoir aeration rely on atmospheric air, compressed air, or liquid oxygen to increase DO concentrations in reservoir waters. Mixing of reservoir water to destratify warmer, oxygen rich, epilimnion and cooler, oxygen poor, hypolimnion waters can be used. However, this practice has not been used at large hydropower reservoirs because of the associated cost in deep, large volume reservoirs. Refer to Chapter 7 for additional information about reservoir aeration practices.

Practices to Improve Oxygen Levels in Tailwaters

Aeration of water as it passes through the dam or through the portion of the waterway immediately downstream from the dam is another approach to improving DO in water releases from dams. The systems in this category rely on agitation and turbulence to mix the reservoir releases with atmospheric air. One approach involves the increased use of spillways, which release surface water to prevent it from overtopping the dam. An alternative approach is to install barriers called weirs in the downstream areas. Weirs are designed to allow water to overtop them, which can increase DO through surface agitation and increased surface area contact. Some of these downstream systems create supersaturation of dissolved gases and may require additional modifications to prevent supersaturation, which may be harmful to aquatic organisms.

The quality of reservoir releases can be improved through adjustments in the operational procedures at dams. These include scheduling of releases or of the duration of shutoff periods, instituting procedures for the maintenance of minimum flows, making seasonal adjustments in the pool levels or in the timing and variation of the rate of drawdown, selecting the turbine unit that most increases DO (often increasing the DO levels by 1 mg/L), and operating more units simultaneously (often increasing DO levels by about 2 mg/L). The magnitude and duration of reservoir releases also should be evaluated to determine impacts to the salinity regime in coastal waters, which could be substantially altered from historical patterns.

Two factors should be considered when evaluating the suitability of hydraulic structures such as spillways and weirs for their application in raising the DO concentration in waterways:

- Most of the measurements of DO increases associated with hydraulic structures have been collected at low-head facilities. The effectiveness of these devices may be limited as the level of discharge increases (Wilhelms, 1988).

- The hydraulic functioning of these types of structures should be carefully considered since undesirable flow conditions may occur in some instances (Wilhelms, 1988).

Practices that improve oxygen levels in tailwaters include:

- Gated conduits
- Labyrinth weirs
- Modifying operational procedures
- Reregulation weirs
- Selective withdrawal

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- Spillway modifications
- Turbine operation
- Turbine venting
- Water conveyances

Additional information about each of these practices is available in Chapter 7.

Practices to Restore or Maintain Aquatic and Riparian Habitat

Several options are available for the restoration or maintenance of aquatic and riparian habitat in the area of a reservoir impoundment or in portions of the waterway downstream from a dam. One set of practices is designed to augment existing flows that result from normal operation of the dam. These include operation of the facility to produce flushing flows, minimum flows, or turbine pulsing. Another approach to producing minimum flows is to install small turbines that operate continuously. Installation of reregulation weirs in the waterway downstream from the dam can also achieve minimum flows. Finally, riparian improvements are discussed for their importance and effectiveness in restoring or maintaining aquatic and riparian habitat in portions of the waterway affected by the location and operation of a dam.

A 2004 report from the National Academies' National Research Council (NRC, 2004) illustrates the importance of maintaining instream flows and critical wildlife habitat in streams where dams are present and notes that areas along Nebraska's Platte River are properly designated as "critical habitats" for the river's endangered whooping crane and threatened piping plover. A series of dams and reservoirs have been constructed in the river basin for flood control and to provide water for farm irrigation, power generation, recreation, and municipal use. The alterations to the river and surrounding land caused by this extensive water-control system, however, resulted in habitat changes that were at odds with the protection of the listed species.

Conflicts over the protection of federally listed species and water management in the Platte River Basin have existed for more than 25 years. In recent years, the Fish and Wildlife Service of the U.S. Department of the Interior issued a series of biological opinions indicating that new water depletions would have to be balanced by mitigation measures, and a lawsuit forced the designation of "critical habitat" for the piping plover. These and other controversies prompted the Department of the Interior and the Governance Committee of the Platte River Endangered Species Partnership to request that the National Research Council examine whether the current designations of "critical habitat" for the whooping crane and piping plover are supported by existing science. The National Research Council was also asked to assess whether current habitat conditions are affecting the survival of listed species or limiting their chances of recovery, and to examine the scientific basis for the department's instream-flow recommendations, habitat-suitability guidelines, and other decisions. The report concludes that in most instances habitat conditions are indeed affecting the likelihood of species survival and recovery.

Additional information about the following practices to restore or maintain aquatic and riparian habitat are available in Chapter 7:

- Constructed spawning beds
- Flow augmentation

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- Riparian improvements
- Spillway modifications

Practices to Maintain Fish Passage

Migrating fish populations may be unable to travel up or downstream because of the presence of a dam or suffer losses when passing through the turbines of hydroelectric dams at facilities that have not been equipped with special design features to accommodate fish passage. The effect of dams and hydraulic structures on migrating fish has been studied since the early 1950s in an effort to develop systems or identify operating conditions that would minimize mortality rates. Selecting a device or management strategy for optimal fish passage in a stream or river with a dam requires careful analysis of a variety of factors, such as species, type and operational strategy of the dam, and the physical characteristics of the river system.

Larinier (2000) reports that devices such as fish ladders and bypass channels can help fish travel past dams, but may result in increased mortality due to the hardship and stress involved with passing through these structures. In addition, the fish passage structures have to be placed in a suitable entrance location, have a flow that is attractive to the species of concern, be continually maintained, and possess the hydraulic conditions necessary for the target species (Larinier, 2000). With all of these requirements, the success of a fish ladder or similar device is often uncertain. Passage through the hydraulic turbines of a hydropower dam can cause increased stress as a result of changes in velocity or pressure and the possibility of electric shocks from the turbines and can lead to increased mortality (Larinier, 2000).

The safe passage of fish either upstream or downstream through a dam requires a balance between operation of the facility for its intended uses and implementation of practices that will ensure safe passage of fish. The United States Congress' Office of Technology Assessment (OTA) report on fish passage technologies at hydropower facilities provides an excellent overview of fish passage technologies and discusses some of the economic considerations associated with the safe passage of fish (OTA, 1995).

The U.S. Fish and Wildlife Service and its partners have created a database that makes information about barriers to fish passage in the United States available to policy makers and the public. The database, known as the Fish Passage Decision Support System (FPDSS),[6] is part of the U.S. Fish and Wildlife Service's National Fish Passage Program.[7]

Available fish-protection systems for hydropower facilities fall into one of four categories based on their mode of action (Stone and Webster, 1986): behavioral barriers, physical barriers, collection systems, and diversion systems. These are discussed in separate sections below, along with additional practices that have been successfully used to maintain fish passage: spill and water budgets, fish ladders, fish lifts, advanced hydroelectric turbines, transference of fish runs, and constructed spawning beds.

[6] https://ecos.fws.gov/fpdss/index.do
[7] http://www.fws.gov/fisheries/fwma/fishpassage

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Upstream fish passage systems have been constructed at approximately 10 percent of the FERC licensed hydropower plants. Upstream fish passage systems such as fish ladders and lifts are considered adequately developed for anadromous species such as salmon, American shad (*Alosa sapidissima*), alewives (*Alosa pseudoharengus*), and blueback herring (*Alosa aestivalis*). Fish passage systems for riverine fish have not been specifically designed, although some of these species will use fish passage systems designed for anadromous species (OTA, 1995).

Practices include:

- Advanced hydroelectric turbines
- Behavioral barriers
- Collection systems
- Fish ladders
- Fish lifts
- Physical barriers
- Spill and water budgets
- Transference of fish runs

Additional information about the above practices is available in Chapter 7.

Removal of Dams

Dam Removal Resource

American Rivers is a nonprofit organization focusing on the health of U.S. river systems, fish, and wildlife. American Rivers' website hosts a variety of information related to hydromodification, including past and recent estimates of dam removals in the United States. http://www.americanrivers.org

The removal of dams has become an accepted practice for dam owners to deal with unsafe, unwanted, or obsolete dams. Dam removal may be necessary as dams deteriorate, sediments accumulate behind dams in reservoirs, human needs shift, and economics dictate (NRC, 1992). Dams serve a variety of important social and environmental purposes (e.g., water supply, flood control, power generation, wildlife habitat, and recreation). As a result, dam removal is often infrequent.

Migratory fish passage throughout United States rivers and streams is obstructed by over 2 million dams and many other barriers such as blocked, collapsed, and perched culverts. The National Oceanic and Atmospheric Administration (NOAA) is expanding its community-based approach to restoring fish habitat through the recently developed Open Rivers Initiative (ORI).[8] Administered by NOAA Fisheries Service Office of Habitat Conservation, ORI is designed to help communities correct fish passage problems by focusing financial and technical resources on the removal of obsolete dams and other blockages. ORI strives to restore vital habitat for migrating fish like salmon, striped bass, sturgeon, and shad, as well as improve community safety and stimulate economic revitalization of riverfront communities. Through its more broadly focused Community-based Restoration Program (CRP), NOAA Fisheries Service has opened over 700 miles of stream habitat with financial and technical assistance provided to fish passage

[8] http://www.nmfs.noaa.gov/habitat/restoration/ORI

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projects. Examples of successfully completed CRP projects that fit the Open Rivers Initiative model include:

- Culvert removal in the John Smith Creek (Mendocino County, CA)
- Mt. Scott Creek dam removal (Happy Valley, OR)
- Wyomissing Creek dam removal (Reading, PA)
- Town Brook dam removal and fish ladder (Plymouth, MA)
- Sennebec dam removal (Union, ME)

There are many things to consider when removing a dam, one of which is the function(s) of the dam and the status of that function (active vs. inactive). As discussed above, dams are used for various purposes, including water supply, hydroelectric power, recreation, and flood control benefits. When proposals are made to remove a dam with one or more of these active functions, the way in which these functions and benefits will be replaced or mitigated must be addressed (FOR, 1999). An example of this process can be seen with the Jackson Street Dam, located on Bear Creek in Medford, Oregon. The dam diverted water from the creek into the irrigation canals of Rogue River Valley Irrigation District (RRVID). Since the dam created a partial barrier to migratory fish, a loss of stream habitat, and an algae-filled impoundment near the city park, a consensus was reached that removing the dam was the most cost-efficient means of eliminating the problem. However, since the dam was currently providing irrigation diversion, another cost-efficient diversion had to be devised for RRVID. The decision was made to replace the old dam with a less damaging diversion structure. The new structure is approximately one-fourth the height of the Jackson Street Dam (about 3 feet) and is located 1,200 feet upstream. The new structure is also removed at the end of the irrigation season, which coincides with the time of the year when most upstream migration occurs. When the new structure is in place during the irrigation season, it allows fish to migrate (by well-designed fish ladders and screens), and it was designed so that little water will back up behind it. It is also equipped with fish screens to keep fish out of the irrigation canal (FOE et al., 1999).

It is also important to consider the cost of removing a dam, and who will pay for the removal. Removal costs can vary from tens of thousands of dollars to hundreds of millions of dollars, depending on the size and location of the dam. Who pays for dam removal can be a complex issue. Removal in the past has often been financed by the dam owner; local, state, and federal government; and in some cases agreements where multiple stakeholders cover the costs (American Rivers, n.d.a.). A guide to selected funding sources (*Paying for Dam Removal: A Guide to Selected Funding Sources)*[9] is available from American Rivers.

> Dam owners are responsible to keep the dam safe. When a dam begins to fail or breach, a decision must be made as to whether to keep or repair the structure. When a dam generates no revenue, the long-term costs of liability insurance, dam and impoundment maintenance, and operation weigh heavily on the side of dam removal. On average, dam removal costs 3–5 times less than repair.
>
> Source: Delaware Riverkeeper, n.d.

[9] http://www.americanrivers.org/site/DocServer/pdr-color.pdf?docID=727

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In the case of the Jackson Street Dam, the most cost-effective alternative to solving the problems associated with the dam was to remove it. However, since it was currently functioning, an alternative means to provide that function was needed. In some instances, it is not more beneficial to remove the dam if it is functioning. For example, USACE expressed concern over the costs of air pollution created by fuel-burning power plants needed to replace the lost power from dams in the debate over the removal of the Snake River dams (Lee, 1999). There was much controversy over whether it was more cost-efficient to remove the dams, especially due to the functions the dams provided. USACE found that replacing the dams would be costly, both monetarily and ecologically. The estimated costs to replace the lower Snake hydropower were between $180 million to $380 million a year for 100 years (Lee, 1999). In addition, the cost of the resulting increase in pollution due to natural gas or coal replacement plants was very high, yet an actual amount was not determined.

Evaluations made by the USACE found that the costs associated with removing the Snake River dams greatly exceeded the costs of maintaining, improving, and keeping them (Associated Press, 2002). Therefore, the dams along the Snake River remain and have been repaired. USACE plans to pursue technical and operational changes at the Snake River dams to improve fish survival, in addition to barging or trucking juvenile salmon around the dams (Associated Press and the Herald Staff, 2002).

The entire decision-making process is a delicate balance that involves many stakeholders. One important step in this process is to decide if the ecological benefits of removing the dam outweigh the benefits of maintaining the dam.

When deciding whether to remove a dam, interested parties should collect as much information as possible about the potential removal project. American Rivers has published a fact sheet (*Data Collection: Researching Dams and Rivers Prior to Removal*),[10] which contains a variety of sources to help begin researching the particular dam that might be removed and the river on which it is located (American Rivers, n.d.b.).

American Rivers and Trout Unlimited have published a guide to help decide whether to remove a dam or not, *Exploring Dam Removal: A Decision-Making Guide* (American Rivers and Trout Unlimited, 2002).[11]

Repercussions of Unsafe Dams (American Rivers, 1999)

Unsafe dams may result in:

1. Loss of life from surging flows if a dam fails
2. Destruction of property
3. Harm to the downstream river environment (e.g., erosion)
4. Release of toxic sediments (e.g., dioxins, PCBs)
5. Risk to users of the river (i.e., users may not be able to avoid life threatening hazards if in close approximation to a failing dam)
6. Jeopardizing delivery of critical services to communities (e.g., power generation, flood control)

The decision-making process related to dam removal is often complex with inputs from stakeholders with opposing desired outcomes. Additional resources related to dam removal are available in the Resources chapter.

[10] http://www.americanrivers.org/site/DocServer/Reseaching_a_Dam_Data_Collection.pdf?docID=981
[11] http://www.americanrivers.org/site/DocServer/Exploring_Dam_Removal-A_Decision-Making_Guide.pdf?docID=3641

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Chapter 5: Streambank and Shoreline Erosion

Figure 5.1 Shoreline Erosion: Before and After Photos (SEAS, 2007)

Streambanks and shorelines naturally erode. Water flowing along (parallel to) streambanks dislodges sediment and other materials that constitute the streambank. Similarly, water flowing perpendicular to shorelines, due to waves or tides, transports sediment and other materials away from the shoreline. Anthropogenic influences change the natural erosion processes, often increasing erosion locally and sedimentation downstream, along adjacent shorelines, or offshore. Many human activities change the hydraulic characteristics of stream flows or transfer energy to adjacent shorelines and contribute to increased streambank and shoreline erosion, for example:

- *Urbanization* that leads to changes in imperviousness creates changes in the hydraulics of water during wet weather events. Increased imperviousness can result in flashier runoff events that are shorter in duration with greater flow rates and more erosive force.
- *Agricultural practices*, such as drainage ditches, can change the characteristics of subsurface water flows into receiving streams. These changes result in less subsurface water storage and often increase stream flows during and after storms.
- *Livestock grazing* may reduce vegetative cover, which can result in more erosion on uplands and increased sediment and other pollutant loads in streams. Livestock that are allowed direct access to streams can significantly increase streambank erosion and destroy important riparian habitat.
- *Roads* built in rural areas, such as forest and recreational roads, alter the natural landscape and can destroy riparian habitat. If not properly installed and maintained, these types of roads erode and supply increased sediment and pollutants to adjacent streams. Additionally, roads may increase imperviousness, which leads to flashier runoff events. Stream crossings associated with rural roads can block fish passage, trap debris during storms, and lead to increased streambank erosion in nearby areas.
- *Marinas* can alter local wave and tidal flow patterns, resulting in transference of wave and tidal energy to adjacent shorelines.
- *Channelization or channel straightening* sometimes results in an increase in the slope of a channel, which causes an increase in stream flow velocities. Channel modifications to reduce flood damage, such as levees and floodwalls, often narrow the stream width, increasing the velocity of the water and thus its erosive potential. In addition, newly

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constructed banks are generally more prone to erosion than "seasoned" banks and are more likely to require bank stabilization.

- *Dams* alter the flow of water, sediment, organic matter, and nutrients, resulting in both direct physical and indirect biological effects. The impact of a dam on a stream corridor can vary, depending on the purposes of the dam and its size in relation to stream flow. Varying discharges released from a hydropower dam can be a significant factor increasing streambank erosion. When dams are a barrier to the flow of sediment and organic materials, the decreased suspended sediment load in release waters may lead to scouring of downstream streambeds and streambanks.

In summary, these anthropogenic factors can affect the state of equilibrium in streams or along shorelines. The typical chain of events that follows the disturbance to a stream corridor or shoreline can be described as changes in:

- Hydrology
- Stream hydraulics
- Morphology
- Factors such as sediment transport and storage
- Alterations to the biological community
- Impervious cover

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Management Measure 6: Eroding Streambanks and Shorelines

Management Measure 6
1) Where streambank or shoreline erosion is a nonpoint source (NPS) pollution problem, streambanks and shorelines should be stabilized. Vegetative methods are strongly preferred unless structural methods are more effective, considering the severity of stream flow discharge, wave and wind erosion, and offshore bathymetry, and the potential adverse impact on other streambanks, shorelines, and offshore areas. 2) Protect streambank and shoreline features with the potential to reduce NPS pollution. 3) Protect streambanks and shorelines from erosion due to uses of either the shorelands or adjacent surface waters.

Typically, several streambank and shoreline stabilization techniques may be used to effectively control erosion wherever it is a source of nonpoint pollution. Often a combination of techniques may be necessary to effectively control conditions that are causing the increased erosion. Techniques involving marsh creation and vegetative bank stabilization ("soil bioengineering") will usually be effective at sites with limited exposure to strong currents or wind-generated waves. In cases with increased erosional forces, an integrated approach that employs the use of structural systems in combination with soil bioengineering techniques can be utilized. The use of harder, more structural approaches, including beach nourishment and coastal or riparian structures, may need to be considered in areas facing severe water velocities or wave energy. In addition to controlling the sources of sediment contributed to surface waters, which are causing nonpoint source (NPS) pollution, these techniques can halt the destruction of wetlands and riparian areas located along the shoreline. Once affected streambanks and shorelines are protected, they can serve as a filter for surface water runoff from upland areas, or as a temporary sink for nutrients, contaminants, or sediment already present as NPS pollution in surface waters.

Stabilization practices involving vegetation or engineering structures should be properly designed and installed. These techniques should be applied only when there will be no adverse effects to aquatic or riparian habitat, or to the stability of adjacent shorelines. In addition to activities that are applied directly to an eroding streambank or shoreline, there may be opportunities to promote institutional measures that establish minimum setback requirements or a buffer zone to reduce concentrated flows and promote infiltration of surface water runoff in areas adjacent to the shoreline.

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Stream-friendly Project Tips

Before Construction
Involve your neighbors to increase project success
Get the necessary permits
Flag and avoid disturbing wetlands
Preserve existing native trees and shrubs
Cut trees and shrubs rather than ripping them out of the ground (many may resprout)
Make a plan to replant disturbed areas and use native plants
Install sediment-control practices (e.g., coffer dams)

During Construction
Stockpile fertile topsoil for later use for plants
Use hand equipment rather than heavy equipment
If using heavy equipment, use wide-tracks or rubberized tires
Work from the streambank, preferably on the higher, non-wetland side
Avoid instream work except as authorized by your local fishery and wildlife authority
Stay 100 feet away from water when refueling or adding oil
Avoid using wood treated with creosote or copper compounds

After Construction
Keep out people and livestock during plant establishment
Check project after high flows
Water plants during *droughts*
Control grass until trees and shrubs overtop grass, usually two to three years

Source: SWCD. No date. *Protecting Streambanks from Erosion: Tips for Small Acreages in Oregon*. Washington County Soil and Water Conservation District and the Small Acreage Steering Committee, Oregon Association of Conservation Districts. http://www.or.nrcs.usda.gov/news/factsheets/fs4.pdf. Accessed June 2003.

Initially project planners can consider whether a complete removal or reversal of the causative effects is possible. For example, when evaluating restoration sites affected by upstream armoring and urbanization, rather than adding armoring to the downstream site that is eroding, the planning team may consider whether changes to operations up stream can be made. Next, activities to improve existing erosion damage may be examined. The alteration of operation approaches in combination with management and restoration efforts can reduce future impacts. Similarly, removal of channelization structures may allow for a greater recovery of the integrity of a stream corridor. If feasible, the objective of a restoration design should be to eliminate or moderate disruptive influences to allow for equilibrium (NRC, 1992). If this is not possible, restoration may have limited effectiveness in the long term or may require a closer look at an entire watershed to determine alternate restoration activities. See Chapter 6 for additional information on watershed planning and restoration information.

A glossary of stream restoration terms is available from U.S. Army Corps of Engineers' Ecosystem Management and Restoration Research Program at http://el.erdc.usace.army.mil/elpubs/pdf/sr01.pdf.

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This management measure was selected for the following reasons:

- Many anthropogenic activities can destabilize streambanks and shorelines, resulting in erosion that contributes significant amounts of NPS pollution in surface waters.
- The loss of coastal land and streambanks due to shoreline and streambank erosion results in reduction of riparian areas and wetlands that have NPS pollution abatement potential.
- A variety of activities related to use of shorelands or adjacent surface waters can result in erosion of land along coastal bays or estuaries and loss of land along rivers and streams.

Preservation and protection of shorelines and streambanks can be accomplished through many approaches, but preference in this guidance is for vegetative practices, such as soil bioengineering and marsh creation, where their use is appropriate.

Management Practices for Management Measure 6

The management measure generally will be implemented by applying one or more management practices appropriate to the source, location, and climate. A variety of vegetative and structural practices are presented and are examples of activities that can be used as a single practice or in combination with other practices to achieve the desired project goals. An example of a source of information is the USACE publication *Stream Management* (Fischenich and Allen, 2000), which provides a good summary of vegetative and structural practices as well as a comprehensive review of processes related to stream and streambank erosion. The document also presents a thorough overview of planning activities for approaching streambank erosion issues.

The types of practices that can be used to accomplish the elements of Management Measure 6, including the following groups of practices:

- Vegetative practices
- Structural practices
- Integrated systems
- Planning and regulatory approaches

Vegetative Practices

Vegetative practices have a long history of use in Europe for streambank and shoreline protection and for slope stabilization. Prior to the 1980s, they have been practiced in the United States only to a limited extent, primarily because other engineering options, such as the use of riprap, have been more commonly accepted practices (Allen and Klimas, 1986). The use of vegetative streambank and shoreline stabilization practices have become more common in the United States over the past several decades as their implementation has shown to be physically and ecologically successful. Economically, less costly alternatives of stabilization, such as vegetative practices, are being pursued as alternatives to engineering structures for controlling erosion of streambanks and shorelines.

Vegetative practices, sometimes referred to as soil bioengineering, refer to the installation of plant materials as a main structural component in controlling problems of land instability where

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erosion and sedimentation are occurring (USDA-NRCS, 1992). Vegetative practices can be defined as, "the use of live and dead plant materials, in combination with natural and synthetic support materials, for slope stabilization, erosion reduction, and vegetative establishment" (FISRWG, 1998).

Basic principles of soil bioengineering include the following (USDA-NRCS, 1992):

- Fit the soil bioengineering system to the site
  - Topography and exposure (e.g., note the degree of slope, presence of moisture)
  - Geology and soils (e.g., determine soil depth and type)
  - Hydrology (e.g., calculate peak flows in the project area)
- Retain existing vegetation whenever possible
- Limit removal of vegetation
- Stockpile and protect topsoil
- Protect areas exposed during construction
- Divert, drain, or store excess water

Additionally, vegetative approaches have the advantage of providing food, cover, and instream and riparian habitat for fish and wildlife and result in a more aesthetically appealing environment than traditional engineering approaches (Allen and Klimas, 1986). Many planners of vegetative practices try to utilize native plants and materials that can be obtained from local stands of species. These plants are already well adapted to the climate and soil conditions of the area and thus have an increased chance of becoming established and surviving. The use of locally available plants also cuts the costs of a restoration project (Gray and Sotir, 1996). Vegetative systems that use locally available plants have the added advantage of blending in with natural vegetation over time.

Additional benefits of using bioengineering methods include (USEPA, 2003c):

- Designed to be low maintenance or maintenance-free in the long run
- Enhance habitat not only by providing food and cover sources, but by serving as a temperature control for aquatic and terrestrial animals
- If successful, can stabilize slopes effectively in a short period of time (e.g., one growing season)
- Self-repairing after establishment
- Filter overland runoff, increase infiltration, and attenuate flood peaks

The limitations of vegetative practices include the need for skilled laborers and the difficulty of locating plant materials, particularly during the dormant season, which is the optimal time for installation. To properly establish a soil bioengineering planting, orientation, on-site training, and careful supervision of the labor crews are required. Another limitation, which is avoidable, is that projects that promote the growth of thick vegetation may increase roughness values or increase friction and raise floodwater elevations. This should be taken into consideration during the planning stages of a project and prevented.

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Additional information about soil bioengineering principles is available from the *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).[1] Local agencies, such as the USDA Natural Resources Conservation Service (NRCS) and the Cooperative Extension Service, can be useful sources of information on appropriate native plant species to consider in bioengineering projects.

The USDA Forest Service has published *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*,[2] which provides information on how to successfully plan and implement a soil bioengineering project, including the application of soil bioengineering techniques. The guide also provides specific tips for using soil bioengineering techniques successfully.

Specific vegetative practices include (USDA-NRCS, 1992):

- Branch packing
- Brush layering
- Brush mattressing
- Coconut fiber roll
- Dormant post plantings
- Live fascines
- Live staking
- Marsh creation and restoration
- Tree revetments
- Vegetated buffers

Refer to Chapter 7 for additional information about the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Structural Approaches

Soil bioengineering alone is not suitable in all instances. When considering an approach to streambank or shoreline stabilization, it is important to take several factors into account. For example, it is inappropriate to stabilize slopes with vegetative systems in areas that would not support plant growth, such as those areas with soils that are toxic to plants, areas of high water velocity, or where there is significant wave action (Gray and Sotir, 1996). Shores subject to wave erosion will usually require structures or beach nourishment to dampen wave or stream flow energy.

Properly designed and constructed shoreline and streambank erosion control structures are used in areas where higher water velocity or wave energy make vegetative stabilization and marsh creation ineffective. In addition to careful consideration of the engineering design, the proper planning for a shoreline or streambank protection project will include a thorough evaluation of

[1] The soil bioengineering chapter of the handbook is available at http://www.info.usda.gov/CED/ftp/CED/EFH-Ch18.pdf.
[2] Available at http://www.fs.fed.us/publications/soil-bio-guide.

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the physical processes causing the erosion. To complete the analysis of physical factors, the following steps are suggested (Hobbs et al., 1981):

- Determine the limits of the shoreline reach
- Determine the rates and patterns of erosion and accretion and the active processes of erosion within the reach
- Determine, within the reach of the sites of erosion-induced sediment supply, the volumes of that sediment supply available for redistribution within the reach, as well as the volumes of that sediment supply lost from the reach
- Determine the direction of sediment transport and, if possible, estimation of the magnitude of the gross and net sediment transport rates
- Estimate factors such as ground-water seepage or surface water runoff that contribute to erosion

Some of the most widely accepted alternative engineering practices for streambank or shoreline erosion control are described below. These practices will have varying levels of effectiveness depending on the strength of waves, tides, streamflow, or currents at the project site. They will also have varying degrees of suitability at different sites and may have varying types of secondary impacts. One important impact that must always be considered is secondary effects, such as the transfer of wave or streamflow energy, which can cause erosion elsewhere, either offshore or alongshore. Finding a satisfactory balance between these three factors (effectiveness, suitability, and secondary impacts) is often the key to a successful streambank or shoreline erosion control project.

Examples of structural approaches include:

- Beach nourishment
- Breakwaters
- Bulkheads and seawalls
- Check dams
- Groins
- Levees, setback levees, and floodwalls
- Return walls
- Revetment
- Riprap
- Toe protection
- Wing deflectors

Refer to Chapter 7 for additional information about the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Integrated Systems

The use of structural systems alone may raise concern because these systems lack vegetation, which can be effective at stabilizing soils in most conditions. Additionally, vegetated systems

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can help to restore damaged habitat along shorelines and streambanks. Integrated systems, which combine structural systems and vegetation, can be very effective in many settings where vegetation adds support and habitat to structural systems. An example of an integrated system is the use of stones for toe protection (structural) and soil bioengineering techniques (vegetative) for the upper banks of a waterway. Integrated slope protection designs that employ the traditional structural methods and the soil bioengineering techniques have proven to be more cost effective than either method independently. Where construction methods are labor-intensive and labor costs are reasonable, the combination of methods may be especially cost effective (Gray and Sotir, 1996).

Integrated systems include:

- Bank shaping and planting
- Joint planting
- Live cribwalls
- Riparian improvements
- Root wad revetments
- Vegetated gabions
- Vegetated geogrids
- Vegetated reinforced soil slope (VRSS)

Refer to Chapter 7 for additional information regarding the above practices. The Additional Resources section provides a number of sources for obtaining information about the effectiveness, limitations, and cost estimates for these practices.

Planning and Regulatory Approaches

In addition to the vegetative, structural, and integrated practices discussed above, another group of practices that can be used to protect streambanks and shorelines includes planning and regulatory approaches. The variety of planning activities include practices in waters adjacent to eroding streambanks and shorelines (e.g., evaluating the erosion potential) and on land areas adjacent to eroding streambanks and shorelines (e.g., watershed planning processes). There are also a variety of local policy and regulatory activities that can be used to protect sensitive or eroding streambanks and shorelines ranging from setback requirements and vegetated buffer minimum widths to requirements for erosion and sediment control plans for various types of construction activities. The following are examples (with complete descriptions located in Chapter 7) of planning and regulatory protection activities that could be used to protect vulnerable streambanks or shorelines:

- Erosion and sediment control plans
- Establishment and protection of stream buffers
- Rosgen's stream classification method
- Setbacks
- Shoreline sensitivity assessment

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Chapter 6: Guiding Principles

Many of the management measures and practices recommended by EPA to reduce the nonpoint source (NPS) pollutant impacts associated with hydromodification activities stress the need to incorporate planning as a tool. States, local governments, or community groups should begin the planning process early when trying to determine how to address a particular NPS issue associated with a new or existing hydromodification project. The planning process should bring key stakeholders together so that a variety of options can be explored to adequately define the problem and potential solutions. Once the issues are identified according to the various perspectives, project goals can be established to solve one or more environmental problems.

One important part of the planning process is the identification of the goals of the different stakeholders. Once these goals, which are sometimes different for the different groups of stakeholders, are identified and defined, the planning team can strive to achieve a balance among the needs of the various stakeholders. Often restoration compromises can be made to meet differing goals of the stakeholders to achieve a balance of the needs of the different groups. For example, changes in hydroelectric dam operation may be possible to produce minimum base flows downstream from the dam to support a variety of aquatic habitats, while still providing energy in a profitable manner. In addition, solutions that only allow for complete removal of the dam and restoration to preexisting stream conditions may not be possible because of other changes in the watershed (e.g., urbanization, other hydromodification projects, or the need for affordable and environmentally friendly electricity). A compromise solution that enables the dam to continue to operate while minimizing environmental impacts and to enhance critical downstream habitats that support a desirable fish population may be the best solution.

Part of the planning process and achievement of balance when evaluating techniques for restoring areas impacted by NPS pollution associated with hydromodification activities can be termed “creating opportunities.” For example, an opportunity may be found by working with stakeholders such as local homeowners who are concerned about the unsightly algae present in a community reservoir. Reducing runoff containing an abundant supply of nitrogen and phosphorous pollutants from lawns surrounding the reservoir may lead to reductions in the algal bloom. Changes in land use that result in increasing the permeability of land adjacent to a channelized stream can reduce the overall volume and velocity of water in the stream. As flooding conditions are reduced, “hard” structures like bulkheads can be replaced with softer, vegetative solutions along the stream channel. The combination of reduced scouring flows associated with the greater stream velocities and vegetated channel banks can lead to improved instream ecological conditions. There are many other possible opportunities waiting to be found and implemented when projects are evaluated at the watershed level.

Project planning and analysis are essential parts of success when trying to reduce the impact of NPS pollution from new or existing hydromodification activities. One example of a planning process is explained in the EPA document *Ecological Restoration: A Tool to Manage Stream Quality* (USEPA, 1995a). This document outlines the key steps in the ecological restoration decision framework as:

- Identification of impaired or threatened watersheds

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- Inventory of the watershed
- Identification of the restoration goals
- Selection of candidate restoration techniques
- Implementation of selected restoration techniques
- Monitoring

Other EPA guidance documents offer similar approaches to the restoration planning process, including *Community-Based Environmental Protection: A Resource Book for Protecting Ecosystems and Communities* (USEPA, 1997a). Both guidance documents offer a variety of case studies to provide readers with examples of the frameworks as they are applied to real-world situations. EPA's *Draft Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (USEPA, 2005c) also provides useful planning information related to watershed plans.

The Natural Resources Conservation Service (NRCS) is also a source of information for planning. NRCS provides assistance through their Watershed Protection and Flood Prevention Program, whose purpose is to assist federal, state, local agencies, local government sponsors, tribal governments, and program participants to protect and restore watersheds from damage caused by erosion, floodwater, and sediment; to conserve and develop water and land resources; and to solve natural resource and related economic problems on a watershed basis. The program provides technical and financial assistance to local people or project sponsors, builds partnerships, and requires local and state funding contribution.[1]

NRCS uses locally-led conservation programs, which are an extension of the agency's traditional assistance to individual farmers and ranchers, for planning and installing conservation practices for soil erosion control, water management, and other purposes. Through this effort, local people, generally with the leadership of conservation districts along with NRCS technical assistance, will assess their natural resource conditions and needs, set goals, identify ways to solve resource problems, utilize a broad array of programs to implement solutions, and measure their success.

When planning any new development activities or restoration of already developed or impacted activities, it is important to account for the guiding principles:

- Using a watershed approach
- Smart growth principles
- Project design principles
- Monitoring and maintenance of structures

Each of these principles is discussed in more detail below.

[1] Additional information about this program, as well as contact information is available at http://www.nrcs.usda.gov/programs/watershed.

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Using a Watershed Approach

EPA recommends the use of a watershed approach as the key framework for dealing with problems caused by runoff and other sources that impair surface waters (USEPA, 1998). The watershed protection approach is a comprehensive planning process that considers all natural resources in the watershed, as well as social, cultural, and economic factors. Using a watershed approach, multiple stakeholders integrate regional and locally-led activities with local, state, tribal, and federal environmental management programs. EPA works with federal agencies, states, tribes, local communities, and non-governmental sectors to make a watershed approach the key coordinating framework of planning, restoration, and protection efforts to achieve "clean and safe" water and healthy aquatic habitat.

The watershed approach framework can be applied to address impacts caused by hydromodification activities throughout a watershed. Additionally, the watershed approach can help to identify and address problems within a watershed that increase NPS pollution associated with hydromodification activities.

Major elements of successful watershed approaches include:

- Focusing on hydrologically-defined areas—watersheds and aquifers have hydrologic features that converge to a common point of flow; watersheds range in size from very large (e.g., the Mississippi River Basin) to a drainage basin for a small creek.

- Using an integrated set of tools and programs (regulatory and voluntary, federal/state/tribal/local and non-governmental sectors) to address the myriad problems facing the Nation's water resources, including NPS and point source pollution, habitat degradation, invasive species, and air deposition of pollutants (e.g., mercury and nutrients).

- Involving all parties that have a stake or interest in developing collaborative solutions to a watershed's water resource problems.

- Using an iterative planning or adaptive management process of assessment and setting environmental, water quality, and habitat goals (e.g., water quality standards).

- Planning, implementation, and monitoring to ensure that plans and implementation actions are revised to reflect new data.

- Breaking down barriers between plan development and implementation to enhance prospects for success.

A key attribute of the watershed approach is that it can be applied with equal success to large- and small-scale watersheds. Federal agencies, states, interstate commissions, and tribes usually apply the approach on larger scales, such as in watersheds greater than 100 square miles in size.

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However, local agencies and urban communities can apply the approach to watersheds as small as several acres in size.

Although specifics may vary from large scale to small scale, the basic goals of the watershed approach remain the same—protecting, maintaining, and restoring water resources, based on the geomorphology, ecology, and other natural characteristics of the waterbody. Local runoff management program officials must be especially conscious of watershed scale when planning and implementing specific management practices. For example, programmatic practices, such as stream protection ordinances and public education campaigns, are usually applied community wide. Consequently, the results benefit many small watersheds. In contrast, structural practices, such as vegetative approaches, usually provide direct benefits to a single stream. Regional structural management practices such as headland breakwater systems for larger watersheds can be used, but they do not protect smaller contributing streams. Given limited resources, program officials must often analyze cost and benefits and choose between large- and small-scale practices. Often, a combination of nonstructural and structural practices implemented across the watershed and at regional and local levels is the most cost effective approach.

An example of the watershed approach being used for hydromodification activities is the South Myrtle Creek Ditch Project. South Myrtle Creek, which flows into the South Umpqua River in Oregon, was historically populated with cutthroat trout (*Oncorhynchus clarki*) and coho salmon (*Oncorhynchus kisutch*). However, since the early 20th century, diversion structures, used primarily to provide water for irrigating agricultural crops, have blocked the passage of fish through creek waters (USEPA, 2002c). One example of the diversion structures was a diversion dam with a concrete apron, which was installed in a portion of South Myrtle Creek to raise the water level in an impoundment to provide irrigation water for adjacent and downstream landowners. During the summer, water levels in the creek would elevate 14 feet above natural levels and were diverted into a 2.5 mile irrigation ditch. Ultimately, hydromodification of this stream caused flow modifications and high stream temperatures, which degraded water quality for the native trout and salmon populations.

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9 Elements of Watershed Planning

EPA has identified a minimum of nine elements that are critical for achieving improvements in water quality. EPA requires that these nine elements be addressed for section 319-funded watershed plans and strongly recommends that they be included in all other watershed plans that are intended to remediate water quality impairments. Additional information is available from FY 2004 Guidelines for the Award of Section 319 Nonpoint Source Grants to States and Territories *at* http://www.epa.gov/owow/nps/cwact.html*. The nine elements are listed below:*

a. Identification of causes of impairment and pollutant sources or groups of similar sources that need to be controlled to achieve needed load reductions, and any other goals identified in the watershed plan. Sources that need to be controlled should be identified at the significant subcategory level along with estimates of the extent to which they are present in the watershed (e.g., X linear miles of eroded streambank needing remediation).

b. An estimate of the load reductions expected from management measures.

c. A description of the nonpoint source management measures that will need to be implemented to achieve load reductions and a description of the critical areas in which those measures will be needed to implement this plan.

d. Estimate of the amounts of technical and financial assistance needed, associated costs, and/or the sources and authorities that will be relied upon to implement this plan.

e. An information and education component used to enhance public understanding of the project and encourage their early and continued participation in selecting, designing, and implementing the nonpoint source management measures that will be implemented.

f. Schedule for implementing the nonpoint source management measures identified in this plan that is reasonably expeditious.

g. A description of interim measurable milestones for determining whether nonpoint source management measures or other control actions are being implemented.

h. A set of criteria that can be used to determine whether loading reductions are being achieved over time and substantial progress is being made toward attaining water quality standards.

i. A monitoring component to evaluate the effectiveness of the implementation efforts over time, measured against the criteria established under item h immediately above.

In 1998 one of the landowners initiated a project to restore flow and improve water quality in South Myrtle Creek. The project used the guiding principles of the watershed approach to restore the health of the creek.

- *Partnership*. The project was a collaborative effort of landowners, who donated services and supplies. The project received funding and support from government agencies, such as the U.S. Fish and Wildlife Service, the Oregon Water Resources Department, the Oregon Watershed Enhancement Board, the Bureau of Land Management, the Natural Resources Conservation Service, and the Douglas County Watermaster.

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- *Geographic focus*. Resource management activities were directed specifically to the creek and the drainage ditch, where flow restoration and improved water quality were desired.

- *Sound management techniques based on strong science and data*. An assessment of South Myrtle Creek identified water quality problems from flow modification and high stream temperatures as the priority problems in the creek. The diversion dam and concrete apron were found to be causing the problems. Landowners, the Water Resources Department, and the Watershed Enhancement Board developed a plan, the goal of which was to restore flow and improve water quality in the creek. The plan was implemented by removing the diversion dam and concrete apron. The irrigation system was switched to a sprinkler type system, which is more efficient than the original ditch irrigation. In addition, the denuded riparian area was revegetated to help lower stream temperatures and new seedlings were protected with fencing to keep away livestock.

With the cooperation of the landowners, the county and state governments, and other interested parties, the South Myrtle Creek Ditch Project was a success. Water temperatures have improved and flows have increased by 2.5 cubic feet per second during the summer. Restoration of the streambed to its historical level has allowed passage of salmon and trout to the 10 miles of stream above the dam (USEPA, 2002c).[2]

Smart Growth

Smart growth practices cover a range of development and conservation strategies that are environmentally sensitive, economically viable, community-oriented, and sustainable. Environmental impacts of development can be reduced with techniques that include compact development, reduced impervious surfaces and improved water detention, safeguarding of environmentally sensitive areas, mixing of land uses (e.g., homes, offices, and shops), transit accessibility, and better pedestrian and bicycle amenities.

Through smart growth approaches that enhance neighborhoods and involve local residents in development decisions, these communities are creating vibrant places to live, work, and play. The high quality of life in these communities makes them economically competitive, creates business opportunities, and improves the local tax base. Smart growth practices have also been shown to help protect water quality by reducing the amount of paved surfaces and allowing natural lands to filter rainwater and runoff before it reaches downstream areas.

Based on the experience of communities around the nation that have used smart growth approaches to create and maintain great neighborhoods, the Smart Growth Network[3] developed a set of ten basic principles:

[2] Additional information about the project is available at http://www.epa.gov/owow/nps/Section319III/OR.htm.
[3] Smart Growth Network (SGN) is a partnership of government, business, and civic organizations that support smart growth. The SGN Web site, Smart Growth Online (http://www.smartgrowth.org/Default.asp?res=1024), features an extensive array of smart growth-related news, events, information, research, presentations, and publications.

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1. Mix land uses
2. Take advantage of compact building design
3. Create a range of housing opportunities and choices
4. Create walkable neighborhoods
5. Foster distinctive, attractive communities with a strong sense of place
6. Preserve open space, farmland, natural beauty, and critical environmental areas
7. Strengthen and direct development towards existing communities
8. Provide a variety of transportation choices
9. Make development decisions predictable, fair, and cost effective
10. Encourage community and stakeholder collaboration in development decisions

EPA offers help to communities through the EPA smart growth program to improve development practices and get the type of development they want. They work with local, state, and national experts to discover and encourage successful, environmentally sensitive development strategies. EPA is engaged in conducting research, publishing reports and other publications,[4] showcasing outstanding communities, working with communities through grants[5] and technical assistance (Smart Growth Implementation Assistance Program),[6] and bringing together diverse interests to encourage better growth and development.[7]

Low Impact Development

Low Impact Development (LID) is an innovative stormwater management approach. The goal of LID is to mimic a site's predevelopment hydrology by using design techniques that infiltrate, filter, store, evaporate, and detain runoff close to its source (Low Impact Development Center, Inc., n.d.).

LID is based on the paradigm that stormwater management should not be viewed as stormwater disposal and that numerous opportunities exist within the developed landscape to control stormwater runoff close to the source. These principles include (NRDC, n.d.):

- Integrate stormwater management early in site planning activities
- Use natural hydrologic functions as the integrating framework
- Focus on prevention rather than mitigation
- Emphasize simple, low-tech, and low cost methods
- Manage as close to the source as possible
- Distribute small-scale practices throughout the landscape
- Rely on natural features and processes
- Create a multifunctional landscape

[4] http://www.epa.gov/piedpage/publications.htm
[5] http://www.epa.gov/piedpage/grants/index.htm
[6] http://www.epa.gov/piedpage/sgia.htm
[7] Links to technical assistance, tools, partnerships and grants and other funding are at "Making Smart Growth Happen" at http://www.epa.gov/piedpage/sg_implementation.htm.

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The use of LID practices offers both economic and environmental benefits. LID measures result in less disturbance of the development area and conservation of natural features, and they can be less cost intensive than traditional stormwater control mechanisms. Cost savings for control mechanisms are not only for construction, but also for long-term maintenance and life cycle cost considerations (USEPA, 2000).

Ten common LID practices are the following (NRDC, n.d.):

- Impervious surface reduction and disconnection
- Permeable pavers
- Pollution prevention and good housekeeping
- Rain barrels and cisterns
- Rain gardens and bioretention
- Roof leader disconnection
- Rooftop gardens
- Sidewalk storage
- Soil amendments
- Tree preservation
- Vegetated swales, buffers, and strips

Project Design Considerations

General Design Factors

When designing any type of restoration project, it is important to consider the watershed as a whole as well as the specific site where restoration will occur. A watershed survey, or visual assessment, evaluates an entire watershed and can be used to help identify and verify pollutants, sources, and causes of impairments that lead to changes in streambank erosion. Additional monitoring of chemical, physical, and biological conditions may be necessary to determine if water quality is actually being affected by observed pollutants and sources. Watershed surveys can provide an accurate picture of what is occurring in the watershed. EPA's *Volunteer Stream Monitoring: A Methods Manual*[8] provides a watershed survey visual assessment form that may be used. In addition to EPA's method, a variety of visual assessment protocols have been developed by states and agencies. Designers of watershed restoration plans should look for assessment protocols that are already being used in their state or local area (USEPA, 2005c). Another general resource for planning and implementing restoration projects associated with hydromodification activities is EPA's *National Management Measures to Protect and Restore Wetlands* (USEPA, 2005b).

Photographs may also be a powerful tool that can be incorporated into watershed surveys. Photos serve as a visual reference for the site and provide before and after pictures that may be used to analyze restoration or remediation activities. In addition to taking individual photographs, aerial photographs may also provide important before and after information and can be obtained from

[8] http://www.epa.gov/owow/monitoring/volunteer/stream/vms32.html

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USGS (Earth Science Information Center), USDA (Consolidated Farm Service Agencies, Aerial Photography Field Office), and other agencies (USEPA, 2005c). Refer to EPA's draft *Handbook for Developing Watershed Plans to Restore and Protect Our Waters* (USEPA, 2005c) for more information about watershed assessments.

Assessment

Tools to analyze channels on a site-by-site basis may include geomorphic assessments such as the methodology developed by Rosgen. Geomorphic assessments help to determine river and stream characteristics such as channel dimensions, reach slope, and channel enlargement and stability. This information about stream physical characteristics might help the restoration team to understand current stream conditions and may be evaluated over time to describe degradation or improvements in the stream. Geomorphic assessment may also be useful for predicting future stream conditions, which can help in selecting suitable restoration or protection approaches (USEPA, 2005c).

The Rosgen geomorphic assessment approach groups streams into different geomorphic classes, based on a set of criteria that include entrenchment ratio, width/depth ratio, sinuosity, channel slope, and channel materials. Assessment methodologies, such as Rosgen's Stream Classification System, can help identify streams at different levels of impairment, determine the types of hydrologic and physical factors affecting stream morphologic conditions, and choose appropriate management measures to implement if needed.[9] Another common geomorphic assessment method is the Modified Wolman Pebble Count (Harrelson et al., 1994), which characterizes the texture (particle size) in the stream or riverbeds of flowing surface waters. It can be used alone or with Rosgen-type assessments. The composition of the streambed can provide information about the characteristics of the stream, including effects of flooding, sedimentation, and other physical impacts on a stream (USEPA, 2005c). Other assessment methods may be available from state agencies or environmental organizations.

The physical conditions of a site can provide important information about factors affecting overall stream integrity, such as agricultural activities and urban development. Runoff from cropland and feedlots can carry sediment into streams, clog existing habitat, and change geomorphological characteristics. An understanding of stream physical conditions can facilitate identification of sources and pollutants and allow for designing and implementing more effective restoration and protection strategies. Physical characterization should also extend beyond the streambanks or shore and include a look at conditions in riparian areas (USEPA, 2005c).

Before choosing a practice to restore an area impacted by hydromodification activities, it is also important to determine what biological endpoints are desired and to consider other environmental or water quality goals. Biological endpoints may include metrics such as the number of fish surviving, number of offspring produced, impairment of reproductive capability, or morbidity. Biological endpoints can be used to evaluate the effectiveness of treatment schemes and can serve as a design parameter during restoration planning. Water quality goals, such as increasing low dissolved oxygen levels, reducing nitrogen or phosphorous pollutant

[9] More information about the Rosgen Stream Classification System is available at http://www.epa.gov/watertrain/stream_class/index.htm.

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levels, or decreasing turbidity, are also important to consider when planning restoration. For example, if turbidity is a major problem in the waterbody, planners will want to choose a method of restoration that prevents erosion, is efficient at trapping sediment before it enters the waterbody, or one that will help sediment to settle in desired locations of the stream or river. Looking at endpoints and goals before designing the method of restoration can help planners and stakeholders achieve the desired results.

Engineering Considerations

When choosing from the various alternatives of engineering practices for addressing impacts associated with hydromodification, such as protecting and restoring eroding streambanks and shorelines, the following factors should be taken into consideration:

- Foundation conditions
- Level of exposure to erosive forces
- Availability of materials
- Initial and annual costs
- Past performance

Foundation conditions may have a significant influence on the selection of the specific practice or combination of practices to be used for restoring areas impacted by hydromodification, including shoreline or streambank stabilization. Foundation characteristics at the site must be compatible with the structure that is to be installed for erosion control. A structure such as a bulkhead, which must penetrate through the existing substrate for stability, will generally not be suitable for shorelines with a rocky bottom. Where foundation conditions are poor or where little penetration is possible, a gravity-type structure such as a stone revetment may be preferable. However, all vertical protective structures (revetments, seawalls, and bulkheads) built on sites with soft or unconsolidated bottom materials can experience scouring as incoming waves are reflected off the structures. In the absence of additional toe protection in these circumstances, the level of scouring and erosion of bottom sediments at the base of the structure may be severe enough to contribute to structural failure at some point in the lifetime of the installation.

Along streambanks, the erosive force of the current during periods of high streamflow will influence the selection of bank stabilization techniques and details of the design. For shorelines, the levels of wave exposure at the site will also generally influence the selection of shoreline stabilization techniques and details of the design. In areas of severe levels of exposure to erosive forces, such as strong wave action or currents, light structures such as vegetative techniques, timber cribbing, or light riprap revetment may not provide adequate protection. The effects of winter ice along the shoreline or streambank may also need to be considered in the selection and design of erosion control projects.

The availability of materials is another key factor influencing the selection of suitable techniques for protecting and restoring areas affected by hydromodification activities. For a vegetative approach, availability of plant materials of sufficient quantity and quality is an important design consideration. A particular type of bulkhead, seawall, or revetment may not be economically feasible if materials are not readily available near the construction site. Installation methods may also preclude the use of specific structures in certain situations. For instance, the installation of

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bulkhead pilings in coastal areas near wetlands may not always be permissible due to disruptive impacts in locating pile-driving equipment at the project site.

Costs should also be included in the decision making process for implementing hydromodification practices. The total cost of a project should be viewed as including both the initial costs (materials, labor, and planning) and the annual costs of operation and maintenance. To the extent possible, practices should be compared by their total costs. Although a particular practice may be cheaper initially, it could have operation and maintenance costs that make it more expensive in the long run. For example, in some parts of the country, the initial costs of timber bulkheads may be less than the cost of stone revetments. However, stone structures typically require less maintenance and have a longer life than timber structures. Other types of structures whose installation costs are similar may actually have a wide difference in overall cost when annual maintenance and the anticipated lifetime of the structure are considered (USACE, 1984). Environmental benefits, such as creation of habitat, should also be factored into cost evaluations.

An example of a valuable resource that provides specific cost information for practices to protect or reduce streambank and shoreline erosion is your local USDA Service Center, which makes available services provided by the NRCS.[10]

The engineering designers should also evaluate similar existing projects and practice designs to determine how well they performed compared to design specifications. An important consideration for determining past performance is to compare the physical, water quality, and biological endpoints specified in the design with the corresponding endpoints that were observed in the monitoring results. For example, if an operation and maintenance program for an urban channelization project incorporates establishment of vegetative cover along many of the low energy areas of an urban stream, the long-term performance of the vegetative cover can be evaluated with metrics such as:

- Percent of riparian area with erosion problems
- Number of recreationally important fish species present
- Annual operation and maintenance costs
- Changes in important water quality parameter values (e.g., dissolved oxygen, turbidity)

Incorporating Monitoring and Maintenance of Structures

Generally, the monitoring program will help to determine how well the project is performing with respect to the design goals and the extent of any maintenance activities needed (NRC, 1992). The project monitoring plan should be an integral part of the overall design and will be an important consideration for developing long-term project costs and resource needs. Once the project's goals are established, performance indicators are then matched to the goals to create the

[10] A list of USDA Service Centers is available at http://offices.sc.egov.usda.gov/locator/app. A list of regional and state NRCS offices is available at http://www.nrcs.usda.gov/about/organization/regions.html#state.

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monitoring program (NRC, 1992). The monitoring program should also be appropriate to the scope of the project (NRC, 1992) by including considerations such as:

- The area covered by the monitoring compared to the area of the overall project—both should be similar.
- The frequency and intensity of sampling to provide reliable assessments of the performance indicators.
- The cost and resources required for monitoring should reflect the overall cost and resources of the project.
- The performance indicators provide information to enable effective assessments of the project goals and decision-making for project maintenance activities.

Each project will have unique goals and corresponding monitoring needs. Chapter 3 of The National Research Council's document *Restoration of Aquatic Ecosystems* (NRC, 1992) provides detailed advice on considerations for planning a monitoring program for restoration activities such as those associated with hydromodification activities. Some additional monitoring considerations can be found in the USDA Forest Service document *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization* (USDA-FS, 2002):

- Keeping track of where plants were harvested—is there a correlation between growth rate of certain cuttings and the "mother" plants?
- Is the installation functioning as designed?
- Which areas are maturing more rapidly than others?
- Are seeds sprouting in the newly formed beds?
- Which plants have invaded the site through natural succession?
- What has sprouted in the second season?
- Which areas are experiencing difficulty and why?
- Is the bank stabilizing or washing away and why?
- Is something occurring that is unexpected?
- Which techniques are succeeding?
- Are any of the structures failing?

USDA NRCS' *The Practical Streambank Bioengineering Guide*[11] (Bentrup and Hoag, 1998) provides an example monitoring form. The monitoring sheet is also available in Appendix C of *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization* (USDA-FS, 2002).[12]

During the first few years after installation, maintenance is necessary until vegetation becomes established and the bank stabilizes. Structures may shift or you may notice something that was left undone. Once vegetation is established, projects should become self-sustaining and require little or no maintenance. Be sure the site is managed to give the treatment every chance to be effective over a long period of time (USDA-FS, 2002).

[11] http://www.engr.colostate.edu/~bbledsoe/CE413/idpmcpustguid.pdf
[12] http://www.fs.fed.us/publications/soil-bio-guide/guide/appendices.pdf

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Common maintenance tasks include (USDA-FS, 2002; Bentrup and Hoag, 1998):

- Remove debris and weeds that may shade and compete with cuttings
- Secure stakes, wire, twine, etc.
- Control weeds
- Repair weakened or damaged structures (including fences)
- Replant and reseed as necessary (it is not uncommon for a flood to occur days after installation)

Planting success varies from project to project. Bentrup and Hoag (1998) provide the following potential growth success rates:

Pole Plantings	*70-100%*
Live Fascines	*20-50%*
Brush Layering	*10-70%*
Post Plantings	*50-70%*

It is beneficial to inspect the project every other week for the first 2 months after installation, once a month for the next 6 months, and then every other month for 2 years, at least. One should also inspect the project after heavy precipitation, flooding, snowmelt, drought, or any extraordinary occurrence. Assess damage from flooding, wildlife, grazing, boat wakes, trampling, drought, and high precipitation (USDA-FS, 2002). Additional information about monitoring is available from USDA NRCS' *The Practical Streambank Bioengineering Guide* (Bentrup and Hoag, 1998).

Plan and design all streambank, shoreline, and navigation structures so that they do not transfer erosion energy or otherwise cause visible loss of surrounding streambanks or shorelines.

Maintenance varies with the structural type. For stone revetments, the replacement of stones that have been dislodged is necessary; timber bulkheads need to be backfilled if there has been a loss of upland material, and broken sheet pile should be replaced as necessary. Gabion baskets should be inspected for corrosion failure of the wire, usually caused either by improper handling during construction or by abrasion from the stones inside the baskets. Baskets should be replaced as necessary since waves will rapidly empty failed baskets.

Steel, timber, and aluminum bulkheads should be inspected for sheet pile failure due to active earth pressure or debris impact and for loss of backfill. For all structural types not contiguous to other structures, lengthening of flanking walls may be necessary every few years. Through periodic monitoring and required maintenance, a substantially greater percentage of coastal structures will perform effectively over their design life. Since streambank or shoreline protection projects can transfer energy from one area to another, which causes increased erosion in the adjacent area, the possible effects of erosion control measures on adjacent properties should be routinely monitored.

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Chapter 7: Practices for Implementing Management Measures

Many of the operation and maintenance solutions presented in Chapter 3 (Channelization and Channel Modification) are also practices that can be used to stabilize streambanks and shorelines as presented in Chapter 5 (Streambank and Shoreline Erosion). For example, a stream channel that has been hardened with vertical concrete walls to prevent local flooding and limit the stream to its existing channel (to protect property built along the stream channel), may benefit from operation and maintenance practices that use opportunities to replace the concrete walls with appropriate vegetative or combined vegetative and non-vegetative structures along the streambank when possible. These same practices may be applicable to stabilize downstream streambanks that are eroding and creating a nonpoint source (NPS) pollution problem because of the upstream development and hardened streambanks.

The following practices apply to one or more management measures. The descriptions and illustrations presented in this chapter are intended to provide a starting point for stakeholders and decision-makers for selecting possible practices to address NPS pollution problems associated with hydromodification activities. Table 7.1 provides a cross-reference of the practices with possible applications for the various hydromodification management measure components (e.g., instream and riparian restoration corresponds to the second component of Management Measures 1 and 2 described in detail in Chapter 3). Users of the information provided in the following table and descriptions evaluate the attributes of the possible practices with site-specific conditions in mind.

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Table 7.1 Practices for Hydromodification Management Measures

	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Practices	MM1	MM2	MM3		MM4	MM5					MM6							
Advanced Hydroelectric Turbines (7-7)										●								
Bank Shaping and Planting (7-9)	●	●	●										●				●	
Beach Nourishment (7-10)												●				●		
Behavioral Barriers (7-12)										●								
Branch Packing (7-14)	●	●	●								●							
Breakwaters (7-15)																●		
Brush Layering (7-17)	●	●	●								●							
Brush Mattressing (7-19)	●	●	●								●							
Bulkheads and Seawalls (7-21)	●	●	●									●				●		
Check Dams (7-22)	●	●	●	●								●						
Coconut Fiber Roll (7-23)	●	●	●								●							
Collection Systems (7-25)										●								
Construct Runoff Intercepts (7-26)			●	●														
Constructed Spawning Beds (7-27)									●									
Construction Management (7-28)			●															
Dormant Post Plantings (7-29)	●	●	●								●				●			

		Channelization		Dams									Streambanks				Shorelines			
		Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage		Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
	Encourage Drainage Protection (7-30)						●													
	Equipment Runoff Control (7-31)					●														
	Erosion and Sediment Control (ESC) Plans (7-32)	●	●	●												●				
	Erosion Control Blankets (7-35)			●																
	Establish and Protect Stream Buffers (7-37)		●				●									●				
	Fish Ladders(7-38)										●									
	Fish Lifts (7-40)										●									
	Flow Augmentation (7-41)									●										
	Fuel and Maintenance Staging Areas (7-43)					●														
	Gated Conduits (7-44)								●											
	Groins (7-45)																	●		
	Identify and Address NPS Contributions (7-46)						●													
	Identify and Preserve Critical Areas (7-48)						●													
	Joint Planting (7-50)	●	●	●											●					
	Labyrinth Weir (7-51)								●											
	Levees, Setback Levees, and Floodwalls (7-52)	●	●											●				●		

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Live Cribwalls (7-54)	●	●	●										●					
Live Fascines (7-56)	●	●	●								●							
Live Staking (7-58)	●	●	●								●							
Locate Potential Land Disturbing Activities Away from Critical Areas (7-60)			●	●	●													
Marsh Creation and Restoration (7-61)		●									●				●			
Modifying Operational Procedures (7-62)								●										
Mulching (7-63)			●															
Noneroding Roadways (7-64)	●	●	●															
Pesticide and Fertilizer Management (7-67)					●													
Phase Construction (7-69)			●															
Physical Barriers (7-70)										●								
Pollutant Runoff Control (7-72)					●													
Preserve Onsite Vegetation (7-73)			●	●														
Reregulation Weir (7-74)								●										
Reservoir Aeration (7-75)							●											
Retaining Walls (7-77)			●	●														
Return Walls (7-78)	●	●										●				●		
Revegetate (7-79)			●															

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Revetment (7-80)	●	●	●									●				●		
Riparian Improvements (7-82)		●	●						●				●				●	
Riprap (7-83)	●	●	●									●				●		
Root Wad Revetments (7-84)	●	●	●										●					
Rosgen's Stream Classification Method (7-86)	●	●												●				
Scheduling Projects (7-88)			●															
Sediment Basins/Rock Dams (7-89)				●														
Sediment Fences (7-91)			●	●														
Sediment Traps (7-92)				●														
Seeding (7-93)			●															
Selective Withdrawal (7-94)								●										
Setbacks (7-95)	●	●												●				●
Shoreline Sensitivity Assessment (7-97)																		●
Site Fingerprinting (7-99)			●															
Sodding (7-100)			●															
Soil Protection (7-101)			●															
Spill and Water Budgets (7-102)										●								
Spill Prevention and Control Program (7-103)					●													
Spillway Modifications (7-104)								●	●									
Surface Roughening (7-105)			●															

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	Channelization		Dams								Streambanks				Shorelines			
	Physical & chemical	Instream/riparian restoration	Erosion control	Runoff control	Chemical/pollutant control	Watershed protection	Aerate reservoir water	Improve tailwater oxygen	Restore/maintain habitat	Maintain fish passage	Vegetative	Structural	Integrated	Planning & regulatory	Vegetative	Structural	Integrated	Planning & regulatory
Toe Protection (7-106)	●	●										●				●		
Training—ESC (7-107)			●															
Transference of Fish Runs (7-108)										●								
Tree Armoring, Fencing, and Retaining Walls or Tree Wells (7-109)			●															
Tree Revetments (7-110)	●	●	●								●				●			
Turbine Operation (7-112)								●										
Turbine Venting (7-113)								●										
Vegetated Buffers (7-114)	●	●	●	●							●				●			
Vegetated Filter Strips (7-115)			●	●														
Vegetated Gabions (7-116)	●	●	●										●				●	
Vegetated Geogrids (7-118)	●	●	●										●				●	
Vegetated Reinforced Soil Slope (VRSS) (7-120)	●	●	●										●				●	
Water Conveyances (7-121)								●										
Wildflower Cover (7-122)			●															
Wind Erosion Controls (7-123)			●															
Wing Deflectors (7-124)	●	●										●				●		

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Advanced Hydroelectric Turbines

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Hydroelectric turbines can be designed to reduce impacts to juvenile fish passing through the turbine as it operates. Most research on advanced hydroelectric turbines is being carried out by power producers in the Columbia River basin (U.S. Army Corps of Engineers (USACE) and public utility districts) who are looking to improve the survival of hydroelectric turbine-passed juvenile fish by modifying the operation and design of turbines. Development of low impact turbines is also being pursued on a national scale by the U.S. Department of Energy (DOE) (Cada, 2001).

In the last few years, field studies have shown that improvements in the design of turbines have increased the survival of juvenile fish. Researchers continue to examine the causes and extent of injuries from turbine systems, as well as the significance of indirect mortality and the effects of turbine passage on adult fish. Overall, improvements in turbine design and operation, and new field, laboratory, and modeling techniques to assess turbine-passage survival, are contributing towards improving downstream fish passage at hydroelectric power plants (Cada, 2001).

The redesign of conventional turbines for fish passage has focused on strategies to reduce obstructions and to narrow the gaps between moveable elements of the turbine that are thought to injure fish. The effects of changes in the number, size, orientation, or shape of the blades that make up the runner (the rotating element of a turbine which converts hydraulic energy into mechanical energy) are being investigated (Cada, 2001).

The USACE has put considerable resources into improving turbine passage survival. The USACE Turbine Passage Survival Program (TSP) was developed to investigate means to improve the survival of juvenile salmon as they pass through turbines located at Columbia and Snake River dams. The TSP is organized along three functional elements that are integrated to achieve the objectives (Cada, 2001):[1]

- Biological studies of turbine passage at field sites
- Hydraulic model investigations
- Engineering studies of the biological studies, hydraulic components, and optimization of turbine operations

DOE supports development of low impact turbines under the Advanced Hydropower Turbine System (AHTS) Program. The AHTS program explores innovative concepts for turbine design that will have environmental benefits and maintain efficient electrical generation. The AHTS program awarded contracts for conceptual designs of advanced turbines to different firms/companies. Early in the development of conceptual designs, it became clear that there were

[1] Additional information about USACE efforts with advanced hydroelectric turbines is available at http://hydropower.inel.gov/turbines/pdfs/amfishsoc-fall2001.pdf.

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significant gaps in the knowledge of fish responses to physical stresses (injury mechanisms) experienced during turbine passage. Consequently, the AHTS program expanded its activities to include studies to develop biological criteria for turbines (Cada, 2001).[2]

[2] Additional information about DOE efforts with advanced hydroelectric turbines is available at http://hydropower.inel.gov/turbines/pdfs/amfishsoc-fall2001.pdf.

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Bank Shaping and Planting

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☑ Integrated
  - ☐ Planning & regulatory

Bank shaping and planting involve regrading a streambank to establish a stable slope angle, placing topsoil and other material needed for plant growth on the streambank, and selecting and installing appropriate plant species on the streambank. This design is most successful on streambanks where moderate erosion and channel migration are anticipated. Reinforcement at the toe of the bank is often required, particularly where flow velocities exceed the tolerance range for plantings and where erosion occurs below base flows. To determine the appropriate slope angle, slope stability analyses that take into account streambank materials, groundwater fluctuations, and bank loading conditions are recommended (FISRWG, 1998).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Bank Shaping and Vegetating.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/bankshaping.pdf.

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Beach Nourishment

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
- ☐ Vegetative
- ☑ Structural
- ☐ Integrated
- ☐ Planning & regulatory

The creation or nourishment of existing beaches provides protection to the eroding area and can also provide a riparian habitat function, particularly when portions of the finished project are planted with beach or dune grasses (Woodhouse, 1978). Beach nourishment (Figures 7.1 through 7.4) requires a readily available source of suitable fill material that can be effectively transported to the erosion site for reconstruction of the beach (Hobson, 1977). Dredging or pumping from offshore deposits is the method most frequently used to obtain fill material for beach nourishment. A second possibility is the mining of suitable sand from inland areas and overland hauling and dumping by trucks. To restore an eroded beach and stabilize it at the restored position, fill is placed directly along the eroded sector (USACE, 1984). In most cases, plans must be made to periodically obtain and place additional fill on the nourished beach to replace sand that is carried offshore into the zone of breaking waves or alongshore in littoral drift (Houston, 1991; Pilkey, 1992).

One important task that should not be overlooked in the planning process for beach nourishment projects is the proper identification and assessment of the ecological and hydrodynamic effects of obtaining fill material from nearby submerged coastal areas. Removal of substantial amounts of bottom sediments in coastal areas can disrupt populations of fish, shellfish, and benthic organisms (Atlantic States Marine Fisheries Commission, 2002). Grain size analysis should be performed on sand from both the borrow area and the beach area to be nourished. Analysis of grain size should include both size and size distribution, and fill material should match both of these parameters (Stauble, 2005). Fill materials should also be analyzed for the presence of contaminants, and contaminated sediment should not be used (CA Department of Boating and Waterways and State Coastal Conservancy, 2002). Turbidity levels in the overlying waters can also be raised to undesirable levels (EUCC, 1999). Certain

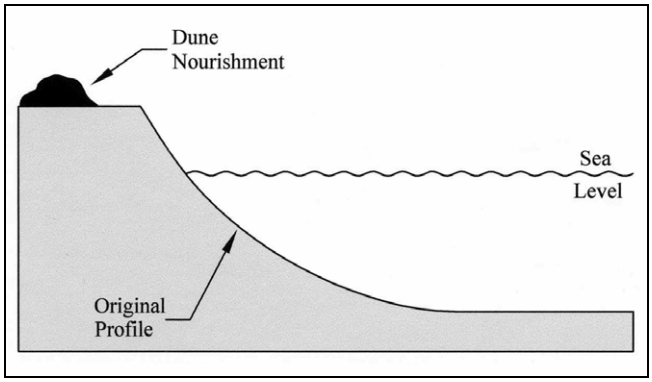

Figure 7.1 Dune Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

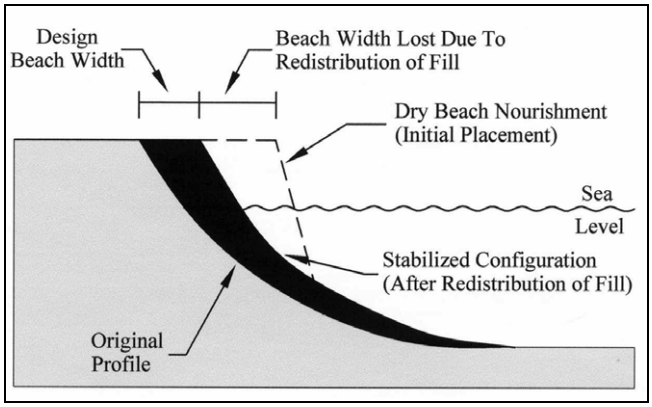

Figure 7.2 Dry Beach Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

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areas may have seasonal restrictions on obtaining fill from nearby submerged areas (TRB, 2001). Timing of nourishment activities is frequently a critical factor since the recreational demand for beach use frequently coincides with the best months for completing the beach nourishment. These may also be the worst months from the standpoint of impacts to aquatic life and the beach community such as turtles seeking nesting sites.

Design criteria should include proper methods for stabilizing the newly created beach and provisions for long-term monitoring of the project to document the stability of the newly created beach and the recovery of the riparian habitat and wildlife in the area.

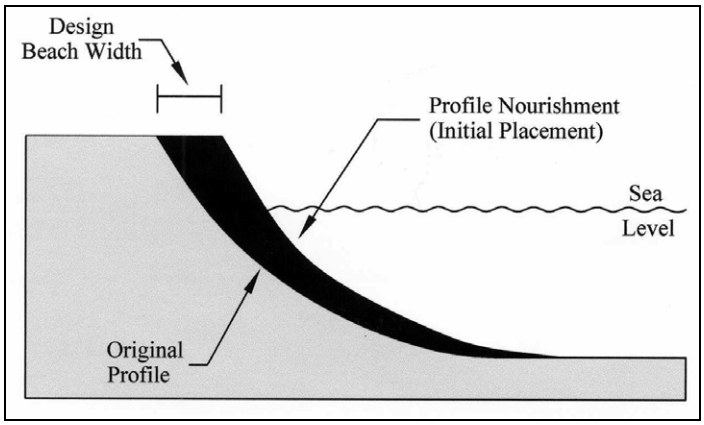

Figure 7.3 Profile Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

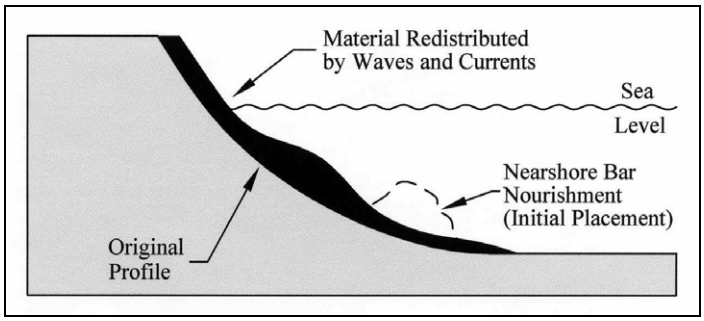

Figure 7.4 Nearshore Bar Nourishment (CA Dept. of Boating and Waterways and State Coastal Conservancy, 2002)

Additional Resources

- Barber, D. No date. *Beach Nourishment Basics.* http://www.brynmawr.edu/geology/geomorph/beachnourishmentinfo.html.

- NOAA. No date. *Beach Nourishment: A Guide for Local Government Officials.* U.S. Department of Commerce, NOAA Coastal Services Center. http://www.csc.noaa.gov/beachnourishment.

- Scottish National Heritage. No date. *A Guide to Managing Coastal Erosion in Beach/Dune Systems: Beach Nourishment.* http://www.snh.org.uk/publications/on-line/heritagemanagement/erosion/appendix_1.7.shtml.

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Behavioral Barriers

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Behavioral barriers use fish responses to external stimuli to keep fish away from intakes or to attract them to a bypass. Since fish behavior is notably variable both within and among species, behavioral barriers cannot be expected to prevent all fish from entering hydropower intakes. Environmental conditions such as high turbidity levels can obscure some behavioral barriers, such as lighting systems and curtains. Competing behaviors such as feeding or predator avoidance can also be a factor influencing the effectiveness of behavioral barriers at a particular time.

Electric screens, bubble and chain curtains, light, sound, and water jets have been evaluated in laboratory or field studies and show mixed results. Despite numerous studies, very few permanent applications of behavioral barriers have been realized (EPRI, 1999). Some authors suggest using behavioral barriers in combination with physical barriers (Mueller et al., 1999).

Electrical screens keep fish away from structures and guide them into bypass areas for removal. Fish seem to respond to the electrical stimulus best when water velocities are low. Tests of an electrical guidance system at the Chandler Canal diversion (Yakima River, Washington) showed efficiency ranging from 70 to 84 percent for velocities of less than 1 ft/sec. Efficiencies decreased to less than 50 percent when water velocities were higher than 2 ft/sec (Pugh et al., 1971). Success of electrical screens may be specific to species and fish size. An electrical field strength suitable to deter small fish may result in injury or death to large fish, since total fish body voltage is directly proportional to fish body length (Stone and Webster, 1986). Electrical screens require constant maintenance of electrodes and associated underwater hardware to maintain effectiveness. Surface water quality can affect the life and performance of electrodes.

Bubble and chain curtains are created by pumping air through a diffuser to create a continuous, dense curtain of bubbles, which can cause an avoidance response. Many factors affect fish response to the curtains, including temperature, turbidity, light, and water velocity. Bubbler systems should be constructed from corrosion-resistant materials and be installed with adequate positioning of the diffuser away from areas where siltation might clog the air ducts. Hanging chains provide a physical, visible obstacle that fish avoid. They are species-specific and lifestage-specific. Efficiency of hanging chains is affected by such variables as velocity, instream flow, turbidity, and illumination levels. Debris can limit their performance. In particular, buildup of debris can deflect chains into a nonuniform pattern and disrupt hydraulic flow patterns.

Strobe lights repel fish by producing an avoidance response. A strobe light system at Saunders Generating Station in Ontario, Canada was found to be 67 to 92 percent effective at repelling or diverting eels (EPRI, 1999). Turbidity levels can affect strobe light efficiency. The intensity and duration of the flash can also affect the response of the fish; for instance, an increase in flash duration has been associated with less avoidance. Strobe lights have the potential for far-field

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fish attraction, since they can appear to fish as a constant light source due to light attenuation over a long distance (Stone and Webster, 1986). Strobe lights at Hiram M. Chittenden Locks in Seattle, Washington were examined to determine how fish respond, depending on strobe light distance. Vertical avoidance was 90 to 100 percent when lights were 0.5 meters away, 45 percent when 2.5 meters away, and 19 percent when 4.5 to 6.5 meters away (EPRI, 1999).

Mercury lights have successfully attracted fish to passage systems and repelled them from dams. Studies suggest their effectiveness is species-specific; alewives (*Alosa pseudoharengus*) were attracted to mercury light, whereas coho salmon (*Oncorhynchus kisutch*) and rainbow trout (*Oncorhynchus mykiss*) displayed no attraction to the light (Stone and Webster, 1986). In a test on the Susquehanna River (Maryland, Pennsylvania, and New York), mercury lights attracted gizzard shad (OTA, 1995). Although results have been mixed, low overall cost of the systems has led to continued research on their effectiveness (Duke Engineering & Services, Inc., 2000).

Underwater sound, broadcast at different frequencies and amplitudes, has been effective in attracting fish away from dams or repelling fish from dangers around dams, although the results of field tests are not consistent. Fish have been attracted, repelled, or guided by the sound. A study prepared for DOE showed that low-frequency, high particle motion was effective at invoking flight and avoidance responses in salmonids (Mueller et al., 1998). These finding agree with Knudsen et al. (1994), who found that low frequencies are efficient for evoking awareness reactions and avoidance responses in juvenile Atlantic salmon. Not all fish possess the ability to perceive sound or localized acoustical sources (Harris and Van Bergeijk, 1962). Fish also frequently seem to become habituated to the sound source.

Poppers are pneumatic sound generators that create a high-energy acoustic output to repel fish. Poppers have effectively repelled warm-water fish from water intakes. Laboratory and field studies in California indicate avoidance by several freshwater species such as alewives (*Alosa pseudoharengus*), perch, and smelt. Salmonids do not seem to be effectively repelled (Stone and Webster, 1986). Operation and maintenance considerations include frequent replacement of "O" rings, air entrainment in water inlets, and vibration of structures associated with the inlets.

Water jet curtains create hydraulic conditions that repel fish. Effectiveness is influenced by the angle at which water is jetted. Although effectiveness averages 75 percent (Stone and Webster, 1986), not enough is known to determine what variables affect performance of water jet curtains. Important operation and maintenance concerns would be clogging of the jet nozzles by debris or rust and the acceptable range of stream flow conditions, which contribute to effective results.

Hybrid barriers or combinations of different barriers can enhance the effectiveness of individual behavioral barriers. Laboratory studies showed a chain net barrier combined with strobe lights to be up to 90 percent effective at repelling some species and sizes of fish. Tests of combining rope-net and chain-rope barriers have shown good results. Barriers with horizontal and vertical components in the water column are more effective than those with vertical components alone. Barriers with a large diameter are more effective than those with a small diameter, and thicker barriers are more effective than thinner barriers. Effectiveness of hanging chains was increased when used in combination with strobe lights. Effectiveness also increased when strobe lights were added to air bubble curtains and poppers (Stone and Webster, 1986).

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Branch Packing

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Branch packing consists of alternating layers of live branch cuttings and compacted backfill to repair small, localized slumps and holes in slopes (Figure 7.5). Live branch cuttings may range from 0.5 to 2 inches in diameter. They should be long enough to touch undisturbed soil at the back of the trench and extend slightly outward from the rebuilt slope face. Wooden stakes should be 5 to 8 feet long, depending on the depth of the slump or hole being repaired. Stakes should also be made from poles that are 3 to 4 inches in diameter or 2 by 4 feet lumber. Live posts can be substituted. As plant tops begin to grow, the branch packing system becomes more effective in retarding runoff and reducing surface erosion. Trapped sediment refills the localized slumps or holes, while roots spread throughout the backfill and surrounding earth to form a unified mass. Branch packing is not effective in slump areas greater than 4 feet deep or 5 feet wide (USDA-NRCS, 1992). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA Natural Resources Conservation Service's (NRCS's) *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- ISU. 2006. *How to Control Streambank Erosion: Branchpacking.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/branchpacking.pdf.

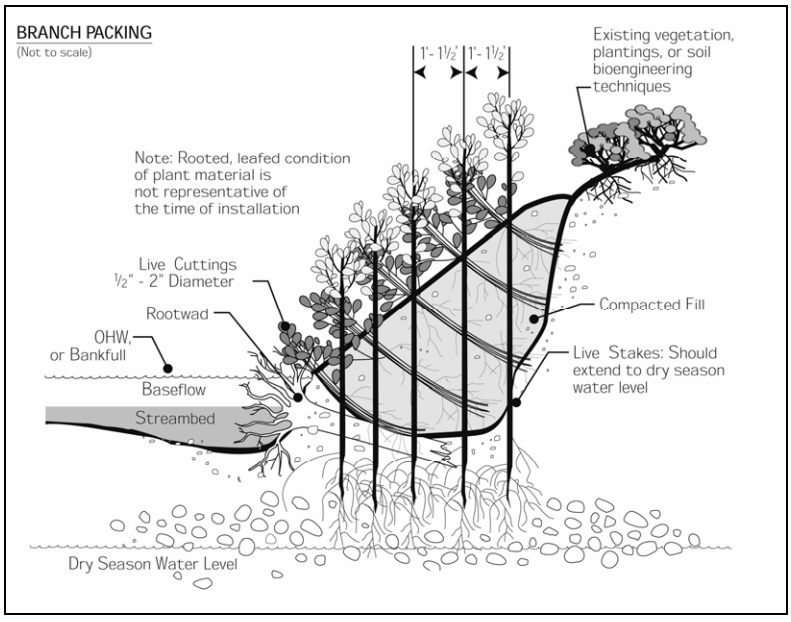

Figure 7.5 Branch Packing (USDA-FS, 2002)

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Breakwaters

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☑ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Breakwaters are wave energy barriers designed to protect the land or nearshore area behind them from the direct assault of waves. Breakwaters have traditionally been used only for harbor protection and navigational purposes; in recent years, however, designs of shore-parallel segmented breakwaters have been used for shore protection purposes (Fulford, 1985; Hardaway and Gunn, 1989; Hardaway and Gunn, 1991; USACE, 1990). Segmented breakwaters can be used to provide protection over longer sections of shoreline than is generally affordable through the use of bulkheads or revetments. Wave energy is able to pass through the breakwater gaps, allowing for the maintenance of some level of longshore sediment transport, as well as mixing and flushing of the sheltered waters behind the structures. The cost per foot of shore for the installation of segmented offshore breakwaters is generally competitive with the costs of stone revetments and bulkheads (Hardaway et al., 1991).

Figure 7.6 provides a view of breakwaters off the coast of Pennsylvania and Figure 7.7 illustrates single and multiple breakwaters.

Figure 7.6 Breakwaters – View of Presque Isle, Pennsylvania (USACE, 2003)

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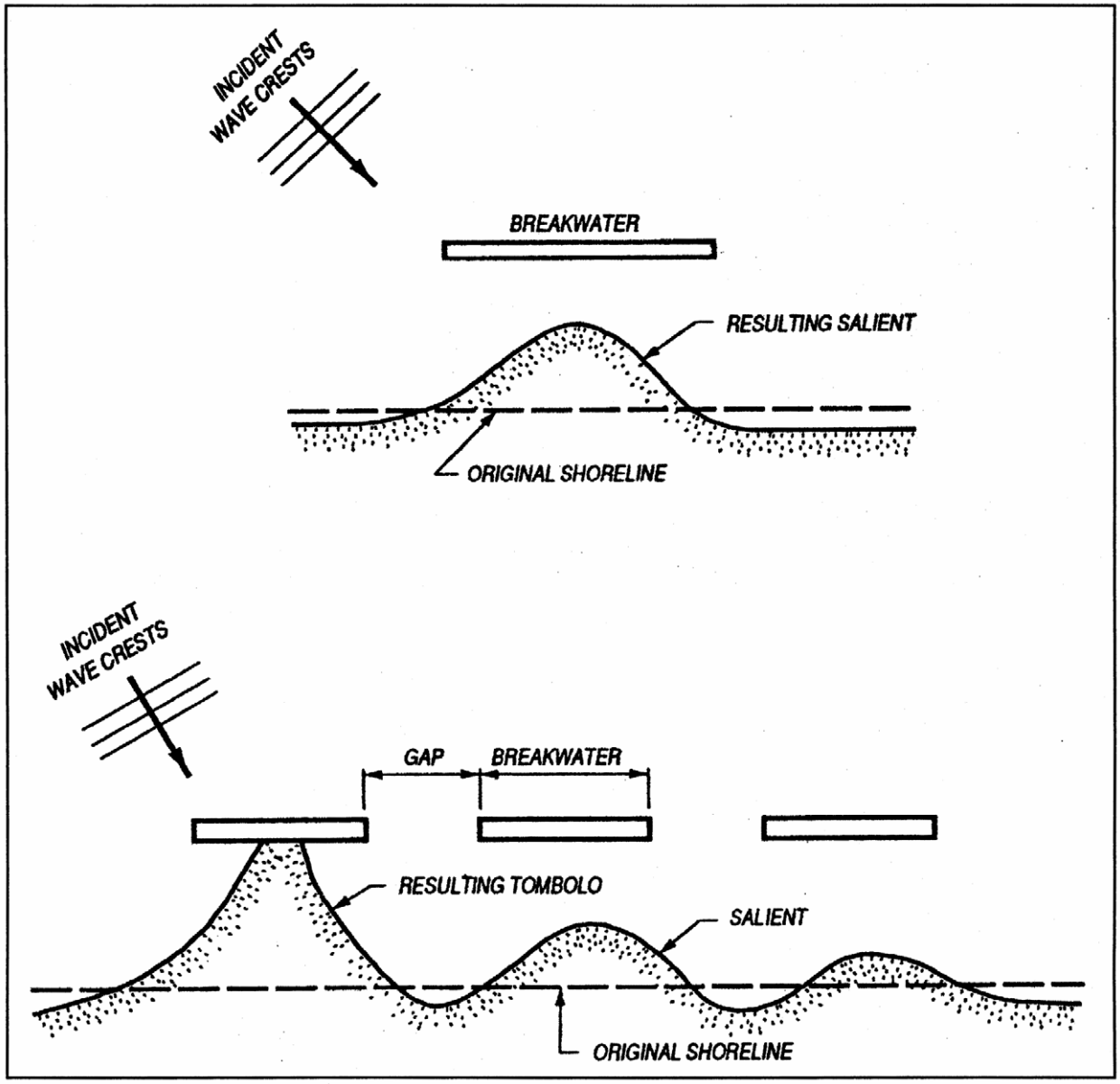

Figure 7.7 Single and Multiple Breakwaters (USACE, 2003)

Additional Resource

- USACE. No date. *Breakwaters.* http://www.usna.edu/NAOE/courses/en420/bonnette/breakwater_design.html.

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Brush Layering

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Brush layering consists of placing live branch cuttings interspersed between layers of soil on cut slopes or fill slopes (Figures 7.8 and 7.9). These systems are recommended on slopes up to 2:1 in steepness and not to exceed 15 feet in vertical height. Branch cuttings, which are placed in a crisscross or overlapping pattern, should be long enough to reach the back of the bench and still protrude from the bank (growing tips facing the outside of the slope). The portions of the brush that protrude from the slope face assist in retarding runoff and reducing surface erosion. Backfill is then placed on the branches and compacted.

Brush layering can be used to stabilize a slope against shallow sliding or mass wasting, as well as to provide erosion protection. Brush layers can stabilize and reinforce the outside edge or face of drained earthen buttresses placed against cut slopes or embankment fills. Brush layering works better on fill slopes than cut slopes, because much longer stems can be used in fill (Mississippi State University, 1999). It is most applicable for areas subjected to cut or fill operations or areas that are highly disturbed and/or eroded (ECY, 2007)

Brush layering is somewhat similar to live fascine systems because both involve the cutting and placement of live branch cuttings on slopes. The two techniques differ principally in the orientation of the branches and the depth to which they are placed in the slope. In brush layering, the cuttings are oriented more or less perpendicular to the slope contour. In live fascine systems, the cuttings are oriented more or less parallel to the slope contour. The perpendicular orientation is more effective from the point of view of earth reinforcement and mass stability of the slope (USDA-NRCS, 1992). Thus, brush layering is more effective than live fascines in terms of earth reinforcement and mass stability (Mississippi State University, 1999). When used on a fill slope, brush layering is similar to vegetated geogrids, except the technique does not use geotextile fabric (USDA-FS, 2002).

Brush layering can disrupt native soils. Therefore, installation should be completed in phases and no more area should be excavated than is necessary (ECY, 2007).

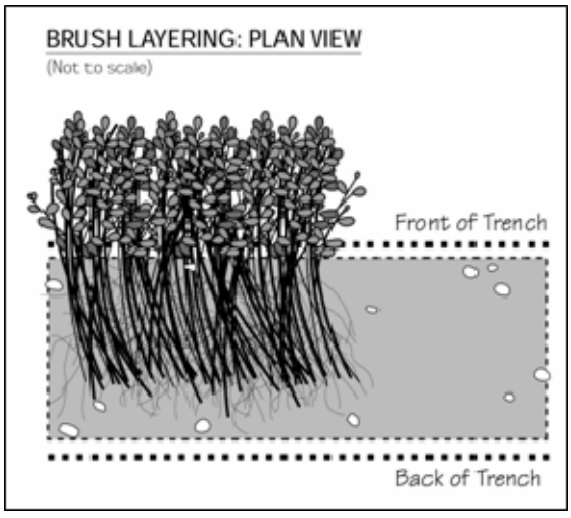

Figure 7.8 Brush Layering: Plan View (USDA-FS, 2002)

Administrative Record Page No. 036140

Additional Resources

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Brush Layering.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/brushlayer.pdf.

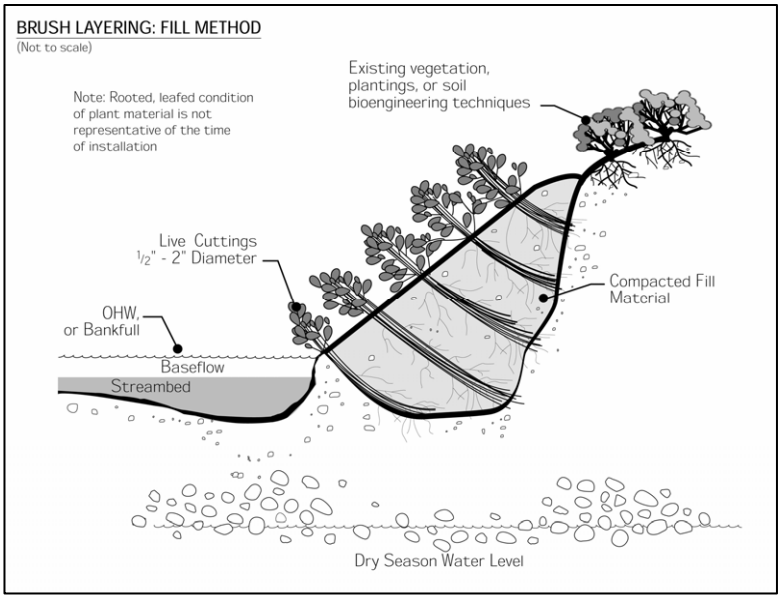

Figure 7.9 Brush Layering: Fill Method (USDA-FS, 2002)

- Myers, R.D. 1993. *Slope Stabilization and Erosion Control Using Vegetation: A Manual of Practice for Coastal Property Owners: Brush Layering.* Shorelands and Coastal Zone Management Program, Washington Department of Ecology. Olympia, WA. Publication 93-30. http://www.ecy.wa.gov/programs/sea/pubs/93-30/brush.html.

- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Brush/Hedge – Brush Layering.* Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish. http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/hedgebrush.cfm.

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Brush Mattressing

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Brush mattressing is commonly used in Europe for streambank protection (Figure 7.10). It involves digging a slight depression on the bank and creating a mat or mattress from woven wire or single strands of wire and live, freshly cut branches from sprouting trees or shrubs. Branches approximately 1 inch in diameter are normally cut 6 to 9 feet long (the height of the bank to be covered) and laid in criss-cross layers with the butts in alternating directions to create a uniform mattress with few voids. The mattress is then covered with wire secured with wooden stakes 2.5 to 4 feet long. It is then covered with soil and watered repeatedly to fill voids with soil and facilitate sprouting; however, some branches should be left partially exposed on the surface. The structure may require protection from undercutting by placement of stones or burial of the lower edge. Brush mattresses are generally resistant to waves and currents and provide protection from the digging out of plants by animals. Disadvantages include possible burial with sediment in some situations and difficulty in making later plantings through the mattress.

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under the Ecosystem Management and Restoration Research Program (EMRRP), the USACE has presented research on brush mattresses in a technical note (*Brush Mattresses for Streambank Erosion Control*).[3]

Additional Resources

- Allen, H.H. and C. Fischenich. 2001. *Brush Mattresses for Streambank Erosion Control.* U.S. Army Corps of Engineers, Ecosystem Management and Restoration Research Program. http://el.erdc.usace.army.mil/elpubs/pdf/sr23.pdf.

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- ISU. 2006. *How to Control Streambank Erosion*: *Brushmattress.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/brushmattress.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Brush Mattress.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/brushmattress.pdf.

[3] http://el.erdc.usace.army.mil/elpubs/pdf/sr23.pdf

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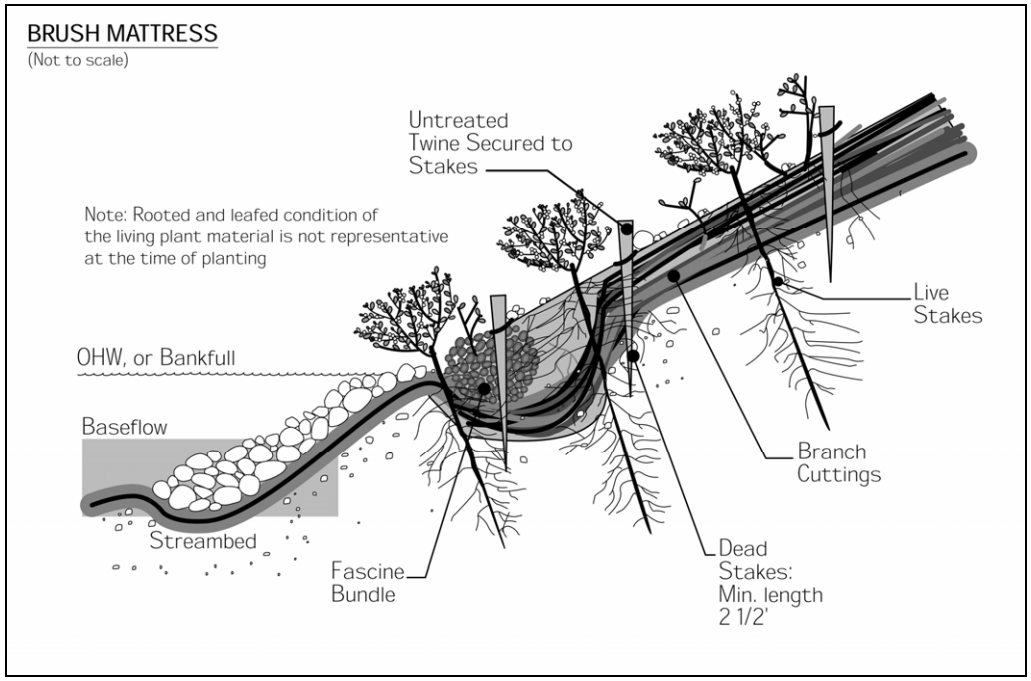

Figure 7.10 Brush Mattress (USDA-FS, 2002)

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Bulkheads and Seawalls

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☑ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Bulkheads (Figure 7.11) are primarily soil-retaining structures designed to also resist wave attack. Seawalls are principally structures designed to resist wave attack, but they also may retain some soil (USACE, 1984). Both bulkheads and seawalls may be built of many materials, including steel, timber, or aluminum sheet pile, gabions, or rubble-mound structures. Although bulkheads and seawalls protect the upland area against further erosion and land loss, they often create a local problem. Downward forces of water, produced by waves striking the wall, can produce a transfer of wave energy and rapidly remove sand from the wall (Pilkey and Wright, 1988). A stone apron is often necessary to prevent scouring and undermining. With vertical protective structures built from treated wood, there are also concerns about the leaching of chemicals used in the wood preservatives. Chromated copper arsenate (CCA), the most popular chemical used for treating the wood used in docks, pilings, and bulkheads, contains elements of chromium, copper, and arsenic that are toxic above trace levels (CSWRCB, 2005; Kahler et al., 2000).

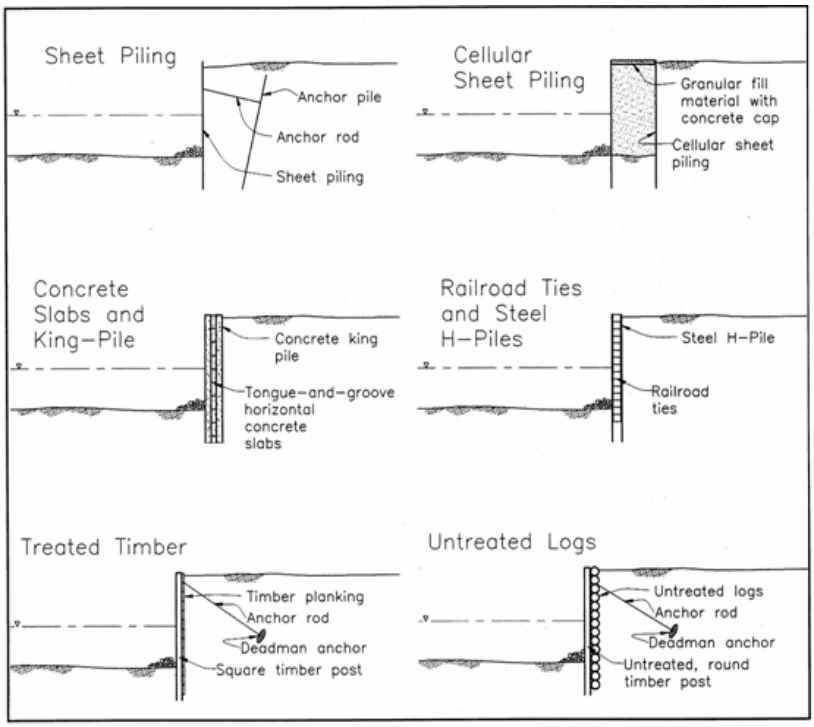

Figure 7.11 Typical Bulkhead Types (USACE, 2003)

Additional Resources

- Scottish National Heritage. No date. *A Guide to Managing Coastal Erosion in Beach/Dune Systems: Seawalls.* http://www.snh.org.uk/publications/on-line/heritagemanagement/erosion/appendix_1.12.shtml.

- USACE. No date. *Bulkheads and Seawalls.* http://www.usna.edu/NAOE/courses/en420/bonnette/Seawall_Design.html.

Administrative Record Page No. 036144

Check Dams

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☑ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Check dams, a type of grade control structure, are small dams constructed across an influent, intermittent stream, or drainageway to reduce channel erosion by restricting flow velocity. They can serve as emergency or temporary measures in small eroding channels that will be filled or permanently stabilized at a later date. Check dams can be installed in eroding gullies as permanent measures that fill up with sediment over time. In permanent usage, when the impounded area is filled, a relatively level surface or delta is formed over which water flows at a noneroding gradient. The water then cascades over the dam through a spillway onto a hardened apron. A series of check dams may be constructed along a stream channel of comparatively steep slope or gradient to create a channel consisting of a succession of gentle slopes with cascades in between.

Check dams can be nonporous (constructed from concrete, sheet steel, or wet masonry) or porous (using available materials such as straw bales, rock, brush, wire netting, boards, and posts). Porous dams release part of the flow through the structure, decreasing the head of flow over the spillway and the dynamic and hydrostatic forces against the dam. Nonporous dams are durable, permanent, and more expensive, while porous dams are simpler, more economical to construct, and temporary. Maintenance of check dams is important, especially the areas to the sides of the dam. Regular inspections, particularly after high flow events, should be performed to observe and repair erosion at the sides of the check dams. Excessive erosion could dislodge the check dam, create additional channel erosion, and add more sediment to the streambed.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook*: *Check Dams.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/SE-4.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Check Dam.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.3_check_dam.pdf.
- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Check Dam.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/water/erosion/checkdam.pdf.
- SMRC. No date. *Stream Restoration: Grade Control Practices.* The Stormwater Manager's Resource Center. http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Restoration/grade_control.htm.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Check Dams*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/cd.pdf.

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Coconut Fiber Roll

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

The coconut fiber roll technique consists of cylindrical structures composed of coconut husk fibers held together with twine woven from coconut material (Figures 7.12 and 7.13). The fiber rolls are typically manufactured in 12-inch diameters and lengths of 20 feet, which serves to protect slopes from erosion, trap sediment, and as a result, encourage plant growth within the fiber roll. The system is typically installed near the toe of the streambank with dormant cuttings and rooted plants inserted into holes cut into the fiber rolls. Once installed, the system provides a good substrate for promoting plant growth and is appropriate where short-term moderate toe stabilization is needed. Installation of this design requires minimal site disturbance and is ideal for sites that are especially sensitive to disturbance. A limitation of this system is that it cannot withstand high velocities or large ice buildup, and it can be fairly expensive to construct. Coconut fiber rolls have an effective life of 6 to 10 years. In some locations, similar and abundant locally available materials, such as corn stalks, are being used instead of coconut materials (FISRWG, 1998).

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under EMRRP, the USACE has presented research on coconut rolls in a technical note (*Coir Geotextile Roll and Wetland Plants for Streambank Erosion Control*), which is available at http://el.erdc.usace.army.mil/elpubs/pdf/sr04.pdf.

Figure 7.12 Coconut Fiber Roll (Montgomery Watson, 2001)

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Fiber Rolls.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/SE-5.pdf.
- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.
- ISU. 2006. *How to Control Streambank Erosion: Coconut Fiber Rolls.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/coconut_fiber.pdf.

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- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Coconut Fiber Roll.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/coconutfiberroll.pdf.

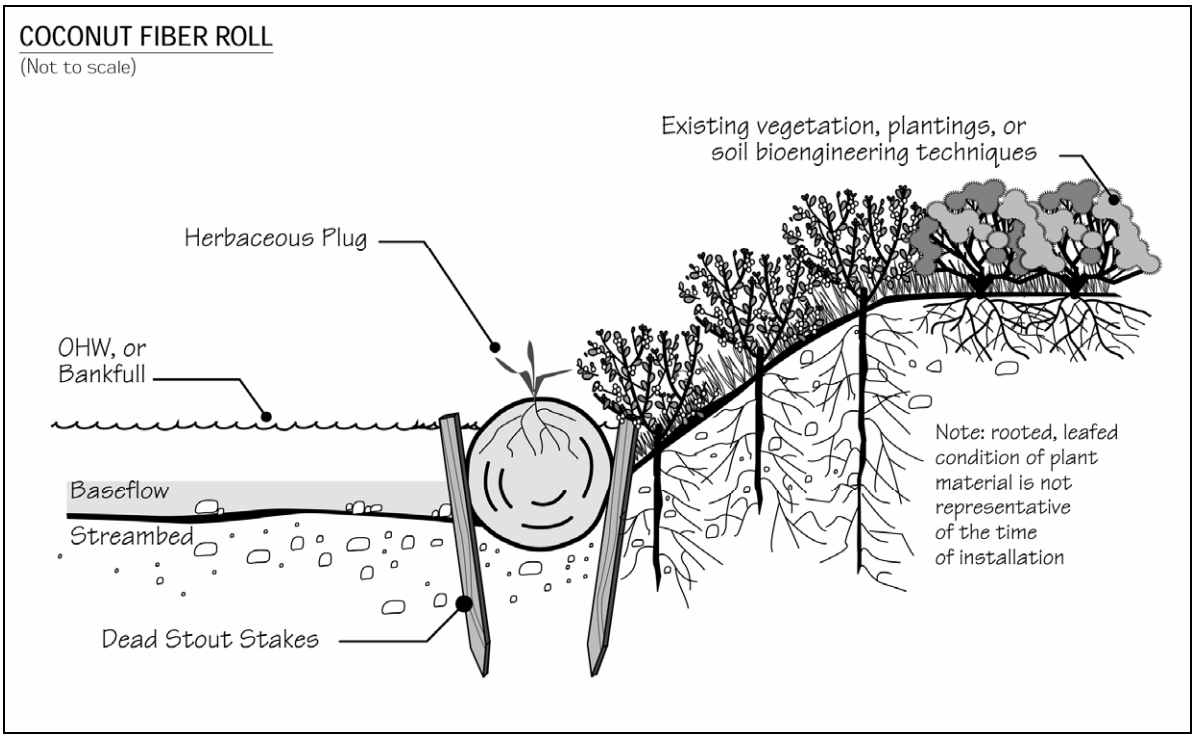

Figure 7.13 Coconut Fiber Roll (USDA-FS, 2002)

Administrative Record Page No. 036147

Collection Systems

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Collection systems involve capture of fish by screening and/or netting followed with transport by truck or barge to a downstream location. Since the late 1970s, the USACE has successfully implemented a program that takes juvenile salmon from the uppermost dams in the Columbia River system (Pacific Northwest) and transports them by barge or truck to below the last dam. The program improves the travel time of fish through the river system, reduces most of the exposure to reservoir predators, and eliminates the mortality associated with passing through a series of turbines (van der Borg and Ferguson, 1989). Survivability rates for the collected fish are in excess of 95 percent, as opposed to survival rates of about 60 percent when the fish remain in the river system and pass through the dams (Dodge, 1989). However, the collection efficiency can range from 70 percent to as low as 30 percent. At the McNary Dam on the Columbia River, spill budgets are also implemented to improve overall passage (discussed in greater detail below) when the collection rate achieves less than 70 percent efficiency (Dodge, 1989).

Additional Resource

- Chelan County Public Utility District. No date. *Juvenile Fish Bypass*. http://www.chelanpud.org/juvenile-fish-passage.html.

Administrative Record Page No. 036148

Construct Runoff Intercepts

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Benches, terraces, or ditches break up a slope by providing areas of low slope in the reverse direction. This keeps water from proceeding down the slope at increasing volume and velocity. Instead, the flow is directed to a suitable outlet or protected drainage system. The frequency of benches, terraces, or ditches will depend on the erodibility of the soils, steepness and length of the slope, and rock outcrops. This practice can be used if there is a potential for erosion along the slope.

Earth dikes, perimeter dikes or swales, or diversions can intercept and convey runoff from above disturbed areas to undisturbed areas or drainage systems. An earth dike is a temporary berm or ridge of compacted soil that channels water to a desired location. A perimeter dike/swale or diversion is a swale with a supporting ridge on the lower side that is constructed from the soil excavated from the adjoining swale (Delaware DNREC, 2003). These practices can intercept flow from denuded areas or newly seeded areas and keep clean runoff away from disturbed areas. The structures can be stabilized within 14 days of installation. A pipe slope drain, also known as a pipe drop structure, is a temporary pipe placed from the top of a slope to the bottom of the slope to convey concentrated runoff down the slope without causing erosion (Delaware DNREC, 2003).

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook*: *Earth Dikes and Drainage Swales.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/EC-9.pdf.

- Fifield, J. 2000. *Design and Implementation of Runoff Control Structures: Diversion Dikes and Swales.* http://www.forester.net/ec_0001_design.html#diversion.

- Lake Superior/Duluth Streams. 2005. *Grassed Swales.* http://www.duluthstreams.org/stormwater/toolkit/swales.html.

Administrative Record Page No. 036149

Constructed Spawning Beds

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☑ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

When a dam adversely affects the aquatic habitat of an anadromous fish species, one option may be to construct replacement spawning beds. Additional facilities such as electric barriers, fish ladders, or bypass channels would be required to channel the fish to these spawning beds.

Merz et al., (2004) tested whether spawning bed enhancement increases survival and growth of Chinook salmon (*Oncorhynchus tshawytscha*) embryos in a regulated stream with a gravel deficit. The authors also examined a dozen physical parameters correlated with spawning sites (e.g., stream velocity, average turbidity, distance from the dam) and how they predicted survival and growth of Chinook salmon and steelhead (*Oncorhynchus mykiss*). The results suggest that spawning bed enhancement can improve embryo survival in degraded habitat. Measuring observed physical parameters before and after spawning bed manipulation can also accurately predict benefits. The National Oceanic and Atmospheric Administration's (NOAA's) S*tatus Review of Chinook Salmon from Washington, Idaho, Oregon, and California* (1998) states that artificial spawning beds for ocean-type Chinook salmon operated near three different dams was discontinued because of high pre-spawning mortality in adult fish and poor egg survival in the spawning beds. Success of constructed spawning beds in increasing survival and development of fish varies and often depends on the site.

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Construction Management

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Construction areas can be managed properly to control erosion by stabilizing entrances and proper traffic routing. A construction entrance is a pad of gravel or rock over filter cloth located where traffic enters and leaves a construction site. As construction vehicles drive over the gravel, mud and sediment are collected from the vehicles' wheels. To maximize effectiveness, the rock pad should be at least 50 feet long and 10 to 12 feet wide. The gravel should be 1- to 2-inch aggregate 6 inches deep laid over a layer of filter fabric. Maintenance might include pressure washing the gravel to remove accumulated sediment and adding more rock to maintain thickness. Runoff from this entrance should be treated before exiting the site. This practice can be combined with a designated truck wash-down station to ensure sediment is not transported off-site.

Where possible, construction traffic should be directed to avoid existing or newly planted vegetation. Instead, it should be directed over areas that must be disturbed for other construction activity. This practice reduces the net total area that is cleared and susceptible to erosion.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook*: *Stabilized Construction Entrance/Exit.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/TR-1.pdf.

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Stabilized Construction Entrance.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.14_stabilized_entrance.pdf.

Administrative Record Page No. 036151

Dormant Post Plantings

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
- ☑ Vegetative
- ☐ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Dormant post plantings include planting of either cottonwood, willow, poplar, or other sprouting species embedded vertically into streambanks to increase channel roughness, reduce flow velocities near the slope face, and trap sediment (Figure 7.14). Dormant posts are made up of large cuttings installed in streambanks in square or triangular patterns. Live posts should be 7 to 20 feet long and 3 to 5 inches in diameter. This method is effective for quickly establishing riparian vegetation particularly in arid regions. By decreasing near bank flow velocities, this design causes sediment deposition and reduces streambank erosion. This design is more resistant to erosion than live staking or similar designs that use smaller cuttings. Success of this design is most likely on streambanks that are not gravel dominated and where ice build up is not common. The exclusion of certain herbivores aids in the success of this design. This method should be combined with other soil bioengineering techniques to achieve a comprehensive streambank restoration design (FISRWG, 1998). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

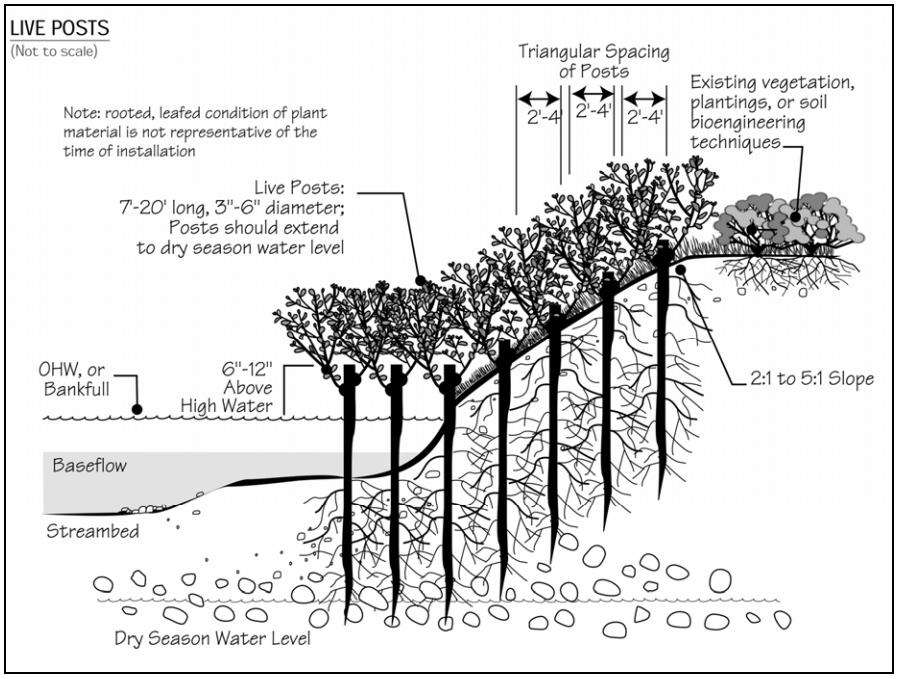

Figure 7.14 Live Posts (USDA-FS, 2002)

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- ISU. 2006. *How to Control Streambank Erosion: Dormant Post Plantings.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/dormant_post.pdf.

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Encourage Drainage Protection

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☑ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

A complete understanding of watershed protection should include the implementation of practices that guide future development and land use activities. This will not only help to identify existing sources of NPS pollution but also to prevent future impairments that may impact dam construction or operations and reservoir management. Watershed protection practices can include zoning for natural resource protection. Several zoning techniques are:

- Use cluster zoning and planned unit development
- Consider resource protection zones
- Practice performance-based zoning
- Establish overlay zones
- Establish bonus or incentive zoning
- Consider large lot zoning
- Practice agricultural protection zoning
- Use watershed-based zoning
- Delineate urban growth boundaries

More details about these techniques and case studies can be found in *Protecting Wetlands: Tools for Local Governments in the Chesapeake Bay Region* (Chesapeake Bay Program, 1997).

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Equipment Runoff Control

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☑ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

During construction and maintenance activities at dams, equipment and machinery can be a potential source of pollution to the surface and ground water. Thinners or solvents should not be discharged into sanitary or storm sewer systems or into surface water systems, when cleaning machinery. Use alternative methods for cleaning larger equipment parts, such as high-pressure, high-temperature water washes or steam cleaning. Equipment-washing detergents can be used and wash water appropriately discharged. Small parts should be cleaned with degreasing solvents that can be reused or recycled. Washout from concrete trucks should never be dumped directly into surface waters or into a drainage leading to surface waters but can be disposed of into:

- A designated area that will later be backfilled
- An area where the concrete wash can harden, can be broken up, and can then be appropriately disposed
- A location not subject to surface water runoff and more than 50 feet away from a receiving water

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Erosion and Sediment Control (ESC) Plans

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☑ Planning & regulatory

ESC plans are important for controlling the adverse impacts of dam construction. ESC plans ensure that provisions for control measures are incorporated into the site planning stage of development. ESC plans also provide for prevention of erosion and sediment problems and accountability if a problem occurs (MDEP, 1990). In many municipalities, ESC plans are required under ordinances enacted to protect water resources. These plans describe the activities construction and maintenance personnel will use to reduce soil erosion and contain and treat runoff that is carrying eroded sediments. ESC plans typically include descriptions and locations of soil stabilization practices, perimeter controls, and runoff treatment facilities that will be installed and maintained before and during construction activities. In addition to special area considerations, the full ESC plan review inventory should include:

- Topographic and vicinity maps
- Site development plan
- Construction schedule
- Erosion and sedimentation control plan drawings
- Detailed drawings and specifications for practices
- Design calculations
- Vegetation plan
- Detailed drawings and specifications for control or management practices

Some erosion and soil loss is unavoidable during land-disturbing activities. Although proper siting and design help prevent areas prone to erosion from being developed, construction activities invariably produce conditions where erosion can occur. To reduce the adverse impacts associated with construction activities at dams, the construction management measure suggests a system of nonstructural and structural ESCs for incorporation into an ESC plan.

Nonstructural controls address erosion control by decreasing erosion potential, whereas structural controls are both preventive and mitigative because they control erosion and sediment movement. Brown and Caraco (1997) identified several general objectives that should be addressed in an effective ESC plan:

- *Minimize clearing and grading* – clearing and grading should occur only where absolutely necessary to build and provide access to structures and infrastructure. Clearing should be done immediately before construction, rather than leaving soils exposed for months or years (SQI, 2000).
- *Protect waterways and stabilize drainage ways* – all natural waterways within a development site should be clearly identified before construction activities begin. Clearing should generally be prohibited in or adjacent to waterways. Sediment control

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practices such as check dams might be needed to stabilize drainage ways and retain sediment on-site.

- *Phase construction to limit soil exposure* – construction phasing is a process where only a portion of the site is disturbed at any one time to complete the required building in that phase. Other portions of the site are not cleared and graded until exposed soils from the earlier phase have been stabilized and the construction nearly completed.
- *Stabilize exposed soils immediately* – seeding or other stabilization practices should occur as soon as possible after grading. In colder climates, a mulch cover is needed to stabilize the soil during the winter months when grass does not grow or grows poorly.
- *Protect steep slopes and cuts* - wherever possible, clearing and grading of existing steep slopes should be completely avoided. If clearing cannot be avoided, practices should be implemented to prevent runoff from flowing down slopes.
- *Install perimeter controls to filter sediments* – perimeter controls are used to retain sediment-laden runoff or filter it before it exits the site. The two most common perimeter control options are silt fences and earthen dikes or diversions.
- *Employ advanced sediment-settling controls* – traditional sediment basins are limited in their ability to trap sediments because fine-grained particles tend to remain suspended and the design of the basin themselves is often simplistic. Sediment basins can be designed to improve trapping efficiency through the use of perforated risers; better internal geometry; the installation of baffles, skimmers, and other outlet devices; gentler side slopes; and multiple-cell construction.

ESC plans ensure that provisions for control measures that are incorporated into the site planning stage of development help to reduce the incidence of erosion and sediment problems, and improve accountability if a problem occurs. An effective plan for runoff management on construction sites controls erosion, retains sediments on-site to the extent practicable, and reduces the adverse effects of runoff. Climate, topography, soils, drainage patterns, and vegetation affect how erosion and sediment should be controlled on a site (Washington State Department of Ecology, 1989).

ESC plans should be flexible to account for unexpected events that occur after the plans have been approved, including:

- Discrepancies between planned and as-built grades
- Weather conditions
- Altered drainage
- Unforeseen construction requirements

Changes to an ESC plan should be made based on regular inspections that identify whether the ESC practices were appropriate or properly installed or maintained. Inspecting an ESC practice after storm events shows whether the practice was installed or maintained properly. Such inspections also show whether a practice requires cleanout, repair, reinforcement, or replacement with a more appropriate practice. Inspecting after storms is the best way to ensure that ESC practices remain in place and effective at all times during construction activities.

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Because funding for ESC programs is not always dedicated, budgetary and staffing constraints may thwart effective program implementation. Brown and Caraco (1997) recommend several management techniques to ensure that ESC programs are properly administered:

- Local leadership committed to the ESC program
- Redeployment of existing staff from the office to the field or training room
- Cross-training of local review and inspection staff
- Submission of erosion prevention elements for early planning reviews.
- Prioritization of inspections based on erosion risk
- Requirement of designers to certify the initial installation of ESC practices
- Investment in contractor certification and private inspector programs
- Use of public-sector construction projects to demonstrate effective ESC controls
- Enlistment of the talents of developers and engineering consultants in the ESC program
- Revision and update of the local ESC manual

An allowance item that acts as an additional "insurance policy" for complying with the erosion and sediment control plan can be added to bid or contract documents (Deering, 2000a). This allowance covers costs to repair storm damage to ESC measures as specified in the ESC plan. This allowance does not cover storm damage to property that is not related to the ESC plan, because this would be covered under traditional liability insurance. Damage caused by severe and continuous rain events, windblown objects, fallen trees or limbs, or high-velocity, short-term rain events on steep slopes and existing grades would be covered by the allowance, as would deterioration from exposure to the elements or excessive maintenance for silt removal. The contractor is responsible for being in compliance with the ESC plan by properly implementing and maintaining all specified measures and structures. The allowance does not cover damage to practices caused by improper installation or maintenance.

Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Infiltration Basin and Trench.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/4.1_infiltration.pdf.

- Milwaukee River Basin Partnership. 2003. *Detention & Infiltration Basins.* http://clean-water.uwex.edu/plan/drbasins.htm.

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

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Erosion Control Blankets

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Turf reinforcement mats (TRMs) combine vegetative growth and synthetic materials to form a high-strength mat that helps prevent soil erosion in drainage areas and on steep slopes (Figure 7.15) (USEPA, 1999). TRMs enhance vegetation's natural ability to protect soil from erosion. They are composed of interwoven layers of nondegradable geosynthetic materials (e.g., nylon, polypropylene) stitched together to form a three-dimensional matrix. They are thick and porous enough to allow for soil filling and retention. In addition to providing scour protection, the mesh netting of TRMs is designed to enhance vegetative root and stem development. By protecting the soil from scouring forces and enhancing vegetative growth, TRMs can raise the threshold of natural vegetation to withstand higher hydraulic forces on stabilization slopes, streambanks, and channels. In addition to reducing flow velocities, natural vegetation removes particulates through sedimentation and soil infiltration and improves site aesthetics. In general, TRMs should not be used for the following:

- To prevent deep-seated slope failure due to causes other than surficial erosion
- If anticipated hydraulic conditions are beyond the limits of TRMs and natural vegetation
- Directly beneath drop outlets to dissipate impact force (can be used beyond impact zone)
- Where wave height might exceed 1 foot (can protect areas upslope of wave impact zone)

The performance of a TRM-lined conveyance system depends on the duration of the runoff event. For short-term events, TRMs are typically effective at flow velocities of up to 15 feet per second and shear stresses of up to 8 lb/ft^2. However, specific high-performance TRMs may be effective under more severe hydraulic conditions. Practitioners should check with manufacturers for specifications and performance limits of different products. Factors influencing the cost of TRMs include the type of material required, site conditions (e.g., underlying soils, slope steepness), and installation-specific factors (e.g., local construction costs). TRMs typically cost considerably less than concrete and riprap solutions.

Figure 7.15 Erosion Control Blanket (Conwed Fibers, n.d.)

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Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Mulches, Blankets and Mats.* Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPSoilMulch.pdf.

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Geotextiles and Mats.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/EC-7.pdf.

- California Department of Transportation. 1999. *Soil Stabilization Using Erosion Control Blankets.* Construction Storm Water Pollution Prevention Bulletin. Vol. 3, No. 8. California Department of Transportation, Division of Environmental Analysis, Sacramento, CA. http://www.dot.ca.gov/hq/env/stormwater/publicat/const/Aug_1999.pdf.

- Matthews, M. 1998. *What are RECPs? Soil Stabilization Using Erosion Control Blankets*. Erosion Control Technology Council, St. Paul, MN. http://www.ectc.org/what.html.

- North American Green. 2004. *Green Views: Turn Reinforcement Mats as an Alternative to Rock Riprap*. North American Green, Evansville, IN. http://www.nagreen.com/resources/literature/GV_AltToRockRiprap.pdf.

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices: Erosion Control Blanket/Matting*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

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Establish and Protect Stream Buffers

Channelization
- ☐ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☑ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☐ Integrated
- ☑ Planning & regulatory

Riparian buffers and wetlands can provide long-term pollutant removal capabilities without the comparatively high costs usually associated with constructing and maintaining structural controls. Conservation or preservation of these areas is important to water quality protection. Land acquisition programs help to preserve areas considered critical to maintaining surface water quality. Adequate buffer strips along streambanks provide protection for stream ecosystems, help stabilize the stream, and can prevent streambank erosion (Holler, 1989). Buffer strips can also protect and maintain near-stream vegetation that attenuates the release of sediment into stream channels. Levels of suspended solids have been shown to increase at a slower rate in stream channel sections with well-developed riparian vegetation (Holler, 1989).

Stream buffers should be protected and preserved as a conservation area because these areas provide many important functions and benefits, including:

- Providing a "right-of-way" for lateral movement
- Conveying floodwaters
- Protecting streambanks from erosion
- Treating runoff and reducing drainage problems from adjacent areas
- Providing nesting areas and other wildlife habitat functions
- Mitigating stream warming
- Protecting wetlands
- Providing recreational opportunities and aesthetic benefits
- Increasing adjacent property values

Specific stream buffer practices could include:

- Establishing a stream buffer ordinance
- Developing vegetative and use strategies within management zones
- Establishing provisions for stream buffer crossings
- Integration of structural runoff management practices where appropriate
- Developing stream buffer education and awareness programs

More information on establishing and protecting stream buffers is available from EPA's *National Management Measures to Control Nonpoint Source Pollution from Urban Areas*,[4] a document for use by state, local, and tribal managers in the implementation of nonpoint source pollution management programs. It contains a variety of practices and management activities for reducing pollution of surface and ground water from urban areas (USEPA, 2005d).

[4] http://www.epa.gov/owow/nps/urbanmm/index.html

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Fish Ladders

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Fish ladders have been a commonly used structure to enable the safe upstream and downstream passage of mature fish (see Figure 7.16). There are four basic designs: pool-weir, Denil, vertical slot, and steeppass.

Pool-weir fish ladders are one of the oldest and most commonly designed fish passage structures, which consists of stepped pools and weirs that allow fish to pass from pool to pool over the weirs that separate each. Pool-weir fish ladders are normally used on slopes of about 10-degrees. Some pool-weir fish ladders can be modified to increase the possible number of fish that are passed by including submerged orifices that allow fish to pass the fish ladder without cresting the weirs.

Pool-weir fish ladders will pass many different species of fish if they are designed correctly for the environment in which they are employed. OTA (1995) provides details on design and operation of various forms of fish ladders.

Figure 7.16 Fish Ladder at Feather River Hatchery, Oroville Dam, CA (Feather River, n.d.)

Denil fish ladders are elongated rectangular channels that use internal baffles to dissipate flow energy and allow fish passage. They are widely used in the eastern United States due to their ability to pass a wide range of species (from salmonids to riverine) over a wider range of flows than pool-weir ladders. Denil ladders can be used on slopes from 10 to 25 degrees although 10 to 15 degrees is optimal. Most Denil fish ladders are 2–4 feet wide and 4–8 feet deep. This fish ladder design allows fish to pass at a preferred depth instead of through a jumping action. Denil ladders do not have resting areas and therefore fish must either be able to pass the ladder in one burst or resting pools must be provided between sections. Resting pools should be provided every 16 to 50 feet depending upon the species being passed. The high flow rates and turbulence

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associated with Denil fish ladders reduces the demand for attraction flow, which is commonly added to insure good attraction over varying flow rates.

Vertical slot fish ladders are elongated rectangular channels that use regularly spaced baffles to create steps and resting pools. The vertically oriented slots in the baffles allow fish to pass through the ladder at a preferred depth. Unlike Denil fishways, vertical slot fishways provide a resting area behind each baffle allowing fish to pass in a "burst-rest" manner instead of one sustained motion. The channel created by the baffles is off-center making the baffles on one side of the ladder wider than the opposing side. Eddies that form behind longer baffles allow fish to rest and end the need for resting areas. Although vertical slot ladders are usually operated at slopes of about 10 degrees, they can be operated over a larger variety of flows. The vertical slots create a water jet that is regulated by the pool on the downstream side of it. This creates a uniform, level flow throughout the ladder.

The steeppass fish ladder, often referred to as the "Alaska steeppass," is a modified Denil fish ladder most commonly used in remote areas for the passage of salmonids. Steeppass fish ladders are usually constructed of lightweight materials such as aluminum and can operate on slopes up to 33 percent. The construction materials and design allow this type of fish ladder to be deployed as a single unit to remote areas. The baffles used in steeppass ladders are more aggressively designed, which allow the ladder to more effectively control water flow. The steeppass ladder is not without its limitations. Due to their narrow design, steeppass ladders are more susceptible to clogging due to debris and changes in flow upstream or downstream of the ladder.

Although fish ladders can be extremely efficient at passing fish, small changes in design have been shown to significantly improve their functionality. A good example of this is the John Day Dam located on the Columbia River. The original design focused on the passage of salmonids and therefore only passed about 17 percent of the American shad (*Alosa sapidissima*) using the ladder. Research indicated that simple design changes could allow for the passage of riverine species such as American shad. By changing the placement of the weirs within the fish ladder, the fish ladder was able to pass 94 percent of the salmonids, and American shad passage increased to 74 percent (Monk et al., 1989).

According to the USACE, Portland District (1997), the success rate for adults negotiating fish ladders at dams in the Columbia River Basin is about 95 percent. The U.S. Fish and Wildlife Agency designs fishways assuming a 90 percent efficiency rate. Few studies document actual efficiency of fish ladders, but it is recognized that not all fishways are equally effective (for various reasons, such as predation or physical damage to passing fish). Some fishways installed in the last 20 years are less effective than newer ones (when federal licenses began to include fish passage requirements). Maine Department of Marine Resources (DMR) estimates efficiency between 75 and 90 percent (Presumpscot River Plan Steering Committee, 2002).

Additional Resource

- Michigan DNR. No date. *What is a fish ladder?* Michigan Department of Natural Resources, Lansing, MI. http://www.michigan.gov/dnr/0,1607,7-153-10364_19092-46291--,00.html.

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Fish Lifts

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Fish lifts describe both fish elevators and locks, which are used to capture fish at the downstream side of a structure and then move them above the structure. Like fish ladders, these systems require sufficient attraction flow to move fish into the lift area. Lift systems can be advantageous because they are not species or flow specific. They can also be employed at structures too tall for fish ladders and to pass species with reduced swimming ability.

Lift systems have the potential to move large numbers of fish if they are operated efficiently. These systems can be automated to allow operation much like fish ladders. Fish lift systems do require additional operation and maintenance costs and are subject to mechanical failures not associated with fish ladders.

Most lift systems require either an active or passive bypass system to move fish far enough upstream to avoid entrainment in the flow through the dam. Passive bypass systems may include constructed waterways or pipes that discharge passed fish sufficiently up-steam of the structure. Active bypass systems include trucking and pumping operations that discharge the fish safely upstream of the structure. Active bypass systems, especially pumping systems, have come under scrutiny for fish behavior and health reasons. During the pumping process, fish may be subject to descaling and/or death due to overcrowding. After release, the fish may have orientation problems and therefore be subject to higher rates of predation mortality. Due to these concerns the United States Fish and Wildlife service has generally opposed the use of fish pumps (OTA, 1995).

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Flow Augmentation

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☑ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Operational procedures such as flow regulation, flood releases, or fluctuating flow releases all have the potential for detrimental impacts on downstream aquatic and riparian habitat. When evaluating solutions associated with degraded aquatic and riparian habitat, stakeholders must balance operational procedures to address the needs of downstream aquatic and riparian habitat with the requirements of dam operation. There are often legal and jurisdictional requirements for an operational procedure at a particular dam that should also be considered (USDOI, 1988).

A flushing flow is a high-magnitude, short-duration release for the purpose of maintaining channel capacity and the quality of instream habitat by scouring the accumulation of fine-grained sediments from the streambed. Availability of suitable instream habitat is a key factor limiting spawning success. Flushing flows wash away the sediments without removing the gravel. Flushing flows also prevent the encroachment of riparian vegetation.

However, it is important to keep in mind that flushing flows are not recommended in all cases. Flushing flows of a large magnitude may cause flooding in the old floodplain or depletion of gravel below a dam. Flushing flows are more efficient and predictable for small, shallow, high-velocity mountain streams unaltered by dams, diversions, or intensive land use. Routine maintenance generally requires a combination of practices including high flows coupled with sediment dams or channel dredging, rather than simply relying on flushing or scouring flows (Nelson et al., 1988).

Several options exist for creating minimum flows in the tailwaters below dams. The selection of any particular technique as the most cost-effective is site-specific and depends on several factors including adequate performance to achieve the desired instream and riparian habitat characteristic, compatibility with other requirements for operation of the hydropower facility, availability of materials, and cost.

Sluicing is the practice of releasing water through the sluice gate rather than through the turbines. For portions of the waterway immediately below the dam, the steady release of water by sluicing provides minimum flows with the least amount of water expenditure. At some facilities, this practice may dictate that modifications be made to the existing sluice outlets to maintain continuous low releases. Continuous low-level sluice releases at Eufala Lake and Fort Gibson Lake (Oklahoma) provided minimum flows needed to sustain downstream fish populations. The sluicing also had the benefit of improving DO levels in tailwaters downstream of these two dams such that fish mortalities, which had been experienced in the tailwaters below these two dams prior to initiating this practice, no longer occurred (USDOE, 1991).

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Turbine pulsing is a practice involving the release of water through the turbines at regular intervals to improve minimum flows. In the absence of turbine pulsing, water is released from large hydropower dams only when the turbines are operating, which is typically when the demand for power is high.

A study undertaken at the Douglas Dam (French Broad River, Tennessee) suggests some of the site-specific factors that should be considered when evaluating the advantages of practices such as turbine pulsing, sluicing, or other alternatives for providing minimum flows and improving dissolved oxygen (DO) levels in reservoir releases. Two options for maintaining minimum flows (turbine pulsing and sluicing), and two aeration alternatives (operation of surface water pumps and diffusers) were evaluated for their effectiveness, advantages, and disadvantages in providing minimum flows and aeration of reservoir releases. Computer modeling indicated that either turbine pulsing or sluicing could improve DO concentrations in releases by levels ranging from 0.7 to 1.5 mg/L. This is slightly below the level of improvement that might be expected from operation of a diffuser system for aeration. A trade-off can also be expected at this facility between water saved by frequent short-release pulses and the higher maintenance costs due to operating turbines on and off frequently (Hauser et al., 1989). Hauser et al. (1989) found that schemes of turbine pulsing ranging from 15-minute intervals to 60-minute intervals every 2 to 6 hours were found to provide fairly stable flow regimes after the first 3 to 8 miles downstream at several Tennessee Valley Authority (TVA) projects. However, at points farther downstream, less overall flow would be produced by sluicing than by pulsing. Turbine pulsing may also cause waters to rise rapidly, which could endanger people wading or swimming in the tailwaters downstream of the dam (TVA, 1990).

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Fuel and Maintenance Staging Areas

Proper maintenance of equipment and installation of proper stream crossings will further reduce pollution of water by these sources. Vehicles need to be inspected for leaks. To prevent runoff, fuel and maintain vehicles on site only in a bermed area or over a drip pan. Fuel tanks should be protected and have containment systems. Stream crossings can be minimized through proper planning of access roads. This will help to keep potential sources of pollution away from direct contact with surface waters.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☑ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Gated Conduits

Gated conduits are hydraulic structures that divert the flow of water under the dam. They are designed to create turbulent mixing to enhance oxygen transfer. Gates are used to control the cross-sectional area of flow. Gated conduits have been extensively analyzed for their performance and effectiveness (Wilhelms and Smith, 1981), although the available data are mostly from high-head projects (Wilhelms, 1988). An example of the effectiveness found that gated conduit structures were able to achieve 90 percent aeration and a minimum DO standard of 5 mg/L (Wilhelms and Smith, 1981).

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Groins

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☑ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Groins are structures that are built perpendicular to the shore and extend into the water. Examples of possible planform shapes for groins are illustrated in Figure 7.17. They are generally constructed in series, referred to as a groin field, along the entire length of shore to be protected. Groins trap sand in littoral drift and halt its longshore movement along beaches. The sand trapped by each groin acts as a protective barrier that waves can attack and erode without damaging previously unprotected upland areas. Unless the groin field is artificially filled with sand from other sources, sand is trapped in each groin by interrupting the natural supply of sand moving along the shore in the natural littoral drift. This frequently results in an inadequate natural supply of sand to replace the sand carried away from beaches located farther along the shore in the direction of the littoral drift. If "downdrift" beaches are kept starved of sand for long periods of time, severe beach erosion in unprotected areas can result. As with bulkheads and revetments, the most durable materials for construction of groins are timber and stone. Less expensive techniques for building groins use sand- or concrete-filled bags or tires. It must be recognized that the use of lower-cost materials in the construction of bulkheads, revetments, or groins frequently results in less durability and reduced project life. Figure 7.18 illustrates transition from a groin field to a natural shoreline.

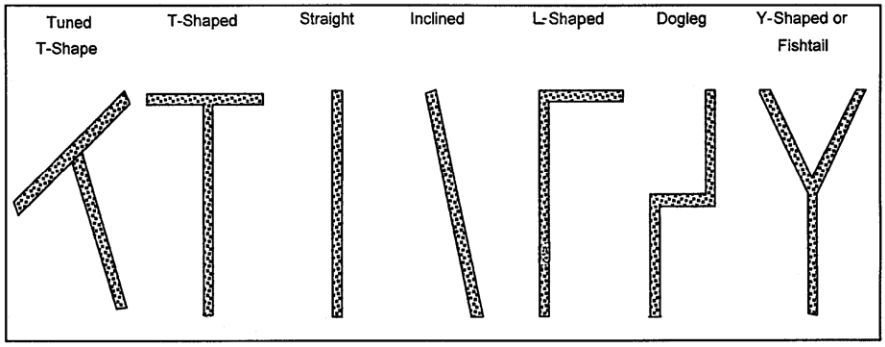

Figure 7.17 Possible Planform Shapes for Groins (USACE, 2003)

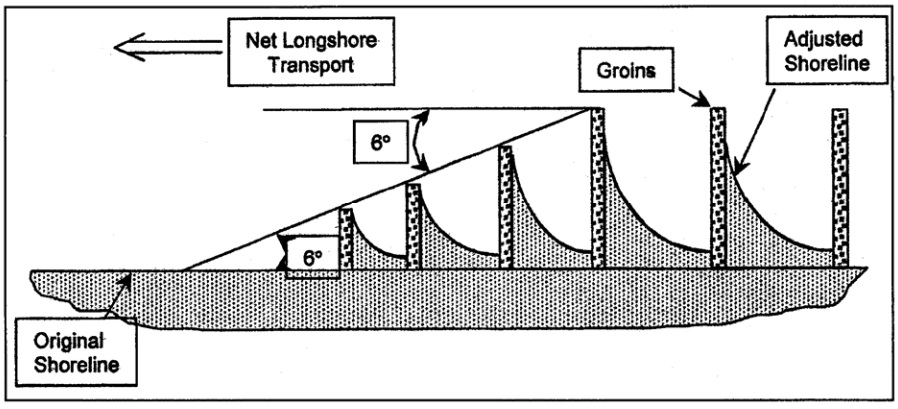

Figure 7.18 Transition from Groin Field to Natural Shoreline (USACE, 2003)

Additional Resource

- USACE. No date. *Groins.* U.S. Army Corps of Engineers, Coastal & Hydraulics Laboratory. http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=ARTICLES!188.

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Identify and Address NPS Contributions

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☑ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Another watershed protection practice involves the evaluation of the total NPS pollution contributions in the watershed. NPS contributions can stem from different land use activities upstream from a dam. For example, the analysis and interpretation of stereoscopic color infrared aerial photographs can be used to find and map specific areas of concern where a high probability of NPS pollution exists from septic tank systems, animal wastes, soil erosion, and other similar types of NPS pollution (TVA, 1988). Other remote sensing techniques, such as analysis of satellite imagery, can be used to map areas of concern within a watershed. Historically, TVA has used analysis of aerial photography images to survey about 25 percent of the Tennessee Valley to identify sources of nonpoint pollution in a period of less than 5 years at a cost of a few cents per acre (TVA, 1988). Modern geographic information systems (GIS) enable watershed planners and modelers to rapidly assess large watersheds in a cost-effective manner.

The development of Total Maximum Daily Loads (TMDLs) in watersheds with impaired waterbodies is a way to identify all sources of pollution. TMDLs are planning documents that provide load allocations, for both point and nonpoint sources, and identify potential contributions of pollutants to an impaired waterbody. TMDLs often include the involvement of stakeholders throughout the watershed, in not only the development, but also with implementation of specific activities within the watershed. TMDL documents can provide a plan for addressing pollution sources throughout a watershed.

Different practices can be used to control NPS pollution once sources have been identified. These practices may include the following:

Soil Erosion Control

Soil erosion has been determined to be the major source of suspended solids, nutrients, organic wastes, pesticides, and sediment that combined form the most problematic form of NPS pollution (TVA, 1988). Soil erosion and runoff controls have been addressed throughout earlier management measures in this document.

Mine Reclamation

Abandoned mines may have the potential to contribute significant sediment, metals, acidified water, and other pollutants to reservoirs (TVA, 1988). Old mines need to be located and reclaimed to reduce NPS pollutants emanating from them. Revegetation is a cost-effective method of reclaiming denuded strip-mined lands, and agencies such as the Natural Resource Conservation Service (NRCS) can provide technical insight for revegetation practices.

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Animal Waste Control

A major contributor to reservoir pollution in some watersheds is waste from animal confinement facilities. TVA (1988) estimated that in the Tennessee Valley, farms produced about six times the organic wastes of the population of the valley. EPA also has available the *National Management Measures to Control Nonpoint Source Pollution from Agriculture*,[5] which is a technical guidance and reference document for use by state, local, and tribal managers in the implementation of NPS pollution management programs. It contains information on a variety of practices and management strategies for reducing pollution of surface and ground water from agriculture (USEPA, 2003b).

Correcting Failing Septic Systems

The objective of this practice is to protect waterbodies from pollutants discharged by onsite sewage disposal systems (OSDS). They should be sited, designed, and installed so that impacts to waterbodies will be reduced to the extent practicable. Factors such as soil type, soil depth, depth to water table, rate of sea level rise, and topography should be considered. The installation of OSDS should be prevented in areas where soil absorption systems will not provide adequate treatment of effluents containing solids, phosphorus, pathogens, nitrogen, and nonconventional pollution prior to entry into surface waters and ground water. Setbacks, separation distances, and maintenance requirements should be established.

Failing septic tank or OSDS are another source of NPS pollution in reservoirs. TVA has found septic tank failures to be a problem in some of its reservoirs and has identified them through an aerial survey (TVA, 1988). Additional guidance on OSDS is available from EPA's *Onsite Wastewater Treatment Systems Manual* (EPA 625-R-00-008), which is available through EPA's National Service Center for Environmental Publications.[6]

Land Use Planning

Land use plans that establish guidelines for permissible uses of land within a watershed serve as a guide for reservoir management programs addressing NPS pollution (TVA, 1988). Watershed land use plans identify suitable uses for land surrounding a reservoir, establish sites for economic development and natural resource management activities, and facilitate improved land management (TVA, 1988). Land use plans must be flexible documents that account for the needs of the landowners, state and local land use goals, the characteristics of the land and its ability to support various uses, and the control of NPS pollution (TVA, 1988).

Comprehensive planning is an effective nonstructural tool to control NPS pollution. Where possible, growth should be directed toward areas where it can be sustained with minimal impact on the environment (Meeks, 1990). Poorly planned growth and development have the potential to degrade and destroy natural drainage systems and surface waters (Mantell et al., 1990). Proper planning and zoning decisions allow water quality managers to direct development and land disturbance away from areas that drain to sensitive waters. Land use designations and zoning laws can also be used to protect environmentally sensitive areas such as riparian corridors and wetlands.

[5] http://www.epa.gov/owow/nps/pubs.html
[6] http://www.epa.gov/ncepihom

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Identify and Preserve Critical Areas

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☑ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Protection of sensitive areas and areas that provide water quality benefits (e.g., natural wetlands and riparian areas) is integral to maintaining or minimizing the impacts of development on receiving waters and associated habitat. Without a comprehensive planning approach that includes the use of riparian buffers, open space, bioretention, and structural controls to maintain the predevelopment hydrologic characteristics of the site, significant water quality and habitat impacts are likely. The experience of various communities has shown that the use of structural controls in the absence of adequate local land use planning and zoning often does not adequately protect water quality and might even cause detrimental effects, such as increased temperature.

An initial step for incorporating targeted land conservation into a runoff management program is to identify critical conservation areas on a watershed map and superimpose this information on a tax map. Owners of potential conservation lands could include a mix of individuals, corporations or other business entities, homeowner associations, government agencies, and land trusts.

Land conservation includes more than simply preserving land in its current state. It also means that an individual or organization should take responsibility for restoration of areas of the property that are contributing to runoff problems or have been adversely affected by runoff. Stewardship activities for land conservation might include:

- Resource monitoring
- General maintenance
- Control of exotic species
- Installation of structural runoff management practices and maintenance

There are several options for landowners who would like to retain ownership of the parcel but relinquish stewardship and conservation management to another organization. These nonexclusive management options, discussed below, include establishing conservation easements, leases, deed restrictions, covenants, or transfer of development rights (TDRs).

Conservation Easements

A conservation easement is a legal agreement that transfers specific rights concerning the use of land by sale or donation to a government agency (municipal, county, or state), a qualified nonprofit organization (e.g., land trust or conservancy), or other legal entity without transferring title of the land (Cwikiel, 1996).

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Leases

Even though government agencies, land trusts, and other nonprofit organizations would prefer that conservation lands be acquired by donation or that conservation easements be placed on the property, some lands hold so much value as conservation areas that leasing is worth the expense and effort. Leasing a property allows the agency, trust, or organization to actively manage the land for conservation.

Deed Restrictions

Restrictions can be included in deeds for the purpose of constraining use of the land. In theory, deed restrictions are designed to perform functions similar to those of conservation easements. In practice, however, deed restrictions have proven to be much weaker substitutes because unlike conservation easements, deed restrictions do not necessarily designate or convey oversight responsibilities to a particular agency or organization to enforce protection and maintenance provisions. Also, deed restrictions can be relatively easy to modify or vacate through litigation. Modifying or nullifying an easement is difficult, especially if tax benefits have already been realized. For these reasons, conservation easements are generally preferred over deed restrictions.

Covenants

A covenant is similar to a deed restriction in that it restricts activities on a property, but it is in the form of a contract between the landowner and another party. The term *mutual covenants* is used to describe a situation where one or more nearby or adjacent landowners are contracted and covered by the same restrictions.

Transfer of Development Rights (TDRs)

The concept of TDRs as a watershed protection tool is based on the premise that ownership of land includes a "bundle" of property rights. One of these rights is the right to develop the property to its "highest and best use." Although this right can be restricted by zoning building codes, environmental constraints, and other types of restrictions, the basic right to develop remains. A TDR system creates an opportunity for property owners to transfer development potential or density at one property, called a sending area to another property, called a receiving area. In the context of watershed planning objectives, TDR programs can be an effective way to transfer development potential from sensitive subwatersheds to subwatersheds that can better deal with increased imperviousness.

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Joint Planting

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☑ Integrated
- ☐ Planning & regulatory

Joint planting (or vegetated riprap) involves tamping live cuttings of rootable plant material into soil between the joints or open spaces in rocks that have previously been placed on a slope (Figure 7.19). Alternatively, the cuttings can be tamped into place at the same time that rock is being placed on the slope face. Joint planting is useful where rock riprap is required or already in place. It is successful 30 to 50 percent of the time, with first year irrigation improving survival rates. Live cuttings must have side branches removed and bark intact. They should range from 0.5 to 1.5 inches in diameter and be long enough to extend well into the soil, reaching into the dry season water level. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- ISU. 2006. *How to Control Streambank Erosion: Joint Planting.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/joint_planting.pdf.

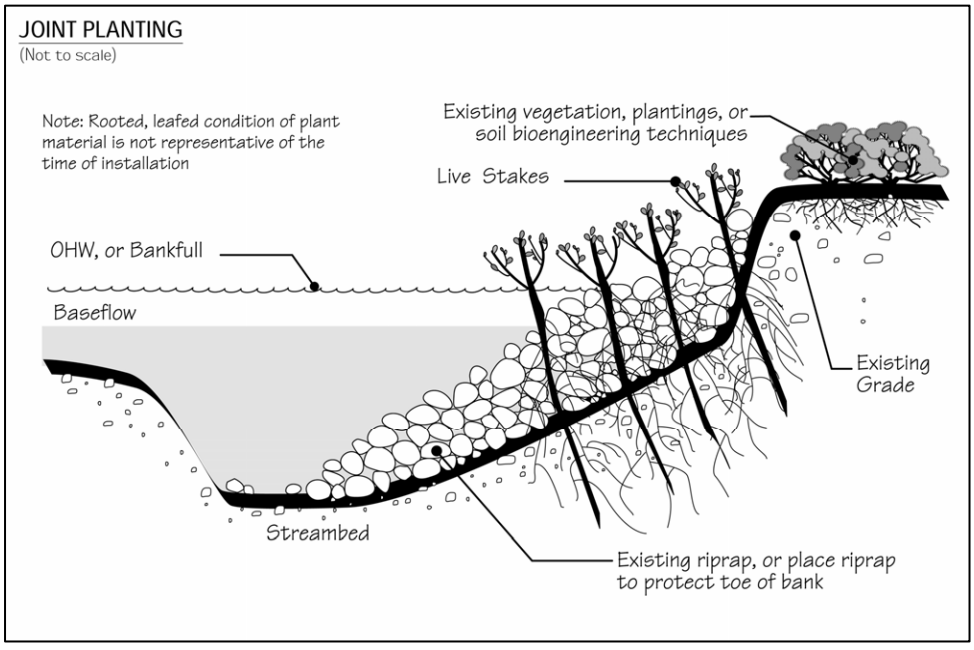

Figure 7.19 Joint Planting (USDA-FS, 2002)

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Labyrinth Weir

Labyrinth weirs have extended crest length and are usually W-shaped. These weirs spread the flow out to prevent dangerous undertows in the plunge pool. A labyrinth weir at South Holston Dam (Tennessee) was constructed for the dual purpose of providing minimum flows and improving DO in reservoir releases. The weir aerates to up to 60 percent of the oxygen deficit. For instance, projected performance at the end of the summer is an increase in the DO from 3 mg/L to 7 mg/L (or an increase of 4 mg/L) (Hauser, 1992). Actual increases in the DO will depend on the temperature and the level of DO in the incoming water.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Levees, Setback Levees, and Floodwalls

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☑ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Many valuable techniques can be used, when applied correctly, to protect, operate, and maintain levees (Hynson et al., 1985). Evaluation of site-specific conditions and the use of best professional judgment are the best methods for selecting the proper levee protection and operation and maintenance plan. According to Hynson and others (1985), maintenance activities generally consist of vegetation management, burrowing animal control, upkeep of recreational areas, and levee repairs.

Care must be taken during construction to prevent disturbing the natural channel vegetation, cross section, or bottom slope. No immediate instream effects from sedimentation are usually caused by implementing this type of modification. The potential for long-term channel adjustments can be evaluated using methods outlined in *Channel Stability Assessment for Flood Control Projects* (USACE, 1994).

Methods to control vegetation include mowing, grazing, burning, and using chemicals. Selection of a vegetation control method should consider the existing and surrounding vegetation, desired instream and riparian habitat types and values, timing of controls to avoid critical periods, selection of livestock grazing periods, and timing of prescribed burns to be consistent with historical fire patterns. Additionally, a balance between the vegetation management practices for instream and riparian habitat and engineering considerations should be maintained to avoid structural compromise. Animal control methods are most effective when used as a part of an integrated pest management program and might include instream and riparian habitat manipulation or biological controls. Recreational area management includes upkeep of planted areas, disposal of solid waste, and repairing of facilities (Hynson et al., 1985).

The prevention of floods by dams and levees can eliminate or diminish essential ecological functions. Dams, levees and channel training structures have dramatically altered or eliminated the frequency, duration, magnitude, and timing of periodic high flows. These projects significantly reduce the likelihood of floodplain inundation, block the transfer of organic matter and nutrients between river and floodplain, block plant succession, eliminate fish access to spawning areas, and rob rivers of the erosive power to restore and create a diversity of habitats (Environmental Defense, 2002). Levees have had several impacts on the Snake River in Wyoming. Anthony (1998) found habitat losses, including changes in vegetation (including losses of cottonwood and riparian habitats from 1956) and changes in channel and floodplain complexity from a braided to a single channel pattern.

Siting of levees and floodwalls should be addressed prior to design and implementation of these types of projects. Proper siting of such structures can avoid several types of problems. First, construction activities should not disturb the physical integrity of adjacent riparian areas and/or

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wetlands. Second, by setting back the structures (offsetting them from the streambank), the relationship between the channel and adjacent riparian areas can be preserved. Proper siting and alignment of proposed structures can be established based on hydraulic calculations, historical flood data, and geotechnical analysis of riverbank stability.

Additional Resource

- LSU AgCenter. 1999. *Floodwalls*. Louisiana State University Agricultural Center, Louisiana Cooperative Extension Service. http://www.louisianafloods.org/NR/rdonlyres/7A01F7C8-703B-47D1-BCCD-63CD0A57721F/2995/pub2745Floodwall6.pdf.

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Live Cribwalls

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☑ Integrated
- ☐ Planning & regulatory

A live cribwall is used to rebuild a bank in a nearly vertical setting. It consists of a hollow, box-like interlocking arrangement of untreated log or timber members (Figure 7.20). The structure is filled with suitable backfill material and layers of live branch cuttings, which root inside the crib structure and extend into the slope. Logs or untreated timbers should range from 4 to 6 inches in diameter. Lengths will vary with the size of the crib structure. Fill rock should be 6 inches in diameter. Live branch cuttings should be 0.5 to 2.5 inches in diameter and long enough to reach the back of the wooden crib structure. Once the live cuttings root and become established, the subsequent vegetation gradually takes over the structural functions of the wood members. Live cribwalls are appropriate where space is limited and at the base of a slope where a low wall may be required to stabilize the toe of the slope and to reduce its steepness. They are also appropriate above and below the water level where stable streambeds exist. They are not designed for or intended to resist large, lateral earth stress. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

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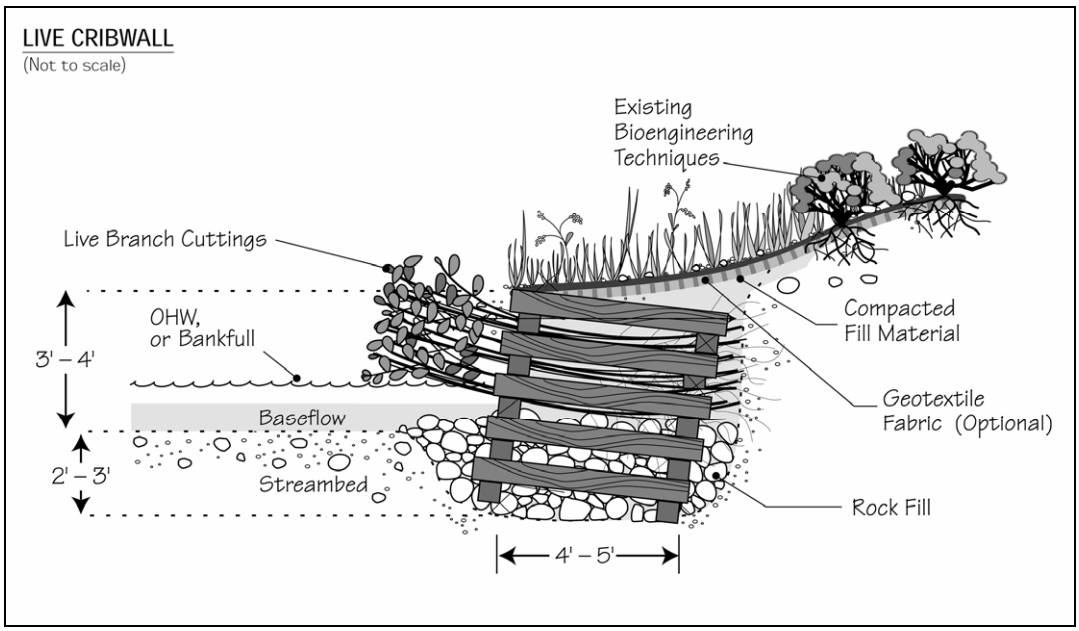

Figure 7.20 Live Cribwall (USDA-FS, 2002)

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- ISU. 2006. *How to Control Streambank Erosion: Live Cribwall.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_cribwall.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Live Cribwall.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/livecribwall.pdf.

- Ohio DNR. No date. *Ohio Stream Management Guide: Live Cribwalls.* Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs17.htm.

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Live Fascines

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Live fascines are long bundles of branch cuttings bound together in a cylindrical structure (Figure 7.21). They are suited to steep, rocky slopes, where digging is difficult (USDA-NRCS, 1992). When cut from appropriate species (e.g., young willows or shrub dogwoods) that root easily and have long straight branches, and when properly installed, they immediately begin to stabilize slopes. The cuttings (0.5 to 1.5 inches in diameter) form live fascine bundles that vary in length from 5 to 10 feet or longer, depending on site conditions and handling limitations. Completed bundles should be 6 to 8 inches in diameter. The goal is for natural recruitment to follow once slopes are secured. Live fascines should be placed in shallow contour trenches on dry slopes and at an angle on wet slopes to reduce erosion and shallow face sliding. Live fascines should be applied above ordinary high-water mark or bankfull level except on very small drainage area sites. In arid climates, they should be used between the high and low water marks on the bank. This system, installed by a trained crew, does not cause much site disturbance.

Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992). Under their Ecosystem Management and Restoration Research Program (EMRRP), the U.S. Army Corps of Engineers presents research on live fascines in a technical note (*Live and Inert Fascine Streambank Erosion Control*).[7]

Additional Resources

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Live Fascines.* Massachusetts Department of Environmental Protection, Boston, MA. http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Live%20Fascines.pdf.

- Greene County Soil & Water Conservation District. No date. *Construction Specification VS-01: Live Fascines.* http://www.gcswcd.com/stream/library/pdfdocs/vs-01.pdf.

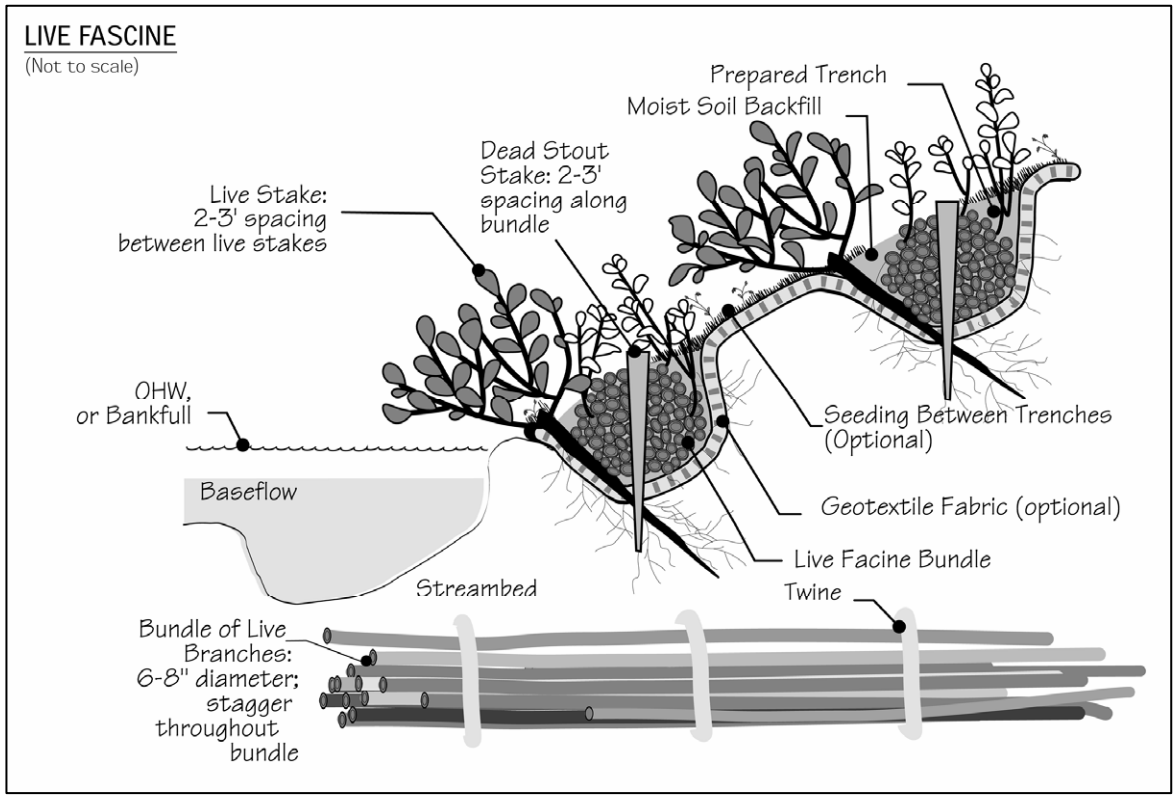
- ISU. 2006. *How to Control Streambank Erosion: Live Fascine.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_fascine.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Live Fascine.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/livefacine.pdf.

[7] http://el.erdc.usace.army.mil/elpubs/pdf/sr31.pdf

Administrative Record Page No. 036179

- Ohio DNR. No date. *Ohio Stream Management Guide: Live Fascines.* Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs14.pdf.



Note: OHW (Ordinary High Water) is the mark along a streambank where the waters are common and usual. This mark is generally recognized by the difference in the character of the vegetation above and below the mark or the absence of vegetation below the mark (USDA-FS, 2002).

Figure 7.21 Live Fascine (USDA-FS, 2002)

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Live Staking

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Live staking (Figure 7.22) is appropriate for relatively uncomplicated site conditions when construction time is limited. It can also be used to stabilize intervening areas between other soil bioengineering techniques (USDA-NRCS, 1992). Live staking involves the insertion and tamping of live, rootable vegetative cuttings into the ground. If correctly prepared and placed, the live stake will root and grow. A system of stakes creates a living root mat that stabilizes the soil by reinforcing and binding soil particles together and by extracting excess soil moisture. Stakes are generally 1 to 2 inches in diameter and 2 to 3 feet long. Specific site requirements and available cutting source will determine size. Vegetation selected should be able to withstand the degree of anticipated inundation, provide year round protection, have the capacity to become well established under sometimes adverse soil conditions, and have root, stem, and branch systems capable of resisting erosive flows. Most willow species are ideal for live staking because they root rapidly and begin to dry out a slope soon after installation. Sycamore and cottonwood are also species commonly used for live staking. This is an appropriate technique for repair of small earth slips and slumps that are frequently wet. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002) and the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992).

Additional Resources

- ISU. 2006. *How to Control Streambank Erosion: Live Stakes.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/live_stakes.pdf.

- Myers, R.D. 1993. *Slope Stabilization and Erosion Control Using Vegetation: A Manual of Practice for Coastal Property Owners. Live Staking.* Shorelands and Coastal Zone Management Program, Washington Department of Ecology. Olympia. Publication 93-30. http://www.ecy.wa.gov/programs/sea/pubs/93-30/livestaking.html.

- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Live Staking.* Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish. http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/livestake.cfm.

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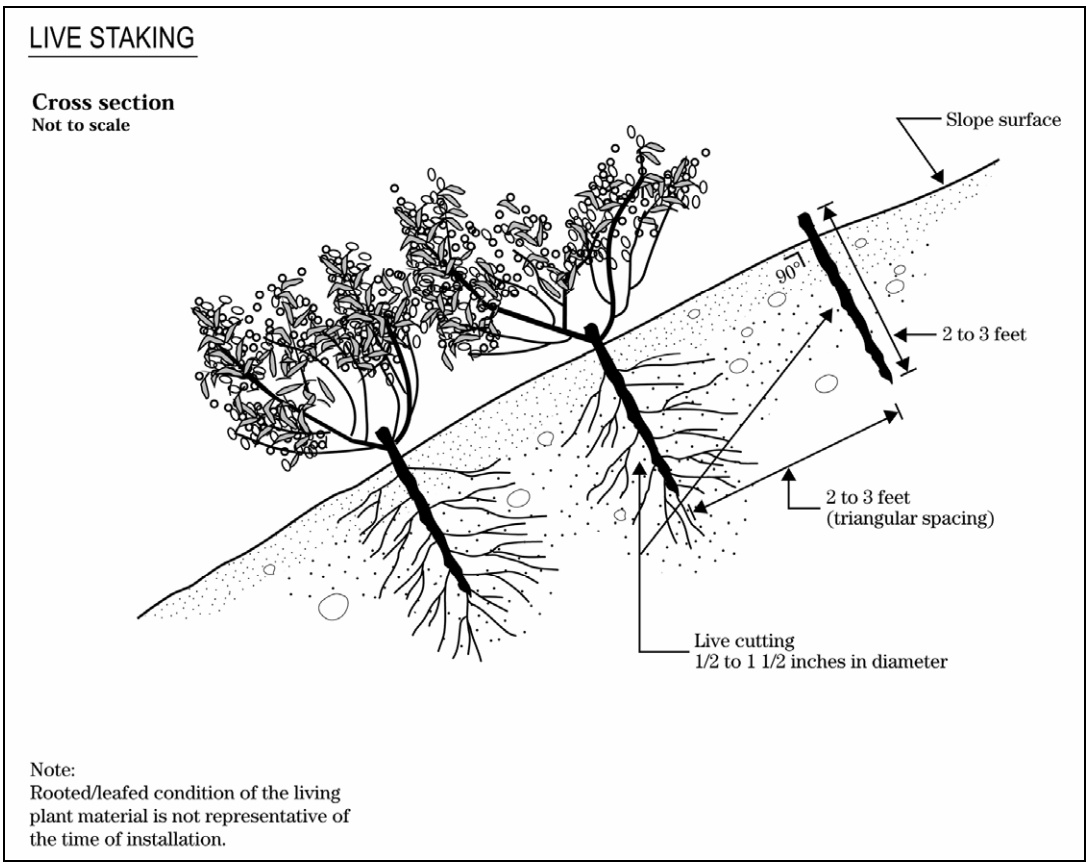

Figure 7.22 Live Staking (USDA-NRCS, 1992)

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Locate Potential Land Disturbing Activities Away from Critical Areas

Material stockpiles, borrow areas, access roads, and other land-disturbing activities can often be located away from critical areas such as steep slopes, highly erodible soils, and areas that drain directly into sensitive waterbodies.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Marsh Creation and Restoration

Channelization
- ☐ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Marsh creation and restoration is a useful vegetative technique that can address problems with erosion of shorelines. Marsh plants perform two functions in controlling shore erosion (Knutson, 1988). First, their exposed stems form a flexible mass that dissipates wave energy. As wave energy is diminished, the offshore transport and longshore transport of sediment are reduced. Ideally, dense stands of marsh vegetation can create a depositional environment, causing accretion of sediments along the intertidal zone rather than continued shore erosion. Second, marsh plants form a dense mat of roots, which can add stability to the shoreline sediments. The basic approach for marsh creation is to plant a shoreline area in the vicinity of the tide line with appropriate marsh grass species. Suitable fill material may be placed in the intertidal zone to create a wetlands planting terrace of sufficient width (at least 18 to 25 feet) if such a terrace does not already exist at the project site. For shoreline sites that are highly sheltered from the effects of wind, waves, or boat wakes, the fill material is usually stabilized with small structures, similar to groins, which extend out into the water from the land. For shorelines with higher levels of wave energy, the newly planted marsh can be protected with an offshore installation of stone that is built either in a continuous configuration or in a series of breakwaters.

Additional Resource

- Maryland Department of the Environment. 2006. *Shore Erosion Control Guidelines: Marsh Creation*. http://www.mde.state.md.us/assets/document/wetlandswaterways/Shoreerosion.pdf.

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Modifying Operational Procedures

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

A useful tool for evaluating the effects of operational procedures on the quality of tailwaters is computer modeling. For instance, computer models can describe the vertical withdrawal zone that would be expected under different scenarios of turbine operation (Smith et al., 1987). Zimmerman and Dortch (1989) modeled release operations for a series of dams on a Georgia river and found that procedures that were maintaining cool temperatures in summer were causing undesirable decreases in DO and increases in dissolved iron in autumn. The suggested solution was a seasonal release plan that is flexible, depending on variations in the in-pool water quality and predicted local weather conditions. Care should be taken with this sort of approach to accommodate the needs of both the fishery resource and reservoir recreationalists, particularly in late summer.

Modeling has also been undertaken for a variety of TVA and USACE facilities to evaluate the downstream impacts on DO and temperature that would result from changes in several operational procedures, including (Hauser et al., 1990a; Hauser et al., 1990b; Higgins and Kim, 1982; Nestler et al., 1986):

- Maintenance of minimum flows
- Timing and duration of shutoff periods
- Seasonal adjustments to the pool levels
- Timing and variation of the rate of drawdown

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Mulching

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Newly established vegetation does not have as extensive a root system as existing vegetation and therefore is more prone to erosion, especially on steep slopes. Additional stabilization should be considered during the early stages of seeding. This extra stabilization can be accomplished using mulches or mulch mats, which are applied to disturbed soil surfaces and can protect the area while vegetation becomes established.

Mulches and mulch mats include tacked straw, wood chips, and jute netting and are often covered by blankets or netting. Mulching alone should be used only for temporary protection of the soil surface or when permanent seeding is not feasible. The useful life of mulch varies with the material used and the amount of precipitation, but, generally, is approximately 2 to 6 months. Mulching and/or sodding may be necessary as slopes become moderate to steep, as soils become more erosive, and as areas become more sensitive. During the times of the year when vegetation cannot be established, mulch can be applied to moderate slopes and soils that are not highly erodible. On steep slopes or highly erodible soils, mulching may need to be reapplied if washed away.

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Mulches, Blankets and Mats.* Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/Environment/Watershed/BMP/CH3_RPPSoilMulch.pdf.

- CASQA. 2004. *California Stormwater BMP Construction Handbook*: *Hydraulic Mulch.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/EC-3.pdf.

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Mulching.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.3_mulching.pdf.

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Noneroding Roadways

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☐ Integrated
- ☐ Planning & regulatory

General Road Construction Considerations

Road design and construction activities that are tailored to topography and soils and take into consideration the overall drainage pattern in the watershed where the road is being constructed can prevent road-related water quality problems. Lack of adequate consideration of watershed and site characteristics, road system design, and construction techniques appropriate to the site can result in mass soil movements, extensive surface erosion, and severe sedimentation in nearby waterbodies. The effect that a road network has on stream networks largely depends on the extent to which the networks are interconnected. Road networks can be hydrologically connected to stream networks where road surface runoff is delivered directly to stream channels (at stream crossings or via ditches or gullies that direct flow off the road into a stream) and where road cuts transform subsurface flow into surface flow (in road ditches or on road surfaces that deliver sediment and water to streams much more quickly than without a road present). The combined effects of these drainage network connections are increased sedimentation and peak flows that are higher and arrive more quickly after storms. This can lead to increased instream erosion and stream channel changes, especially in small watersheds (USEPA, 2005a).

Site characteristics should be considered during construction planning. On-site verification of information from topographic maps, soil maps, and aerial photos can ensure that locations where roads are to be cut into slopes or built on steep slopes or where skid trails, landings, and equipment maintenance areas are to be located are appropriate to the use. If an on-site visit indicates that construction changes can reduce the risk of erosion, the project manager can make these changes prior to construction, and in some cases as the project progresses (USEPA, 2005a).

Road drainage features tailored to the site prevent water from pooling or collecting on road surfaces. This prevents saturation of the road surface, which can lead to rutting, road slumping, and channel washout. Many roads associated with channelization projects are temporary or seasonal-use roads, and their construction should not involve the high level of disturbance generated by construction of permanent, high-standard roads. However, these types of roads still need to be constructed and maintained to prevent erosion and sedimentation (USEPA, 2005a).

Erosion control practices need to be applied while a road is being constructed, when soils are most susceptible to erosion, to minimize soil loss to waterbodies. Since sedimentation from roads often does not occur incrementally and continuously, but in pulses during large rainstorms, it is important that road, drainage structure, and stream crossing design take into consideration a sufficiently large design storm that has a good chance of occurring during the life of the project. Such a storm might be the 10-year, 25-year, 50-year, or even 100-year, 12- to 24-hour return period storm. Sedimentation cannot be completely prevented during or after road construction,

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but the process is exacerbated if the road construction and design are inappropriate for the site conditions or if the road drainage or stream crossing structures are insufficient (USEPA, 2005a).

When constructing a new road, it is useful to consider road surface shape and composition, slope stabilization, and wetlands. A more detailed discussion of these topics is provided below. More information about potential impacts to fish habitat and passage are provided in EPA's *National Management Measures to Control Nonpoint Source Pollution from Forestry*.[8]

Road Shape and Composition

The shape of a road is an important runoff control component. Road drainage and runoff control are obtained by shaping the road surface to be insloping, outsloping, or crowned. Insloping roads can be effective where soils are highly erodible and directing runoff directly to the fill slope would be detrimental. Outsloped roads tend to dissipate runoff more than insloped roads, which concentrate runoff at cross drain locations, and are useful where erosion of backfill or ditch soil might be a problem. Crowned roads are suited to two lane roads and to steep single-lane roads that have frequent cross drains or ditches and ditch relief culverts (USEPA, 2005a). These road surface shapes are illustrated in Figure 7.23. Maintain one of these shapes to ensure good drainage. Crowns, inslopes, and outslopes will quickly lose effectiveness if not maintained frequently, due to ruts created by traffic when the road surface is damp or wet (USEPA, 2005a).

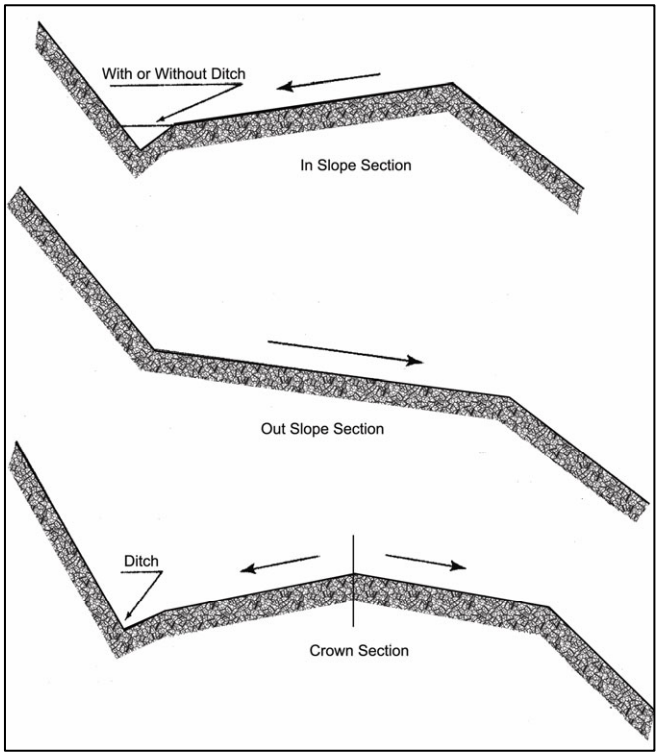

Figure 7.23 Types of Road Surface Shapes (USEPA, 2005a)

Road surface composition can effectively control erosion from road surfaces and slopes. It is important to choose a surface that is suitable to the topography, soils, and intended use. Surface protection of the roadbed and cut-and-fill slopes with a suitable material can minimize soil losses during storms, reduce frost heave erosion production, restrain downslope movement of soil slumps, and minimize erosion from softened roadbeds (USEPA, 2005a).

Slope Stabilization

Road cuts and fills can be a large source of sediment when constructing a rural road. Stabilizing back slopes and fill slopes as they are constructed is important in minimizing erosion from these areas. Combined with gravel or other surfacing, establishing grass or another form of slope stabilization can significantly reduce soil loss from road construction. If constructing on an unstable slope is necessary, consider consulting with an engineering geologist or geotechnical

[8] Available online at http://www.epa.gov/owow/nps/forestrymgmt.

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engineer for recommended construction methods and to develop plans for the road segment. Unstable slopes that threaten water quality should be considered unsuitable for road building.

Planting grass on cut-and-fill slopes of new roads can effectively reduce erosion, and placing forest floor litter or brush barriers on downslopes in combination with establishing grass is also effective for reducing downslope sediment transport. Grass-covered fill is generally more effective than mulched fill in reducing soil erosion from newly constructed roads because of the roots that hold the soil in place, which are lacking with other cover. Because grass needs some time to establish itself, a combination of straw mulch with netting to hold it in place can be used to cover a seeded area and effectively reduce erosion while grass is growing. The mulch and netting provide immediate erosion control and promote grass growth (USEPA, 2005a).

Wetland Road Considerations

Sedimentation is a concern when considering road construction through wetlands. It is better to avoid putting a road through a wetland when an alternative route exists. If no alternative exists, make sure to implement best management practices (BMPs) suggested by the state. Road construction or maintenance for certain farming, forestry, or mining activities might be exempt under Clean Water Act (CWA) section 404. However, to qualify for the exemption, the roads must be constructed and maintained following application of specific BMPs designed to protect the aquatic environment (USEPA, 2005a).

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Pesticide and Fertilizer Management

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☑ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Chemicals used in dam management include pesticides (insecticides, herbicides, and fungicides) and fertilizers. Since pesticides can be toxic, they have to be mixed, transported, loaded, and applied correctly and their containers disposed properly to prevent potential nonpoint source pollution. Since fertilizers can also be toxic or can damage the ecosystem, it is important that they be handled and applied properly, according to label instructions.

Even though a limited number of applications might be made at a specific dam site, consider that throughout a watershed many sites could receive applications of fertilizers and pesticides, which can accumulate in soils and in waterbodies. Application techniques also partly determine the potential risk to the aquatic environment from infrequent applications of pesticides and fertilizers. These chemicals can directly enter surface waters through five major pathways—direct application, drift, mobilization in ephemeral streams, overland flow, and leaching. Direct application is the most important source of increased chemical concentrations and is also one of the most easily controlled.

Some more specific implementation practices for pesticide maintenance include:

- Apply pesticides during favorable atmospheric conditions. Do not apply pesticides when wind conditions increase the likelihood of significant drift. It is also best to avoid pesticide application when temperatures are high or relative humidity is low because these conditions influence the rate of evaporation and enhance losses of volatile pesticides.
- Ensure that pesticide users abide by the current pesticide label, which might specify whether users be trained and certified in the proper use of the pesticide; allowable use rates; safe handling, storage, and disposal requirements; and whether the pesticide may be used under the provisions of an approved State Pesticide Management Plan.
- Locate mixing and loading areas, and clean all mixing and loading equipment thoroughly after each use, where pesticide residues will not enter streams or other waterbodies.
- Dispose of pesticide wastes and containers according to state and federal laws.
- Consider the use of pesticides as only one part of an overall program to control pest problems. Integrated Pest Management (IPM) strategies have been developed to control pests without total reliance on chemical pesticides.
- Base selection of pesticide on site factors and pesticide characteristics. These factors include vegetation height, target pest, adsorption (attachment) to soil organic matter, persistence or half-life, toxicity, and type of formulation.
- Check all equipment carefully, particularly for leaking hoses and connections and plugged or worn nozzles. Calibrate spray equipment periodically to achieve uniform pesticide distribution and rate.

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- Always use pesticides in accordance with label instructions, and adhere to all federal and state policies and regulations governing pesticide use.

Specific implementation practices for fertilizer maintenance include:

- Apply slow-release fertilizers when possible. This practice reduces potential nutrient leaching to ground water, and it increase the availability of nutrients for plant uptake.
- Apply fertilizer during favorable atmospheric conditions. Do not apply fertilizer when wind conditions increase the likelihood of significant drift.
- Apply fertilizers during maximum plant uptake periods to minimize leaching.
- Base fertilizer type and application rate on soil and/or foliar analysis.

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Phase Construction

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Construction site phasing involves disturbing only small portions of a site at a time to prevent erosion from dormant parts (CWP, 1997c). Grading activities and construction are completed and soils are effectively stabilized on one part of the site before grading and construction commence at another. This is different from the more traditional practice of construction site sequencing, in which construction occurs at only one part of the site at a time but site grading and other site-disturbing activities typically occur all at once, leaving portions of the disturbed site vulnerable to erosion. To be effective, construction site phasing must be incorporated into the overall site plan early. Elements to consider when phasing construction activities include (CWP, 1997c):

- Managing runoff separately in each phase
- Determining whether water and sewer connections and extensions can be accommodated
- Determining the fate of already completed downhill phases
- Providing separate construction and residential accesses to prevent conflicts between residents living in completed stages of the site and construction equipment working on later stages

A comparison of sediment loss from a typical development and from a comparable phased project showed a 42 percent reduction in sediment export in the phased project (CWP, 1997c). Phasing can also provide protection from complete enforcement and shutdown of the entire project. If a contractor is in noncompliance in one phase or zone of a site, that will be the only zone affected by enforcement. This approach can help to minimize liability exposure and protect the contractor financially (Deering, 2000b).

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Physical Barriers

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Physical barriers are diversion systems that lead or force fish to bypasses that transport them above or below the dam (FAO, 2001). Physical diversion structures deployed at dams include angled screens, drum screens, inclined plane screens, louvers, and traveling screens. The success and effectiveness of physical barriers has been found to be specific to individual hydropower facilities (Mattice, 1990).

Angled screens are used to guide fish to a bypass by guiding them through the channel at some angle to the flow. Coarse-mesh angled screens have been shown to be highly effective with numerous warm- and cold-water species at adult life stages. Fine-mesh angled screens have been shown in laboratory studies to be highly effective in diverting larval and juvenile fish to a bypass with resultant high survival. Performance of angled screens can vary by species, stream velocity, fish length, screen mesh size, screen type, and temperature (Stone and Webster, 1986). Clogging from debris and fouling organisms is a maintenance problem associated with angled screens.

Angled rotary drum screens oriented perpendicular to the flow direction have been used extensively to lead fish to a bypass. Angled rotary drum screens tend not to experience the major operational and maintenance clogging problems of stationary screens, such as angled vertical screens. Maintenance of angled rotary drum screens typically consists of routine inspection, cleaning, lubrication, and periodic replacement of the screen mesh (Stone and Webster, 1986).

An inclined plane screen is used to divert fish upward in the water column into a bypass. Once concentrated, the fish are transported to a release point below the dam. An inclined plane pressure screen at the T.W. Sullivan Hydroelectric Project (Willamette Falls, Oregon) is located in the penstock of one unit. The design is effective in diverting fish, with a high survival rate. However, this device has been linked to injuries in some species of migrating fish, and it has not been accepted for routine use (Stone and Webster, 1986).

Louvers consist of an array of evenly spaced, vertical slats aligned across a channel at an angle leading to a bypass. The turbulence they create is sensed and avoided by the fish (Stone and Webster, 1986). Louver systems rely on a fish's instincts to use senses other than sight to move around obstacles. Once the louver is sensed, the fish tend to reverse their head first downstream orientation (to head upstream, tail to the louver) and move laterally along it until they reach the bypass (OTA, 1995).

Submerged traveling screens are used to divert downstream migrating fish out of turbine intakes to adjoining gatewell structures, where the fish are concentrated for release downstream. This device has been tested extensively at hydropower facilities on the Snake and Columbia Rivers. Because of their complexity, submerged traveling screens must be continually maintained. The

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screens must be serviced seasonally, depending on the debris load, and trash racks and bypass orifices must be kept free of debris (Stone and Webster, 1986).

Physical barrier fish diversion systems have been found to work best when specifically designed to the structure and fish being passed. Small differences in design, such as the spacing or depth of the louvers, can mean the difference in success and failure. A successful louver system has been installed at the Holyoke Hydroelectric Power Station, on the Connecticut River. This partial depth louver system was installed in the intake channel at the power plant and successfully passed 86 percent of the juvenile clupeids and 97 percent of the Atlantic salmon (*Salmo salar*) smolts (Marmulla, 2001). Another partial depth louver system on the same river has experienced less successful results. The system installed at the Vernon Dam on the Connecticut River is successfully passing about 50 percent of the Atlantic salmon smolts (OTA, 1995).

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Pollutant Runoff Control

Store, cover, and isolate construction materials, refuse, garbage, sewage, debris, oil and other petroleum products, mineral salts, industrial chemicals, and topsoil to prevent runoff of pollutants and contamination of ground water.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☑ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Preserve Onsite Vegetation

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Preserving onsite vegetation retains soil and limits runoff of water, sediment, and pollutants. The destruction of existing onsite vegetation can be minimized by initially surveying the site to plan access routes, locations of equipment storage areas, and the location and alignment of the dam. Construction workers can be encouraged to limit activities to designated areas only. Reducing the disturbance of vegetation also reduces the need for revegetation after construction is completed, including the required fertilization, replanting, and grading that are associated with revegetation. Additionally, as much natural vegetation as possible should be left next to the waterbody where construction is occurring. This vegetation provides a buffer to reduce the NPS pollution effects of runoff originating from areas associated with the construction activities.

Additional Resource

- CASQA. 2004. *California Stormwater BMP Construction Handbook*: *Preservation of Existing Vegetation.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/EC-2.pdf.

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Reregulation Weir

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Reregulation weirs have been constructed from stone, wood, and aggregate. In addition to increasing the levels of DO in the tailwaters, reregulation weirs result in a more constant rate of flow farther downstream during periods when turbines are not in operation. A reregulation weir constructed downstream of the Canyon Dam (Guadalupe River, Texas) increased DO levels in waters leaving the turbine from 3.3 mg/L to 6.7 mg/L (EPRI, 1990).

The USACE Waterways Experiment Station (Wilhelms, 1988) has compared the effectiveness with which various hydraulic structures accomplished the reaeration of reservoir releases. The study concluded that, whenever operationally feasible, more discharge should be passed over weirs to improve DO concentrations in releases. Results indicated that overflow weirs aerate releases more effectively than low-sill spillways (Wilhelms, 1988).

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Reservoir Aeration

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☑ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Some techniques for reservoir aeration include:

- Air injection systems
- Diffused air systems
- Oxygen injection systems
- U-tube design

Air injection systems mix water from different strata in the impoundment by using air or pure oxygen injected into a pumping system. Air injection systems are categorized as partial air lift systems and full air lift systems. In the partial air lift system, compressed air is injected at the bottom of the unit; then the air and water are separated at depth and the air is vented to the surface. In the full air lift system, compressed air is injected at the bottom of the unit (as in the partial air lift system), but the air-water mixture rises to the surface. The full air lift design has a higher efficiency than the partial-air lift and has a lesser tendency to elevate dissolved nitrogen levels (Thornton et al., 1990).

Diffused air systems provide effective transfer of oxygen to water by forcing compressed air through small pores in diffuser systems to form bubbles. One diffuser system test in the Delaware River near Philadelphia, Pennsylvania in 1969–1970 demonstrated the efficiency of this practice. Coarse-bubble diffusers were deployed at depths ranging from 13 to 38 feet. Depending on the depth of deployment, the oxygen transfer efficiency varied from 1 to 12 percent. When compared with other systems discussed below, this efficiency rate is rather low. But the results of this test determined that river aeration was more economical than advanced wastewater treatment as a strategy for improving the levels of DO in the river (EPRI, 1990). Another type of oxygen injection system, which pumps gaseous oxygen into the hypolimnion through diffusers, has effectively improved DO levels in the reservoir behind the Richard B. Russell Dam (Savannah River, on the Georgia-South Carolina border). The system is operated 1 mile upstream of the dam, with occasional supplemental injection of oxygen at the dam face when DO levels are especially low. The system has successfully maintained DO levels above 6 mg/L in the releases, with an average oxygen transfer efficiency of 75 percent (EPRI, 1990; Gallagher and Mauldin, 1987).

The diffused air system has been found to be a cost-effective method to raise low DO levels within a reservoir (Henderson and Shields, 1984). However, the costs of air diffuser operation may be high for deep reservoirs because of hydraulic pressures that must be overcome. Destratification that results from deployment of an air diffuser system may also mix nutrient-rich waters located deep in the impoundment into layers located closer to the surface, increasing the potential for stimulation of algal populations. Barbiero et al. (1996), in a study on the effects of artificial circulation on a small northeastern impoundment, found that artificial circulation ultimately had no effect on the magnitude of summer phytoplankton populations. However, the authors note that intermittent mixing events tend to promote increased transport of phosphorus

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into the epilimnion. While this had no effect on phytoplankton populations in the studied lake, it demonstrates the potential of artificial circulation to impact water quality and the need for careful evaluation of potential impacts.

Oxygen injection systems use pure oxygen to increase levels of dissolved oxygen in reservoirs. One type of design, termed side stream pumping, carries water from the impoundment onto the shore and through a piping system into which pure oxygen is injected. After passing through this system, the water is returned to the impoundment (EPRI, 1990).

The U-tube design, in which water from deep in the impoundment is pumped to the surface layer, provides a means to aerate reservoir waters. Oxygen transfer is increased as a mixture of water and oxygen gas is subjected to greater hydrostatic pressure. Water moves down the U-tube and pressure increases as a function of depth, dissolving the oxygen gas into the water. The oxygenated water then travels back up through the system and is released to the waterway (Jones and Stokes, 2004). The inducement of artificial circulation through aeration of the impoundment may also provide the opportunity for a "two-story" fishery, reduce internal phosphorus loading, and eliminate problems with iron and manganese in drinking water (Thornton et al., 1990).

If the principal objective is to improve DO levels only in the reservoir releases and not throughout the entire impoundment, then aeration can be applied selectively to discrete layers of water immediately surrounding the intakes or as water passes through release structures such as hydroelectric turbines. Localized mixing is a practice to improve releases from thermally stratified reservoirs by destratifying the reservoir in the immediate vicinity of the outlet structure. This practice differs from the practice of artificial destratification, where mixing is designed to destratify all or most of the reservoir volume (Holland, 1984). Localized mixing is provided by forcing a jet of high-quality surface water downward into the hypolimnion. Pumps used to create the jet generally fall into two categories, axial flow propellers and direct drive mixers (Price, 1989). Axial flow pumps usually have a large-diameter propeller (6 to 15 feet) that produces a high-discharge, low-velocity jet. Direct drive mixers have small propellers (1 to 2 feet) that rotate at high speeds and produce a high-velocity jet. The axial flow pumps are suitable for shallow reservoirs because they can force large quantities of water down to shallow depths. The high-momentum jets produced by direct drive mixers are necessary to penetrate deeper reservoirs (Price, 1989).

Additional Resource

- Thornton, K.W., B.L. Kimmel, and F.E. Payne. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley & Sons, Inc., New York.

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Retaining Walls

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Retaining walls are used in areas where soils are unstable, where slopes are steeper than the angle of repose, and where the horizontal distance is limited. They help stabilize slopes and can decrease the steepness of a slope. If the steepness of a slope is reduced, the runoff velocity is decreased and, therefore, the erosion potential is decreased.

According to the *Iowa Construction Site Erosion Control Manual*, a variety of materials can be used for construction of retaining walls, including concrete masonry, concrete cribbing, steel piling, gabions, precast stone, rock riprap, reinforced earth, stone drywall, and treated wood timbers. Costs vary by the material selected for construction. When designing a retaining wall, the following factors should be taken into account: drainage, bearing value of the soil, wall thickness, stress, foundation design, and wall height.

Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Retaining Wall.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.13_retaining_wall.pdf.

- Leposky, R.E. 2004. *Retaining Walls: What You See and What You Don't.* http://www.forester.net/ecm_0401_retaining.html.

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Return Walls

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☑ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Whenever shorelines or streambanks are "hardened" through the installation of bulkheads, seawalls, or revetments, the design process must include consideration that waves and currents can continue to dislodge the substrate at both ends of the structure, resulting in very concentrated erosion and rapid loss of fastland. This process is called flanking. To prevent flanking, return walls should be provided at either end of a vertical protective structure and should extend landward for a horizontal distance consistent with the local erosion rate and the design life of the structure.

Additional Resource

- USACE. 1985. *Coastal Engineering Technical Note: Determining Lengths of Return Walls*. U.S. Army Engineer Waterways Experiment Station. http://chl.erdc.usace.army.mil/library/publications/chetn/pdf/cetn-iii-25.pdf.

Administrative Record Page No. 036201

Revegetate

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Revegetation of construction sites during and after construction is the most effective way to permanently control erosion (Hynson et al., 1985). To select the right plants for your bioengineering project, note what native plant communities grow in the area. Avoid planting noxious or invasive grasses, such as reed canary grass or ryegrass. Remove invasive plants such as yellow starthistle, English ivy, deadly nightshade, field morning glory, scotch broom, cheatgrass, and purple loosestrife. Use more of the same native plants in the bioengineering design, as these plants are most likely adapted to conditions to the area.

Plants like willow, red osier dogwood, alder, ash, and cottonwood can be well suited for bioengineering. They establish easily, grow quickly, and have thick root systems. Cuttings are available from native plant nurseries. They may also be collected next to the project site, if the area is well vegetated (Oregon Association of Conservation Districts, 2004).

Ecological and vegetational areas vary throughout the country. Therefore, other plant materials may be more suitable for a project. Contact local cooperative extension services for more plant information.[9]

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Vegetative Methods.* Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPSoilVeget.pdf.

- Ohio DNR. No date. *Ohio Stream Management Guide: Restoring Streambanks with Vegetation.* Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs07.htm.

[9] http://www.csrees.usda.gov/qlinks/partners/state_partners.html

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Revetment

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
- ☐ Vegetative
- ☑ Structural
- ☐ Integrated
- ☐ Planning & regulatory

A revetment (Figure 7.24) is a type of vertical protective structure used for shoreline protection. One revetment design contains several layers of randomly shaped and randomly placed stones, protected with several layers of selected armor units or quarry stone. The armor units in the cover layer should be placed in an orderly manner to obtain good wedging and interlocking between individual stones. The cover layer may also be constructed of specially shaped concrete units (USACE, 1984). Sometimes gabions (stone-filled wire baskets) or interlocking blocks of precast concrete are used in the construction of revetments. In addition to the surface layer of armor stone, gabions, or rigid blocks, successful revetment designs also include an underlying layer composed of either geotextile filter fabric and gravel or a crushed stone filter and bedding layer. This lower layer functions to redistribute hydrostatic uplift pressure caused by wave action in the foundation substrate. Precast cellular blocks, with openings to provide drainage and to allow vegetation to grow through the blocks, can be used in the construction of revetments to stabilize banks. Vegetation roots add additional strength to the bank. In situations where erosion can occur under the blocks, fabric filters can be used to prevent the erosion. Technical assistance should be obtained to properly match the filter and soil characteristics. Typically blocks are hand placed when mechanical access to the bank is limited or costs need to be minimized. Cellular block revetments have the additional benefit of being flexible to conform to minor changes in the bank shape (USACE, 1983).

Additional Resource

- Ohio DNR. No date. *Ohio Stream Management Guide: Riprap Revetments*. Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs16.pdf.

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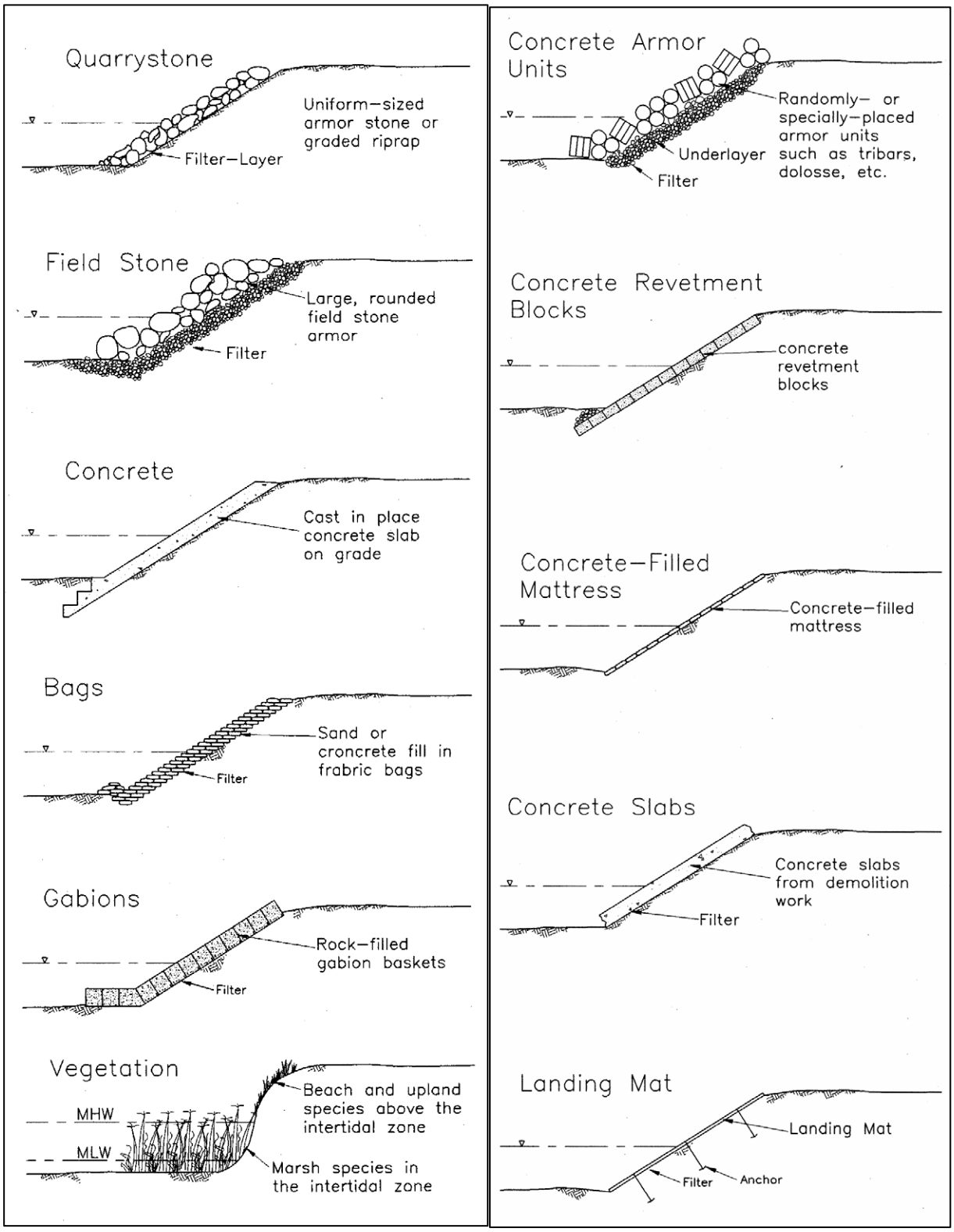

Figure 7.24 Revetment Alternatives (USACE, 2003)

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Riparian Improvements

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☑ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☑ Integrated
  - ☐ Planning & regulatory

Riparian improvements are another strategy that can be used to restore or maintain aquatic and riparian habitat around reservoir impoundments or along the waterways downstream from dams. In fact, Johnson and LaBounty (1988) found that riparian improvements were more effective, in some cases, than flow augmentation for protection of instream habitat. In the Salmon River (Idaho), a variety of instream and riparian habitat improvements have been recommended to improve the indigenous stocks of Chinook salmon (*Oncorhynchus tshawytscha*). These improvements include reducing sediment loading in the watershed, improving riparian vegetation, eliminating barriers to fish migration (see sections discussing this practice below), and providing greater instream and riparian habitat diversity (Andrews, 1988).

Maintaining and improving riparian areas upstream of a dam may also be an important consideration for reducing flow-related impacts to dams. Riparian areas along brooks and smaller streams are sometimes altered in a manner that impairs their ability to detain and absorb floodwater and stormwater (e.g., removal of forest cover or increased imperviousness). The cumulative impact of the riparian changes results in the smaller streams discharging increased volumes and velocities of water, which then result in more severe downstream flooding and increased storm damage and/or maintenance to existing structures (such as dams). These downstream impacts may occur even though main stem floodplains and riparian areas are safeguarded and remain close to their natural condition (Cohen, 1997).

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Riprap

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
- ☐ Vegetative
- ☑ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Riprap is a layer of appropriately sized stones designed to protect and stabilize areas subject to erosion, slopes subject to seepage, or areas with poor soil structure. Riprap extends from the toe of the slope to a height needed for long term durability (Figure 7.25).

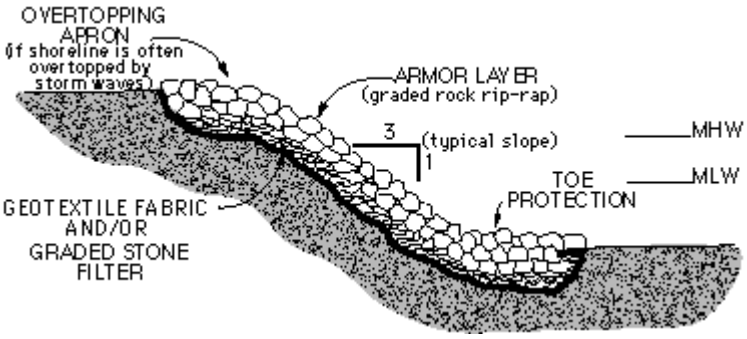
Riprap can be used where vegetation cannot be established or in combination with vegetative approaches. This method is suitable where stream flow velocity is high or where there is a threat to life or property. This method can be expensive, particularly if materials are not locally available. This method should be combined with soil bioengineering techniques, particularly revegetation efforts, to achieve a comprehensive streambank restoration design (FISRWG, 1998).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Riprap.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.15_riprap.pdf.

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Riprap*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/rr.pdf.



Proper riprap placement (MHW=mean high water, MLW=mean low water).

Figure 7.25 Riprap Diagram (http://www.extension.umn.edu/distribution/naturalresources/components/DD6946g.html)

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Root Wad Revetments

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☑ Integrated
- ☐ Planning & regulatory

Root wads armor a bank by keeping faster moving currents away from the bank (Figures 7.26 and 7.27). They are most useful for low energy streams that meander and have out-of-bank flow conditions. Root wads should be used in combination with other soil bioengineering techniques to stabilize a bank and ensure plant establishment on the upper portions of the streambank. Stabilizing the bank will reduce streambank erosion, trap sediment, and improve habitat diversity. There are a number of ways to install root wads. The trunk can be driven into the bank, laid in a deep trench, or installed as part of a log and boulder revetment. Use tree wads that have brushy top and durable wood, such as Douglas fir, oak, hard maple, juniper, spruce, cedar, red pine, white pine, larch, or beech. Ponderosa pine and aspen are too inflexible, and alder decomposes rapidly.

With the added support of a log and boulder revetment, root wads can stabilize banks of high-energy streams. Root wad span should be approximately 5 feet with numerous root protrusions. The trunk should be at least 8 to 12 feet long. Boulders should be as large as possible, but at least one and a half times the log's diameter. They should also have an irregular surface. Logs are to be used as footers or revetments and should be over 16 inches in diameter.

When logs and root wads are well anchored, this design will tolerate high boundary shear stress. However, local scour and erosion is possible. Varying with climate and tree species used, the decomposition of the logs and rootwads will limit the life span of this design. If colonization of streambank vegetation does not take place, replacement may be required. The project site must be accessible to heavy equipment. Locating materials may be difficult in some locations and this method can be expensive (FISRWG, 1998).

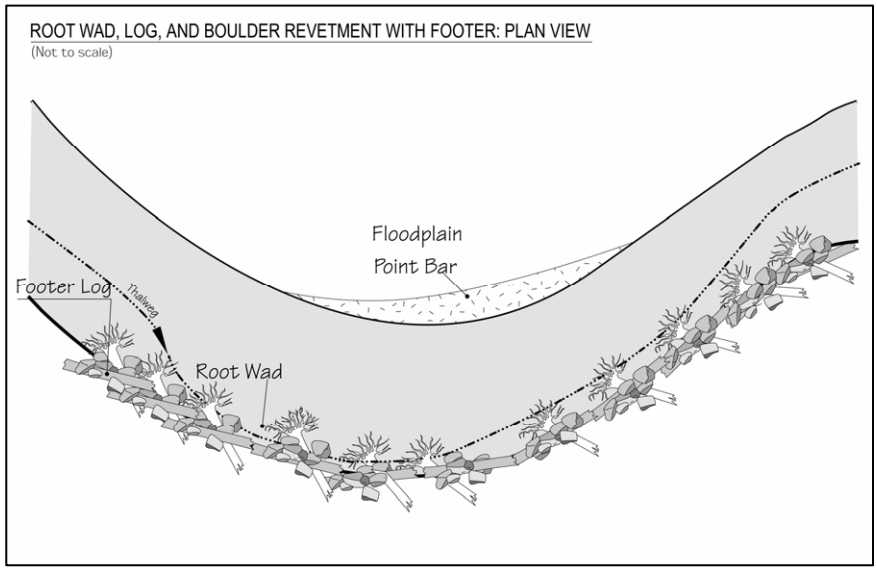

Figure 7.26 Root Wad, Log, and Boulder Revetment with Footer: Plan View (USDA-FS, 2002)

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Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002). Under EMRRP, the USACE has presented research on rootwad composites in a technical note (*Rootwad Composites for Streambank Erosion Control and Fish Habitat Enhancement*).[10]

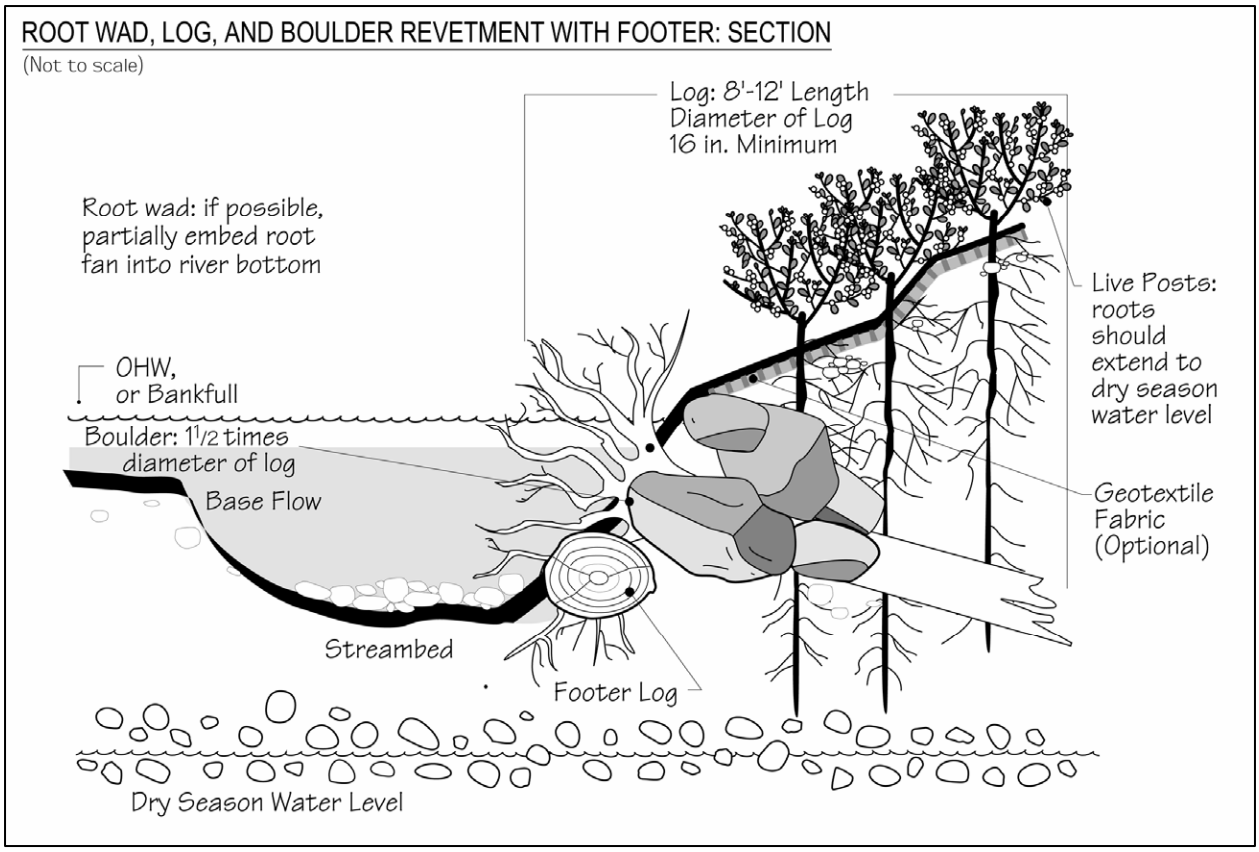

Figure 7.27 Rootwad, Log, and Boulder Revetment with Footer: Section (USDA-FS, 2002)

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- Harmon, W.A. and R. Smith. 2000. *Using Root Wads and Rock Vanes for Streambank Stabilization.* River Course Fact Sheet Number 4. North Carolina Cooperative Extension Service. http://www.bae.ncsu.edu/programs/extension/wqg/sri/rv-crs-4.pdf.

- Walter, J., D. Hughes, and N.J. Moore. 2005. *Streambank Revegetation and Protection: A Guide for Alaska. Revegetation Techniques: Root Wads.* Revised Edition. Alaska Department of Fish and Game, Division of Sport Fish. http://www.sf.adfg.state.ak.us/SARR/restoration/techniques/rootwad.cfm.

[10] http://el.erdc.usace.army.mil/elpubs/pdf/sr21.pdf

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Rosgen's Stream Classification Method

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☑ Planning & regulatory

Rosgen's stream channel stability method provides a sequence of steps for the field practitioner to use in reaching final conclusions and making recommendations for management, stream design, or restoration. The field practitioner uses field-measured variables to assess:

- Stream state or channel condition variables
- Vertical stability (degradation/aggradation)
- Lateral stability
- Channel patterns
- Stream profile and bed features
- Channel dimension factor
- Channel scour/deposition (with competence calculations of field verified critical dimensionless shear stress and change in bed and bar material size distribution)
- Stability ratings adjusted by stream type
- Dimensionless ratio sediment rating curves by stream type and stability ratings
- Selection of position in stream type evolutionary scenario as quantified by morphological variables by stream type to determine state and potential of stream reach.

The stability assessment is conducted on a reference reach and a departure analysis is performed when compared to an unstable reach of the same stream type. Changes in the variables controlling river channel form, primarily streamflow, sediment regime, riparian vegetation, and direct physical modifications can cause stream channel instability. Separating the differences between anthropogenic versus geologic processes in channel adjustment is a key to prevention, mitigation, and restoration of disturbed systems.

Rosgen (1996) has also created a river inventory hierarchy involving four levels that would allow a stream assessment to be conducted at various levels, ranging from broad qualitative descriptions to detailed quantitative descriptions. The idea is to provide documented measurements, coupled with consistent, quantitative indices of stability, to make the approach to stream assessments less subjective and more consistent and reproducible. Level I and Level II are used to do the initial stratification of a reach by valley and stream type. Level III is used to predict stability. Level IV is used for validation, and requires the greatest amount of detail over a longer time period. For example, vertical stability and bank erosion can be estimated at Level III. But, in a Level IV assessment, permanent cross-sections are revisited over time to verify shifts in bed elevation and measure actual erosion that occurred.

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The four hierarchal levels, and the measurements and determinations they include, are shown below along with their objectives.

Level I—Geomorphic characterization: Used to describe generalized fluvial features using remote sensing and existing inventories of geology, landform evolution, valley morphology, depositional history and associated river slopes, relief and patterns utilized for generalized categories of major stream types, and associated interpretations.

Level II—Morphological description: To delineate homogeneous stream types that describe specific slopes, channel materials, dimensions and patterns from reference reach measurements and provide a more detailed level of interpretation than Level I. Includes measurements such as sinuosity, width/depth ration, slope, entrenchment ratio, and channel patterns and material.

Level III—Stream "state" or condition: The "state" of streams further describes existing conditions that influence the response of channels to imposed change and provide specific information for prediction methodologies (such as stream bank erosion calculations). Provides for very detailed descriptions and associated interpretation and predictions. Includes such measurements and/or characterizations of vegetation, deposition, debris, meander patterns, channel stability index, and flow regime.

Level IV—Reach specific studies (validation level): Provides reach-specific information on channel processes. Used to evaluate prediction methodologies; to provide sediment, hydraulic and biological information related to specific stream types; and to evaluate effectiveness of mitigation and impact assessments for activities by stream type. Involves direct measurements of sediment transport, bank erosion rates, aggradation/degradation, hydraulics, and biological data.

Rosgen's stream classification methodologies can assist in stream restoration design by:

- Enabling more precise estimates of quantitative hydraulic relationships associated with specific stream and valley morphologies.
- Establishing guidelines for selecting stable stream types for a range of dimensions, patterns, and profiles that are in balance with the river's valley slope, valley confinement, depositional materials, streamflow, and sediment regime of the watershed.
- Providing a method for extrapolating hydraulic parameters and developing empirical relationships for use in the resistance equations and hydraulic geometry equations needed for restoration design.
- Developing a series of meander geometry relationships that are uniquely related to stream types and their bankfull dimensions.
- Identifying the stable characteristics for a given stream type by comparing the stable form to its unstable or disequilibrium condition.

Refer to *Applied River Morphology* (Rosgen, 1996) for more information on this stream classification system and potential applications.

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Scheduling Projects

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Often clearing and grading for a project can be scheduled during the time of year that the erosion potential of the site is relatively low. In many parts of the country, there is a certain period of the year when erosion potential is relatively low and construction scheduling could be very effective. For example, in the Pacific region if construction can be completed during the 6-month dry season (e.g., May 1 to October 31), temporary erosion and sediment controls might not be needed. In some parts of the country erosion potential is very high during certain parts of the year, such as the spring thaw in northern and high-elevation areas. During that time of year, snowmelt generates a constant runoff that can erode soil. In addition, construction vehicles can easily turn the soft, wet ground into mud, which is more easily washed off-site. Therefore, in the north, limitations could be placed on clearing and grading during the spring thaw (Goldman et al., 1986).

Additional Resource

- CASQA. 2004. *California Stormwater BMP Construction Handbook: Scheduling.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/EC-1.pdf.

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Sediment Basins/Rock Dams

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

An earthen or rock embankment that is located to capture sediment from runoff and retain it on the construction site.

Sediment basins, also known as silt basins, are engineered impoundment structures that allow sediment to settle out of the urban runoff. They are installed prior to full-scale grading and remain in place until the disturbed portions of the drainage area are fully stabilized. They are generally located at the low point of sites, away from construction traffic, where they will be able to trap sediment-laden runoff. Basin dewatering is achieved either through a single riser and drainage hole leading to a suitable outlet on the downstream side of the embankment or through the gravel of the rock dam. In both cases, water is released at a substantially slower rate than would be possible without the control structure.

The following are general specifications for sediment basin design criteria as presented in Schueler (1997):

- Provide 1,800 to 3,600 ft^3 of storage per contributing acre (a number of states, including Maryland, Pennsylvania, Georgia, and Delaware, recently increased the storage requirement to 3,600 ft^3 or more [CWP, 1997b]).
- Surface area equivalent to 1 percent of drainage area (optional, seldom required).
- Riser with spillway capacity of 0.2 $ft^3/s/ac$ of drainage area (peak discharge for 2-year storm with 1-foot freeboard).
- Length-to-width ratio of 2 or greater.
- Basin side slopes no steeper than 2:1 (h:v).
- Safety fencing, perforated riser, dewatering (optional, seldom required).

Sediment basins can be classified as either temporary or permanent structures, depending on the length of service of the structure. If they are designed to function for less than 36 months, they are classified as temporary; otherwise, they are considered permanent. Temporary sediment basins can also be converted into permanent runoff management ponds. When sediment basins are designed as permanent structures, they must meet all standards for wet ponds. It is important to note that even the best-designed sediment basin seldom exceeds 60 to 75 percent total suspended solids (TSS) removal, which should be considered when selecting a sediment control practice.

Basins are most commonly used at the outlets of diversions, channels, slope drains, or other runoff conveyances that discharge sediment-laden water.

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Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook*: *Sediment Basin.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/SE-2.pdf.

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sediment Basin.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.17_sediment_basin.pdf.

- Michigan Department of Environmental Quality. 1992. *SESC Training Manual*: *Sedimentation Basin*. Michigan Department of Environmental Quality, Lansing, MI. http://www.deq.state.mi.us/documents/deq-swq-nps-sb.pdf.

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Sediment Basin*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/sb.pdf.

Administrative Record Page No. 036213

Sediment Fences

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Silt fence, also known as filter fabric fence, is available in several mesh sizes from many manufacturers. Sediment is filtered out as runoff flows through the fabric. Such fences should be used only where there is sheet flow (no concentrated flow), and the maximum drainage area to the fence should be 0.5 acre or less per 100 feet of fence. To ensure sheet flow, a gravel collar or level spreader can be used upslope of the fence. Many types of fabrics are available commercially. The characteristics that determine a fence's effectiveness include filtration efficiency, permeability, tensile strength, tear strength, ultraviolet resistance, pH effects, and creep resistance. The longevity of silt fences depends heavily on proper installation and maintenance, however they typically last 6 to 12 months. CWP (1997d) identified several conditions that increase the effectiveness of silt fences:

- The length of the slope does not exceed 50 feet for slopes of 5 to 10 percent, 25 feet for slopes of 10 to 20 percent, or 15 feet for slopes greater than 20 percent.
- The silt fence is aligned parallel to the slope contours.
- Edges of the silt fence are curved uphill, which does not allow flow to bypass the fence.
- The contributing length to the fence is less than 100 feet.
- The fence has reinforcement if receiving concentrated flow.
- The fence was installed above an outlet pipe or weir.
- The fence is down slope of the exposed area and alignment considers construction traffic.
- Sediment is not allowed to accumulate behind the fence (increases capacity and decreases breach potential).
- Alignment of the silt fence mirrors the property line or limits of disturbance.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Straw Bale Barrier.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/SE-9.pdf.
- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sediment Barrier.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.16_sediment_barrier.pdf.
- Missouri Department of Natural Resources. 2006. *Protecting Water Quality, A Construction Site Water Quality Field Guide: Sediment Fence*. Missouri Department of Natural Resources. http://www.dnr.mo.gov/env/wpp/field-guide/fg05_06_sedimentcontrol.pdf.
- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Silt Fence*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/sf.pdf.

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Sediment Traps

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Sediment traps are small impoundments that allow sediment to settle out of runoff water. They are typically installed in a drainage way or other point of discharge from a disturbed area. Temporary diversions can be used to direct runoff to the sediment trap. Sediment traps are ideal for sites 1 acre and smaller and should not be used for areas greater than 5 acres. They typically have a useful life of approximately 18 to 24 months. A sediment trap should be designed to maximize surface area for infiltration and sediment settling. This design increases the effectiveness of the trap and decreases the likeliness of backup during and after periods of high runoff intensity. The approximate storage capacity of each trap should be at least 1,800 ft^3/acre of disturbed land draining into the trap (Smolen et al., 1988).

Additional Resources

- British Columbia Ministry of Agriculture, Food and Fisheries. 2004. *Constructed Ditch Fact Sheet: Sediment Traps.* No. 9. http://www.agf.gov.bc.ca/resmgmt/publist/600Series/641310-1.pdf.

- CASQA. 2003. *California Stormwater BMP Construction Handbook*: *Sediment Traps.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/SE-3.pdf.

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Sediment Trap*. Tennessee Department of Environment and Conservation, Nashville, TN. http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/st.pdf.

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Seeding

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Seeding establishes a vegetative cover on disturbed areas and is very effective in controlling soil erosion once a dense vegetative cover has been established. Seeding establishes permanent erosion control in a relatively short amount of time and has been shown to decrease solids load by 99 percent (CWP, 1997a). The three most common seeding methods are (1) broadcast seeding, in which seeds are scattered on the soil surface; (2) hydroseeding, in which seeds are sprayed on the surface of the soil with a slurry of water; and (3) drill seeding, in which a tractordrawn implement injects seeds into the soil surface. Broadcast seeding is most appropriate for small areas and for augmenting sparse and patchy grass covers. Hydroseeding is often used for large areas (in excess of 5,000 square feet) and is typically combined with tackifiers, fertilizers, and fiber mulch. Drill seeding is expensive and is cost-effective only on sites greater than 2 acres. For best results, bare soils should be seeded or otherwise stabilized within 15 calendar days after final grading. Denuded areas that are inactive and will be exposed to rain for 15 days or more can also be temporarily stabilized, usually by planting seeds and establishing vegetation during favorable seasons in areas where vegetation can be established. In very flat, nonsensitive areas with favorable soils, stabilization may involve simply seeding and fertilizing. The Soil Quality Institute (SQI, 2000) recommends that soils that have been compacted by grading should be broken up or tilled before vegetating.

To establish a vegetative cover, it is important to use seeds from adapted plant species and varieties that have a high germination capacity. Supplying essential plant nutrients, testing the soil for toxic materials, and applying an adequate amount of lime and fertilizer can overcome many unfavorable soil conditions and establish adequate vegetative cover. Specific information about seeds, various species, establishment techniques, and maintenance can be obtained from *Erosion Control & Conservation Plantings on Noncropland* (Landschoot, 1997) or a local Cooperative State Research, Education, and Extension Service[11] or Natural Resources Conservation Service[12] office.

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Hydroseeding.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Construction/EC-4.pdf.

- Wisconsin Department of Natural Resources. 2003. *Seeding for Construction Site Erosion Control.* Wisconsin Department of Natural Resources, Madison, WI. http://dnr.wi.gov/org/water/wm/nps/pdf/stormwater/techstds/erosion/Seeding%20For%20Construction%20Site%20Erosion%20Control%20_1059.pdf.

[11] http://www.csrees.usda.gov
[12] http://www.nrcs.usda.gov

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Selective Withdrawal

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Temperature control in reservoir releases depends on the volume of water storage in the reservoir, the timing of the release relative to storage time, and the level from which the water is withdrawn. Dams capable of selectively releasing waters of different temperatures can provide cooler or warmer water temperatures downstream at times that are critical for other instream resources, such as during periods of fish spawning and development of fry (Fontane et al., 1981; Hansen and Crumrine, 1991). Stratified reservoirs are operated to meet downstream temperature objectives such as to enhance a cold-water or warm-water fishery or to maintain preproject stream temperature conditions. Release temperature may also be important for irrigation (Fontane et al., 1981).

Multilevel intake devices in storage reservoirs allow selective withdrawal of water based on temperature and DO levels. These devices minimize the withdrawal of surface water high in blue-green algae, or of deep water enriched in iron and manganese. Care should be taken in the design of these systems not to position the multilevel intakes too far apart because this will increase the difficulty with which withdrawals can be controlled, making the discharge of poor-quality hypolimnetic water more likely (Howington, 1990; Johnson and LaBounty, 1988; Smith et al., 1987).

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Setbacks

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☑ Planning & regulatory

Where setbacks have been implemented to reduce the hazard of coastal land loss, they have also included requirements for the relocation of existing structures located within the designated setback area. Setbacks can also include restrictions on uses of waterfront areas that are not related to the construction of new buildings (Davis, 1987). Upland drainage from development should be directed away from bluffs and banks so as to avoid accelerating slope erosion.

In most cases, states have used the local unit of government to administer the program on either a mandatory or voluntary basis. This allows local government to retain control of its land use activities and to exceed the minimum state requirements if this is deemed desirable (NRC, 1990).

Technical standards for defining and delineating setbacks also vary from state to state. One approach is to establish setback requirements for any "high hazard area" eroding at greater than 1 foot per year. Another approach is to establish setback requirements along all erodible shores because even a small amount of erosion can threaten homes constructed too close to the streambank or shoreline. Several states have general setback requirements that, while not based on erosion hazards, have the effect of limiting construction near the streambank or shoreline.

The basis for variations in setback regulations between states seems to be based on several factors, including (NRC, 1990):

- The language of the law being enacted
- The geomorphology of the coast
- The result of discretionary decisions
- The years of protection afforded by the setback
- Other variables decided at the local level of government

From the perspective of controlling NPS pollution resulting from erosion of shorelines and streambanks, the use of setbacks has the immediate benefit of discouraging concentrated flows and other impacts of storm water runoff from new development in areas close to the streambank or shoreline. In particular, the concentration of storm water runoff can aggravate the erosion of shorelines and streambanks, leading to the formation of gullies, which are not easily repaired. Therefore, drainage of storm water from developed areas and development activities located along the shoreline should be directed inland to avoid accelerating slope erosion.

The most significant NPS benefits are provided by setbacks that not only include restrictions on new construction along the shore but also contain additional provisions aimed at preserving and protecting coastal features such as beaches, wetlands, and riparian forests. This approach

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promotes the natural infiltration of surface water runoff before it passes over the edge of the bank or bluff and flows directly into the coastal waterbody. Setbacks also help protect zones of naturally occurring vegetation growing along the shore. As discussed in the section on "bioengineering practices," the presence of undisturbed shoreline vegetation itself can help to control erosion by removing excess water from the bank and by anchoring the individual soil particles of the substrate.

Almost all states and territories with setback regulations have modified their original programs to improve effectiveness or correct unforeseen problems (NRC, 1990). Experiences have shown that procedures for updating or modifying the setback width need to be included in the regulations. For instance, application of a typical 30-year setback standard in an area whose rate of erosion is 2 feet per year results in the designation of a setback width of 60 feet. This width may not be sufficient to protect the beaches, wetlands, or riparian forests whose presence improves the ability of the streambank or shoreline to respond to severe wave and flood conditions, or to high levels of surface water runoff during extreme precipitation events. A setback standard based on the landward edge of streambank or shoreline vegetation is one alternative that has been considered (NRC, 1990; Davis, 1987).

From the standpoint of NPS pollution control, an approach that designates streambanks, shorelines, wetlands, beaches, or riparian forests as a special protective feature, allows no development on the feature, and measures the setback from the landward side of the feature is recommended (NRC, 1990). In some cases, provisions for soil bioengineering, marsh creation, beach nourishment, or engineering structures may also be appropriate since the special protective features within the designated setbacks can continue to be threatened by uncontrolled erosion of the shoreline or streambank. Finally, setback regulations should recognize that some special features of the streambank or shoreline will change position. For instance, beaches and wetlands can be expected to migrate landward if water levels continue to rise. Alternatives for managing these situations include flexible criteria for designating setbacks, vigorous maintenance of beaches and other special features within the setback area, and frequent monitoring of the rate of streambank or shoreline erosion and corresponding adjustment of the setback area.

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Shoreline Sensitivity Assessment

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☑ Planning & regulatory

Currently there are no complete, universal assessment methodologies that apply to all shorelines and assess erosion vulnerabilities in various types of lakes, reservoirs, estuaries, and coasts. The methods presented by NOAA and the U.S. Geological Survey (USGS) were originally developed for other purposes and are being applied for other shoreline assessments:

- Environmental Sensitivity Mapping
- USGS Coastal Classification (Coastal & Marine Geology Program)
- Coastal Vulnerability Index (CVI) (focus is on SLR—the "erosion" factor may be the only relevant factor in CVI)

Environmental Sensitivity Mapping

The Environmental Sensitivity Index (ESI) was originally created for NOAA to prioritize areas for environmental cleanup (mainly oil-spills), to assist spill-response coordinators in evaluating the potential impact of oil along a shoreline, and to facilitate the allocation of resources during and after a spill.

ESI maps are comprised of three general types of information (NOAA, 1997):

- Shoreline Classification—ranked according to a scale relating to sensitivity, natural persistence of oil, and ease of cleanup.
- Biological Resources—including oil-sensitive animals and rare plants as well as habitats that are used by oil-sensitive species or are themselves sensitive to oil spills, such as submersed aquatic vegetation and coral reefs.
- Human-Use Resources—specific areas that have added sensitivity and value because of their use, such as beaches, parks and marine sanctuaries, water intakes, and archaeological sites.

The standardized ESI shoreline guideline rankings include estuarine, lacustrine, riverine, and palustrine habitats (NOAA, 1997). The classification scheme is based on an understanding of the physical and biological character of the shoreline environment, not just the substrate type and grain size. Relationships among physical processes, substrate type, and associated biota produce specific geomorphic/ecologic shoreline types, sediment transport patterns, and predictable patterns in oil behavior and biological impact. The concepts relating natural factors to the relative sensitivity of coastline, mostly developed in the estuarine setting, were slightly modified for lakes and rivers. The sensitivity ranking is controlled by the following factors:

- Relative exposure to wave and tidal energy
- Shoreline slope

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- Substrate type (grain size, mobility, penetration and/or burial, and trafficability)
- Biological productivity and sensitivity

ESI maps have proven to have a long-term use, and they are excellent tools for studying shoreline change and its effects on the distribution and concentration of plants and animals living near the coast. Environmental sensitivity mapping is still evolving, and NOAA researchers are working with federal, state, and private industry partners to improve the ESI mapping system to extend beyond spill response.

USGS Coastal Classification (Coastal & Marine Geology Program)

The objective of the Coastal Classification Map is to determine the hazard vulnerability of an area. The coastal geomorphic classification scheme utilizes morphology and human modifications of the coast as the primary basis for hazard assessment. It emphasizes physical factors that influence erosion, overwash of sandy beaches and barrier islands, and landward sediment transport during storms along and across those features (USGS, 2004).

USGS National Assessment of Coastal Vulnerability to Sea-Level Rise

The USGS Coastal and Marine Geology Program's National Assessment, seeks to determine the relative risks due to future sea-level rise for the U.S. Atlantic, Pacific, and Gulf of Mexico coasts USGS, 2002). Through the use of a CVI, the relative risk that physical changes will occur as sea-level rises is quantified based on the following criteria: tidal range, wave height, coastal slope, shoreline change, geomorphology, and historical rate of relative sea-level rise. This approach combines a coastal system's susceptibility to change with its natural ability to adapt to changing environmental conditions, and yields a relative measure of the system's natural vulnerability to the effects of sea-level rise.

In 2001, USGS in partnership with the National Park Service (NPS) Geologic Resources Division, began conducting hazard assessments and creating map products to assist the NPS in managing vulnerable coastal resources. One of the most important and practical issues in coastal geology is determining the physical response of coastal environments to water-level changes.

Additional Resources

- NOAA. 1997. *Environmental Sensitivity Index Guidelines (Version 3)* Chapter 2. Seattle, WA. http://response.restoration.noaa.gov/book_shelf/876_chapter2.pdf.

- USGS. 2002. *Vulnerability of US National Parks to Sea-Level Rise and Coastal Change*. U.S. Geological Survey. http://pubs.usgs.gov/fs/fs095-02/fs095-02.html.

- USGS. 2004. *Coastal Classification Mapping Project*. U.S. Geological Survey, Coastal & Marine Geology Program. http://coastal.er.usgs.gov/coastal-classification/class.html.

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Site Fingerprinting

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Often areas of a construction site are unnecessarily cleared. The total amount of disturbed area can be reduced with site fingerprinting, which involves placing development in the most environmentally sound locations on the site and minimizing the size of disturbed area. With site fingerprinting, only those areas essential for completing construction activities are cleared. The remaining area is left undisturbed.

Fingerprinting places development away from environmentally sensitive areas (wetlands, steep slopes, etc.), areas for future open space and restoration, areas where trees are to be saved, and temporary and permanent vegetative buffer zones.

The proposed limits of land disturbance can be physically marked off to ensure that only the land area required for buildings, roads, and other infrastructure is cleared. Existing vegetation, especially vegetation on steep slopes, can be avoided.

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Sodding

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Sodding permanently stabilizes an area with a thick vegetative cover. Sodding provides immediate stabilization of an area and can be used in critical areas or where establishing permanent vegetation by seeding and mulching would be difficult. Sodding is also a preferred option when there is high erosion potential during the period of vegetative establishment from seeding. According to the Soil Quality Institute (SQI, 2000), soils that have been compacted by grading should be broken up or tilled before placing sod.

Additional Resources

- Barr Engineering Company. 2001. *Minnesota Urban Small Sites BMP Manual: Stormwater Best Management Practices for Cold Climates. Soil Erosion Control: Vegetative Methods.* Prepared for the Metropolitan Council by Barr Engineering Company, St. Paul, MN. http://www.metrocouncil.org/environment/Watershed/BMP/CH3_RPPSoilVeget.pdf.

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Sodding.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.6_sodding.pdf.

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Soil Protection

Unprotected stockpiles are very prone to erosion, and they must be protected. Small stockpiles can be covered with a tarp to prevent erosion. Large stockpiles can be stabilized by erosion blankets, seeding, or mulching.

Because of the high organic content of topsoil, it is not recommended for use as fill material or under pavement. After a site is cleared, the topsoil is typically removed. Since topsoil is essential to establish new vegetation, it should be stockpiled and then reapplied to the site for revegetation, if appropriate. Although topsoil salvaged from the existing site can often be used, it must meet certain standards, and topsoil might need to be imported onto the site if the existing topsoil is not adequate for establishing new vegetation.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Administrative Record Page No. 036224

Spill and Water Budgets

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Although often used together, spill and water budgets are independent methods of facilitating downstream fish migration. Spill budgets provide alternative methods for fish passage that are less dangerous than passage through turbines. Spillways are used to allow fish to leave the reservoir by passing over the dam rather than through the turbines. The spillways must be designed to ensure that hydraulic conditions do not induce injury to the passing fish from scraping and abrasion, turbulence, rapid pressure changes, or supersaturation of dissolved gases in water passing through plunge pools (Stone and Webster, 1986).

In the Columbia River basin (Pacific Northwest), the USACE provides spill on a limited basis to pass fish around specific dams to improve survival rates. At key dams, spill is used in special operations to protect hatchery releases or provide better passage conditions until bypass systems are fully developed or, in some cases, improved (van der Borg and Ferguson, 1989). The cost of this alternative depends on the volume of water lost for power production (Mattice, 1990). Analyses of this practice, using a USACE model called FISHPASS, historically has shown that application of spill budgets in the Columbia River basin is consistently the most costly and least efficient method of improving overall downstream migration efficiency (Dodge, 1989).

In 1995 the National Marine Fisheries Service (NMFS) released a draft biological opinion to save Columbia River Basin salmon. The opinion was issued after concluding that current operations of the hydropower system were jeopardizing Columbia Basin salmon. The opinion addresses safer passage for young fish through the dams and modification to a number of hydropower operations and facilities. It calls for using as much water as possible during fish-passage season to improve flow for fish moving through the system. Specifically the draft called for spilling water over dams to increase passage of juvenile salmon via non-turbine routes to at least 80 percent. The USACE now runs the Juvenile Fish Transportation Program in cooperation with NMFS (NOAA, 1995; USACE, 2002b).

Water budgets increase flows through dams during the out-migration of anadromous fish species. They are used to speed smolt migration through reservoirs and dams. Water normally released from the impoundment during the winter period to generate power is instead released in May or June, when it can be sold only as secondary energy. This concept has been used in some regions of the United States, although quantification of the overall benefits is lacking (Dodge, 1989).

The volume of a typical water budget is generally not adequate to sustain minimum desirable flows for fish passage during the entire migration period. The Columbia Basin Fish and Wildlife Authority has proposed replacement of the water budget on the Columbia River system with a minimum flow requirement to prevent problems of inadequate water volume in discharge during low-flow years (Muckleston, 1990).

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Spill Prevention and Control Program

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☑ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Spill procedure information can be posted, and persons trained in spill handling should be onsite or on call at all times. Materials for cleaning up spills can be kept onsite and easily available. Spills should be cleaned up immediately and the contaminated material properly disposed.

In general, a spill prevention, control, and countermeasure (SPCC) plan can include guidance to site personnel on:

- Proper notification when a spill occurs
- Site responsibility with respect to addressing the cleanup of a spill
- Stopping the source of a spill
- Cleaning up a spill
- Proper disposal of materials contaminated by the spill
- Location of spill response equipment programs
- Training program for designated on-site personnel

A periodic spill "fire drill" can be conducted to help train personnel on proper responses to spill events and to keep response actions fresh in the minds of personnel. It is important to maintain an adequate spill and cleaning kit, which could include the following:

- Detergent or soap, hand cleaner, and water
- Activated charcoal, adsorptive clay, vermiculite, kitty litter, sawdust, or other adsorptive materials
- Lime or bleach to neutralize pesticides or other spills in emergency situations
- Tools such as a shovel, broom, and dustpan and containers for disposal
- Proper protective clothing

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Spillway Modifications

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☑ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Spill at hydroelectric dams is routinely required during periods of high runoff when the river discharge exceeds what can be passed through the powerhouse turbines. In some cases, spill has been associated with gas supersaturation problems. The USACE has proposed several practices for solving the gas supersaturation problem. These include (1) passing more headwater storage through turbines, installing new fish bypass structures, and installing additional power units to reduce the need for spill; (2) incorporating "flip-lip" deflectors in spillway-stilling basins, transferring power generation to high-dissolved-gas-producing dams, and altering spill patterns at individual dams to minimize nitrogen mass entrainment; and (3) collecting and transporting juvenile salmonids around affected river reaches. Only a few of these practices have been implemented (Tanovan, 1987). As more attention is being paid to maintaining minimum flows in rivers for fish passage and spawning, mangers are balancing the need for spills with the potential impacts of gas supersaturation (Anderson, 2004; Anderson, 1995; DeHart, 2003; USFWS, 2001; Van Holmes and Anderson, 2004). For example, the U.S. Fish and Wildlife Service has routinely monitored gas supersaturation in reaches below Bonneville Dam (Columbia River, Oregon) to protect migrating salmon, many of which are endangered species (USFWS, 2001).

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Surface Roughening

Roughening is the scarifying of a bare sloped soil surface with horizontal grooves or benches running across the slope. Roughening aids the establishment of vegetative cover, improves water infiltration, and decreases runoff velocity.

Additional Resource

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Surface Roughening*. Tennessee Department of Environment and Conservation, Nashville, TN. http://www.state.tn.us/environment/wpc/sed_ero_controlhandbook/sr.pdf.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Toe Protection

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
- ☐ Vegetative
- ☑ Structural
- ☐ Integrated
- ☐ Planning & regulatory

A number of qualitative advantages are to be gained by providing toe protection for vertical bulkheads. Toe protection usually takes the form of a stone apron installed at the base of the vertical structure to reduce wave reflection and scour of bottom sediments during storms. The installation of rubble toe protection should include filter cloth and perhaps a bedding of small stone to reduce the possibility of rupture of the filter cloth. Ideally, the rubble should extend to an elevation such that waves will break on the rubble during storms.

Additional Resources

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Stone Toe Protection.* Massachusetts Department of Environmental Protection, Boston, MA. http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Stone%20Toe%20Protection.pdf.

- Wisconsin Department of Natural Resources. 2006. *Vegetated Armoring Erosion Control Methods.* http://dnr.wi.gov/org/water/fhp/waterway/erosioncontrol-vegetated.html.

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Training—ESC

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Provide education and training opportunities for designers, developers, and contractors. One of the most important factors determining whether ESCs will be properly installed and maintained on a construction site is the knowledge and experience of the contractor and onsite personnel. Many communities require certification for key on-site employees who are responsible for implementing the ESC plan. Certification can be accomplished through municipally sponsored training courses; more informally, municipalities can hold mandatory preconstruction or prewintering meetings and conduct regular and final inspection visits to transfer information to contractors (Brown and Caraco, 1997). Information that can be covered in training courses and meetings includes the importance of ESC for water quality protection; developing and implementing ESC plans; the importance of proper installation, regular inspection, and diligent maintenance of ESC practices; and record keeping for inspections and maintenance activities.

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Transference of Fish Runs

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☑ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Transference of fish runs involves inducing anadromous fish species to use different spawning grounds in the vicinity of an impoundment. To implement this practice, the nature and extent of the spawning grounds that were lost due to the blockage in the river need to be assessed, and suitable alternative spawning grounds need to be identified. The feasibility of successfully collecting the fish and transporting them to alternative tributaries also needs to be carefully determined.

One strategy for mitigating the impacts of diversions on fisheries is the use of ephemeral streams as conveyance channels for all or a portion of the diverted water. If flow releases are controlled and uninterrupted, a perennial stream is created, along with new instream and riparian habitat. However, the biota that had been adapted to preexisting conditions in the ephemeral stream will probably be eliminated.

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Tree Armoring, Fencing, and Retaining Walls or Tree Wells

Tree armoring protects tree trunks and natural vegetation from being damaged by construction equipment. Fencing can also protect tree trunks, but it should be placed at the tree's drip line so that construction equipment is kept away from the tree. A tree's drip line is the minimum area around the tree in which the tree's root system should not be disturbed by cut, fill, or soil compaction caused by heavy equipment. When cutting or filling must be done near a tree, a retaining wall or tree well can be used to minimize the cutting of the tree's roots or the quantity of fill placed over the tree's roots. It is recommended that cutting or filling be done only when absolutely necessary. Fill placement over the tree root flare or within the dripline will eventually kill the tree.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Tree Revetments

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Tree revetments consist of a row of interconnected trees anchored to the toe of the streambank or to the upper streambank (Figures 7.28 and 7.29). This serves to reduce flow velocities along eroding streambanks, trap sediment, and provide a substrate for plant establishment and erosion control. This design relies on the installation of an adequate anchoring system and is best suited for streambank heights under 12 feet and bankfull velocities under 6 feet per second. In addition, this structure should occupy no more than 15 percent of the channel at bankfull. Toe protection is needed to accompany this design if scour is anticipated and upper bank soil bioengineering techniques are recommended to ensure streamside regeneration. This design allows for the use of local materials if they are readily available. Decay resistant species are recommended for the logs to extend the life of the structure and thus the ability of vegetation to become established. Due to decomposition, these structures have a limited life and might require periodic replacement. It is considered beneficial that decomposition of the logs over time allows the streambank to return to a natural state with protection provided by mature streambank vegetation. There is a potential for the logs to dislodge, and these structures should not be located upstream of bridges or other structures sensitive to damage. Tree revetments are susceptible to damage by ice (FISRWG, 1998). Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

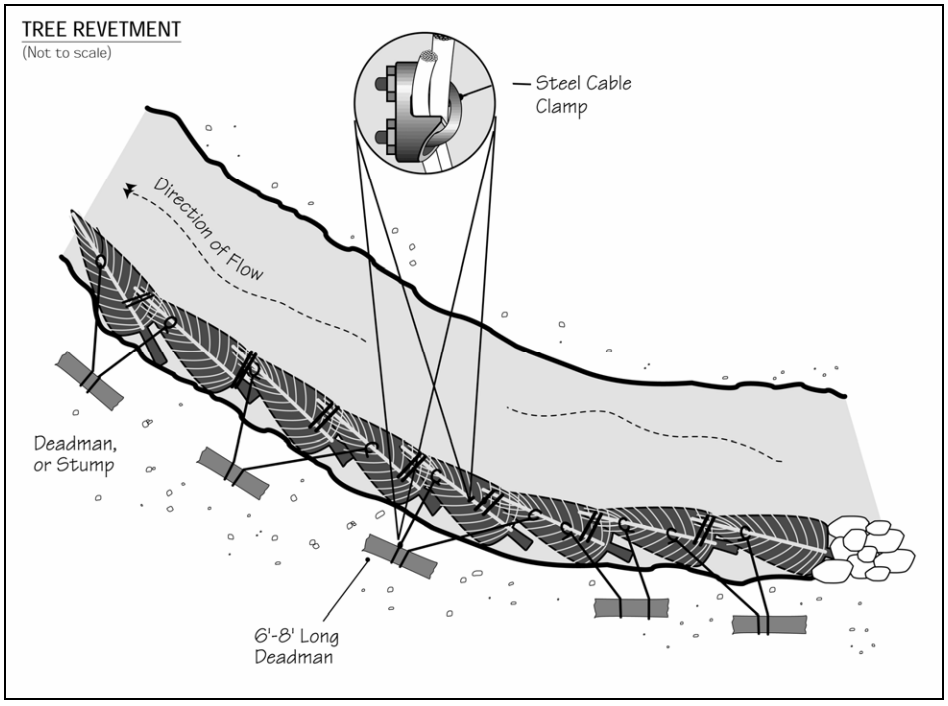

Figure 7.28 Tree Revetment (USDA-FS, 2002)

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Additional Resources

- Alaska Department of Fish and Game. 2005. *Spruce Tree Revetment.* http://www.sf.adfg.state.ak.us/sarr/restoration/techniques/images/csbs_strevet.pdf.

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- Goard, D. 2006. *Riparian Forest Best Management Practices: Tree Revetments.* Kansas State University, Manhattan, KS. http://www.oznet.ksu.edu/library/forst2/MF2750.pdf.

- Gough, S. 2004. *Tree Revetments for Streambank Revitalization.* Missouri Department of Conservation, Fisheries Division, Jefferson City, MO. http://mdc.mo.gov/fish/streams/revetmen/.

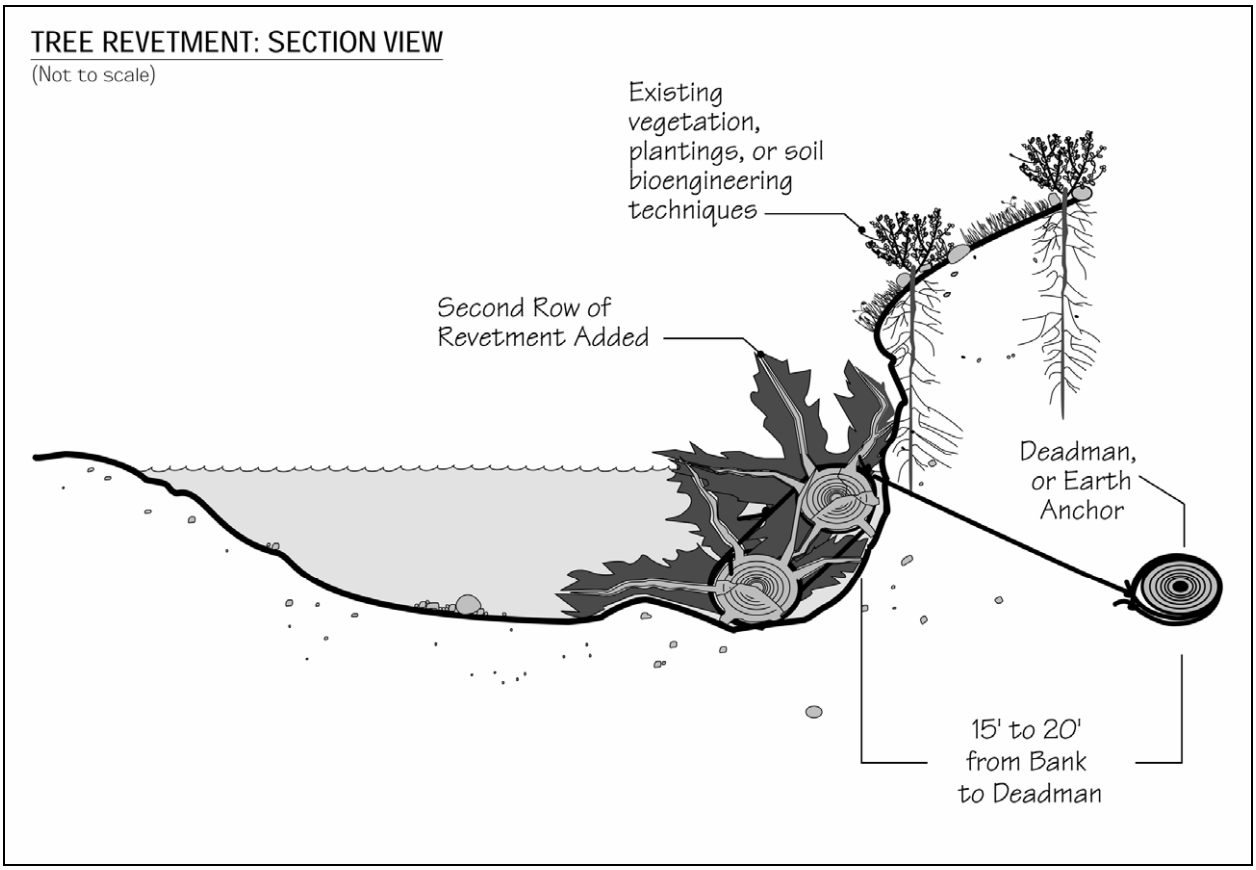

Figure 7.29 Tree Revetment: Section View (USDA-FS, 2002)

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Turbine Operation

Implementation of changes in the turbine start-up procedures can also enlarge the zone of withdrawal to include more of the epilimnetic waters in the downstream releases. Monitoring of the releases at the Walter F. George lock and dam (Chattahoochee River, Georgia), showed levels of DO declined sharply at the start-up of hydropower production. The severity and duration of the DO drop were found to be reduced by starting up all the generator units within a minute of each other (Findley and Day, 1987).

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Turbine Venting

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Turbine venting is the practice of injecting air into water as it passes through a turbine. If vents are provided inside the turbine chamber, the turbine will aspirate air from the atmosphere and mix it with water passing through the turbine as part of its normal operation. In early designs, the turbine was vented through existing openings, such as the draft tube opening or the vacuum breaker valve in the turbine assembly. Air forced by compressors into the draft tube opening enriched reservoir waters with little detectable DO to concentrations of 3 to 4 mg/L. Overriding the automatic closure of the vacuum breaker valve (at high turbine discharges) increased DO by only 2 mg/L (Harshbarger, 1987).

Turbine venting uses the low-pressure region just below the turbine wheel to aspirate air into the discharges (Wilhelms, 1984). Autoventing turbines are constructed with hub baffles, or deflector plates placed on the turbine hub upstream of the vent holes to enhance the low-pressure zone in the vicinity of the vent and thereby increase the amount of air aspirated through the venting system. Turbine efficiency relates to the amount of energy output from a turbine per unit of water passing through the turbine. Efficiency decreases as less power is produced for the same volume of water. In systems where the water is aerated before passing through the turbine, part of the water volume is displaced by the air, thus leading to decreased efficiency. Hub baffles have also been added to autoventing turbines at the Norris Dam (Clinch River, Tennessee) to further improve the DO levels in the turbine releases (Jones and March, 1991).

Developments in autoventing turbine technology show that it may be possible to aspirate air with no resulting decrease in turbine efficiency. In one test of an autoventing turbine at the Norris Dam, the turbine efficiency increased by 1.8 percent (March et al., 1991; Waldrop, 1992). Technologies like autoventing turbines are very site-specific and outcomes will vary considerably.

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Vegetated Buffers

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☑ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Like filter strips, vegetated buffers provide a physical separation between a construction site and a waterbody. The difference between a filter strip and a vegetated buffer area is that a filter strip is an engineered device, whereas a buffer is a naturally occurring filter system. Vegetated buffers remove nutrients and other pollutants from runoff, trap sediments, and shade the waterbody to optimize light and temperature conditions for aquatic plants and animals (Welsch, n.d.). Preservation of vegetation for a buffer can be planned before any site-disturbing activities begin so as to minimize the impact of construction activities on existing vegetation. Trees can be clearly marked at the dripline to preserve them and to protect them from ground disturbances around the base of the tree.

Proper maintenance of buffer vegetation is important. Maintenance requirements depend on the plant species chosen, soil types, and climatic conditions. Maintenance activities typically include fertilizing, liming, irrigating, pruning, controlling weeds and pests, and repairing protective markers (e.g., fluorescent fences and flags).

Additional Resources

- CASQA. 2003. *California Stormwater BMP Construction Handbook: Vegetated Buffer Strips.* California Stormwater Quality Association, Sacramento, CA. http://www.cabmphandbooks.com/Documents/Development/TC-31.pdf.

- Ohio DNR. No date. *Ohio Stream Management Guide: Forested Buffer Strips.* Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs13.htm.

- River Alliance of Wisconsin. No date. *Benefits of Vegetated Buffers.* River Alliance of Wisconsin, Madison, WI. http://www.wisconsinrivers.org/documents/policy/Fact%20Sheet%20-%20Benefits%20of%20Vegetated%20Buffers.pdf.

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Vegetative Practices*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/2.%20Vegetative%20Practices.pdf.

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Vegetated Filter Strips

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☑ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Vegetated filter strips are low-gradient vegetated areas that filter overland sheet flow. Runoff must be evenly distributed across the filter strip. Channelized flows decrease the effectiveness of filter strips. Level spreading devices are often used to distribute the runoff evenly across the strip (Dillaha et al., 1989).

Vegetated filter strips should have relatively low slopes and adequate length to provide optimal sediment control and should be planted with erosion-resistant plant species. The main factors that influence the removal efficiency are the vegetation type, soil infiltration rate, and flow depth and travel time. These factors are dependent on the contributing drainage area, slope of strip, degree and type of vegetative cover, and strip length. Maintenance requirements for vegetated filter strips include sediment removal and inspections to ensure that dense, vigorous vegetation is established and concentrated flows do not occur. For more information on vegetated filter strips, refer to EPA's *National Management Measures to Protect and Restore Wetlands and Riparian Areas for the Abatement of Nonpoint Source Pollution* (USEPA, 2005b).

Additional Resources

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Vegetative Filter Strip.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/2.8_veg_filter_strip.pdf.

- Leeds, R., L.C. Brown, M.R. Sulc, and L. VanLieshout. No date. *Vegetative Filter Strips: Application, Installation and Maintenance*. The Ohio State University, Food, Agriculture and Biological Engineering, Columbus, OH. http://ohioline.osu.edu/aex-fact/0467.html.

- USDA. 2003. *Grass Filter Strips.* U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.oh.nrcs.usda.gov/programs/Lake_Erie_Buffer/filter_strips.html.

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Vegetated Gabions

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☑ Integrated
  - ☐ Planning & regulatory

Vegetated gabions (Figure 7.30) start with wire-mesh, rectangular baskets filled with small to medium rock and soil. The baskets are then laced together to form a structural toe or sidewall. Live branches (0.5 to 1 inch in diameter) are then placed on each consecutive layer between the rock filled baskets to take root, join together the structure, and bind it to the slope. This method is effective for protecting steep slopes where scouring or undercutting is occurring. However, this method is not appropriate in streams with heavy bed load or where severe ice damage occurs. This method provides moderate structural support and should be placed at the base of a slope to stabilize the slope and reduce slope steepness. A stable foundation is required for the installation of these structures. When the rock size needed is not locally available, this design is effective because smaller rocks can be used. A limiting factor of this method is that it is expensive to install and to replace. These structures are relatively expensive to construct and frequently require costly repairs. This method should be combined with other soil bioengineering techniques, particularly revegetation efforts, to achieve a comprehensive streambank restoration design (FISRWG, 1998). There is often opposition to these structures based on their inability to blend in with natural settings and their general lack of aesthetically pleasing qualities (Gore, 1985).

Installation guidelines are available from the USDA NRCS *Engineering Field Handbook, Chapter 18* (USDA-NRCS, 1992). Under EMRRP, the USACE has presented research on vegetated gabions in a technical note (*Gabions for Streambank Erosion Control*).[13]

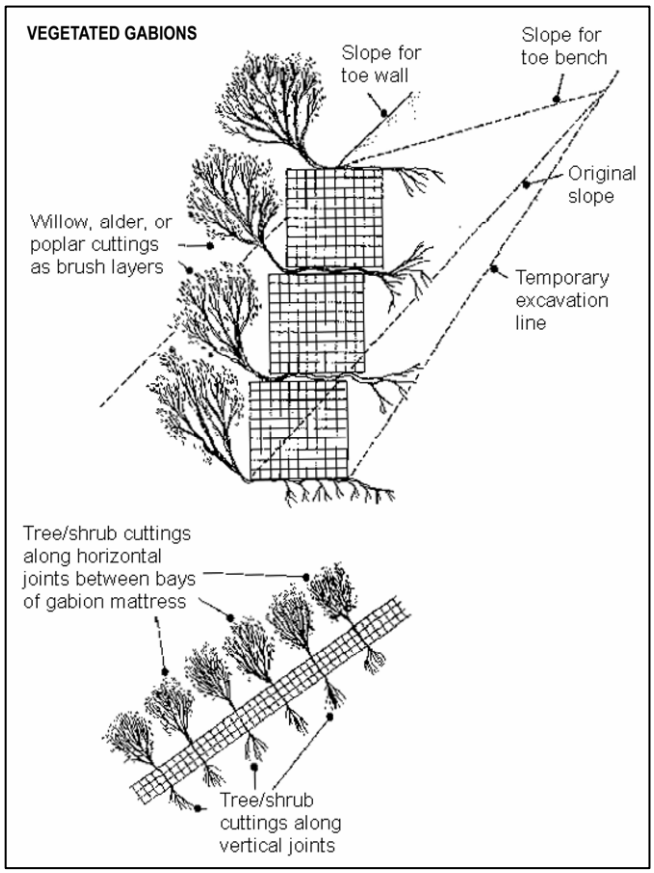

Figure 7.30 Vegetated Gabion (Allen and Leech, 1997)

[13] http://el.erdc.usace.army.mil/elpubs/pdf/sr22.pdf

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Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- ISU. 2006. *Iowa Construction Site Erosion Control Manual: Gabion.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/construction/3.8_gabion.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Vegetated Rock Gabions/Gabions.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/veg_rockgabions.pdf.

- MMG Civil Engineering Systems, Ltd. 2001. *Vegetated Gabions*. MMG Civil Engineering Systems, Ltd., St. Germans, Kings Lynn, Norfolk, England. http://www.verdantsolutions.ltd.uk/acrobat/vegsod.pdf.

- Ohio DNR. No date. *Ohio Stream Management Guide: Gabion Revetments.* Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs15.htm.

- Tennessee Department of Environment and Conservation. 2002. *Erosion and Sediment Control Handbook: Gabion*. Tennessee Department of Environment and Conservation, Nashville, TN. http://state.tn.us/environment/wpc/sed_ero_controlhandbook/ga.pdf.

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Vegetated Geogrids

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
- ☐ Vegetative
- ☐ Structural
- ☑ Integrated
- ☐ Planning & regulatory

Vegetated geogrids consist of layers of live branch cuttings and compacted soil with natural or synthetic geotextile materials wrapped around each soil layer (Figure 7.31). This serves to rebuild and vegetate eroded streambanks, particularly on outside bends where erosion can be a problem. This system is designed to capture sediment providing a substrate for plant establishment and if properly designed and installed, these systems help to quickly establish riparian vegetation. Its benefits are similar to those of brush layering (e.g., dries excessively wet sites, reinforces soil as roots develop, which adds significant resistance to sliding or shear displacement). Due to the strength of this design and the higher initial tolerance to flow velocity, these systems can be installed on a 1:1 or steeper streambank or lakeshore. Limitations of this design include the complexity involved with constructing this system and the fairly high expense (FISRWG, 1998). When constructing this type of system, use live branch cuttings that are brushy and root readily. Also use cuttings that are 0.5 to 2 inches in diameter and 4 to 6 feet long. This type of system requires biodegradable erosion control fabric. Installation guidelines are available from the USDA-FS Soil Bioengineering Guide (USDA-FS, 2002).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Vegetated Geogrids.* Massachusetts Department of Environmental Protection, Boston, MA. http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Vegetated%20Geogrids.pdf.

- ISU. 2006. *How to Control Streambank Erosion: Vegetated Geogrids.* Iowa State University. http://www.ctre.iastate.edu/erosion/manuals/streambank/vegetated_geogrids.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Vegetated Geogrids.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/vegegeogrids.pdf.

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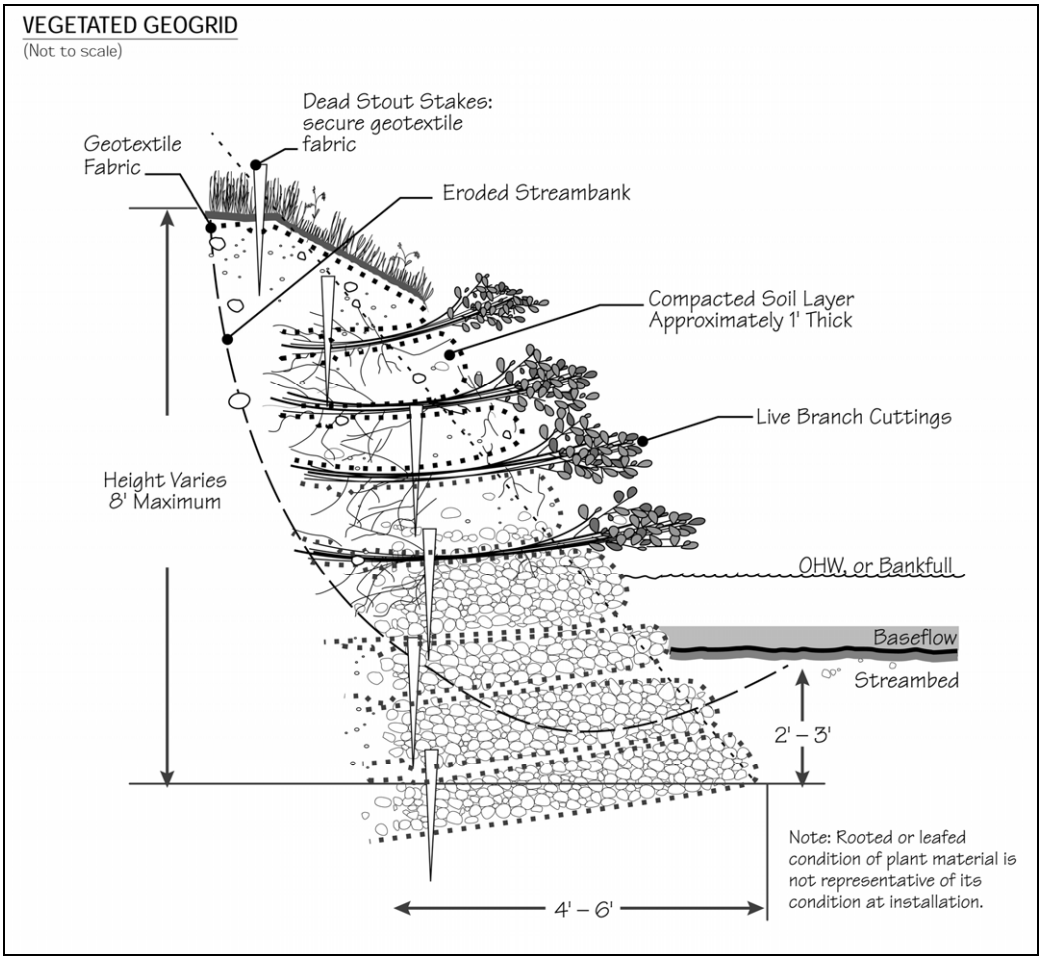

Figure 7.31 Vegetated Geogrid (USDA-FS, 2002)

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Vegetated Reinforced Soil Slope (VRSS)

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☑ Integrated
  - ☐ Planning & regulatory

The vegetated reinforced soil slope (VRSS) soil system (Figures 7.32 and 7.33) is an earthen structure constructed from living, rootable, live-cut, woody plant material branches, bare root, tubling or container plant stock, along with rock, geosynthetics, geogrids, and/or geocomposites. The VRSS system is useful for immediately repairing or preventing deeper failures, providing a structurally sound system with soil reinforcement, drainage, and erosion control (typically on steepened slope sites with limited space). Living cut branches and plants grow and perform additional soil reinforcement via the roots and surface protection via the top growth (Sotir and Fischenich, 2003).

Live vegetation is typically installed from just above baseflow elevation and up the face of the reconstructed streambank, acting to protect the bank through immediate soil reinforcement and confinement, drainage, and, in the toe area, with rock. The system extends below the depth of scour, typically with rock, which improves infiltration and supports the riparian zone. Internal systems (e.g., rock, live cut branches) can be configured to act as drains that redirect or collect internal bank seepage and transport water to the stream via a rock toe (Sotir and Fischenich, 2003).

Figure 7.32 VRSS Structure After Construction
(Sotir and Fischenich, 2003)

Plants may be selected to provide color, texture, and other attributes to add a natural landscape appearance. Examples of plants include dogwood, willow, hybiscus, and *Viburnum* spp. Check with your local NRCS office to make sure these are appropriate for the location. If a compound channel cross section is desirable near or just below the baseflow elevation, a step-back terrace may be incorporated to offer an enhanced riparian zone where emergent aquatic plants may invade over time. Although the total mass uptake may be small, they assimilate contaminants within the water column. Aquatic wetland plants that may be installed adjacent to the stream include blueflag, monkey flower, and pickerelweed. Again, check with your local NRCS office to ensure these are appropriate. VRSS systems can be constructed on slopes ranging from 1V on 2H (1:2) to 1:0.5. When constructed in step or terrace fashion, they improve pollutant control by intercepting sediment and attached pollutants during overbank flows (Sotir and Fischenich, 2003). Additional information about VRSS systems is available from USACE's *Vegetated Reinforced Soil Slope Streambank Erosion Control*.[14]

Figure 7.33 Established VRSS Structure (Sotir and Fischenich, 2003)

[14] http://el.erdc.usace.army.mil/elpubs/pdf/sr30.pdf

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Water Conveyances

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☑ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

These are the open or closed channel, conduit, or drop structure used to convey water from a reservoir. The USACE has studied the performance of spillways and overflow weirs at its facilities to determine the importance of these structures in improving DO levels. For example, data have been analyzed for the test spill done in 1999 at Canyon Ferry Dam in Montana, which found that allowing a portion of the releases to go over the spillways resulted in a significant increase in DO in the river downstream of the dam. Initially the use of spillways appeared to be a viable solution to the problem of low dissolved oxygen in the river below the dam. However, there was a problem with nitrogen supersaturation.

The operation of some types of hydraulic structures has been linked to problems of the supersaturation. An unexpected fish kill occurred in spring 1978 due to supersaturation of nitrogen gas in the Lake of the Ozarks (Missouri) within 5 miles of Truman Dam, caused by water plunging over the spillway and entraining air. The vertical drop between the spillway crest and the tailwaters was only 5 feet. The maximum total gas saturation was 143 percent, which is well above desired saturation levels. In this case, the spillway was modified by cutting a notch to prevent water from plunging directly into the stilling basin (ASCE, 1986).

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Wildflower Cover

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

Because of the hardy, drought-resistant nature of wildflowers, they may be more beneficial as an erosion control practice than turf grass. Though not as dense as turfgrass, wildflower thatches and associated grasses are expected to be as effective in erosion control and contaminant absorption. An additional benefit of wildflower thatches is that they provide habitat for wildlife, including insects and small mammals. Because thatches of wildflowers do not need fertilizers, pesticides, or herbicides and watering is minimal, implementation of this practice may result in cost savings.

A wildflower stand requires several years to become established, but maintenance requirements are minimal once established. Prices vary greatly, from less than $15 (Stock Seed Farms, n.d.) to $40 (Albright Seed Company, 2002) a pound, for wildflower seed mixes. The amount of wildflower seeds applied depends on the desired coverage of wildflowers. However, Stock Seed Farms recommends that one pound of seed can cover 3,500 ft^2 (Stock Seed Farms, n.d.). Keep in mind that species selection should focus on those wildflowers and grasses native to the given area or appropriate to the site.

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Wind Erosion Controls

Wind erosion controls limit the movement of dust from disturbed soil surfaces and include many different practices. Wind barriers block air currents and are effective in controlling soil blowing. Many different materials can be used as wind barriers, including solid board fences, snow fences, and bales of hay. Sprinkling moistens the soil surface with water and must be repeated as needed to be effective for preventing wind erosion (Delaware DNREC, 2003); however, applications must be monitored to prevent excessive runoff and erosion.

Channelization
- ☐ Physical & chemical
- ☐ Instream/riparian restoration

Dams
- ☑ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☐ Streambanks ☐ Shorelines
  - ☐ Vegetative
  - ☐ Structural
  - ☐ Integrated
  - ☐ Planning & regulatory

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Wing Deflectors

Channelization
- ☑ Physical & chemical
- ☑ Instream/riparian restoration

Dams
- ☐ Erosion control
- ☐ Runoff control
- ☐ Chemical/pollutant control
- ☐ Watershed protection
- ☐ Aerate reservoir water
- ☐ Improve tailwater oxygen
- ☐ Restore/maintain habitat
- ☐ Maintain fish passage

Erosion
- ☑ Streambanks ☑ Shorelines
- ☐ Vegetative
- ☑ Structural
- ☐ Integrated
- ☐ Planning & regulatory

Wing deflectors are structures that protrude from either streambank but do not extend entirely across a channel. The structures are designed to deflect flows away from the bank, and create scour pools by constricting the channel and accelerating flow. The structures can be installed in series on alternative streambanks to produce a meandering thalweg and stream diversity. The most common design is a rock and rock-filled log crib deflector structure. The design bases the size of the structure on anticipated scour. These structures need to be installed far enough downstream from riffle areas to avoid backwater effects that could drown out or damage the riffle. This design should be employed in streams with low physical habitat diversity, particularly channels that lack pool habitats. Construction on a sand bed stream may be susceptible to failure and should be constructed with the use a filter layer or geotextile fabric beneath the wing deflector structure (FISRWG, 1998).

Additional Resources

- FISRWG. 1998. *Stream Corridor Restoration: Principles, Processes, and Practices*. Federal Interagency Stream Restoration Working Group. http://www.nrcs.usda.gov/technical/stream_restoration/PDFFILES/APPENDIX.pdf.

- Massachusetts DEP. 2006. *Massachusetts Nonpoint Source Pollution Management Manual: Wing Deflectors.* Massachusetts Department of Environmental Protection, Boston, MA. http://projects.geosyntec.com/NPSManual/Fact%20Sheets/Wing%20Deflectors.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Single Wing Deflector.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://www.abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/singlewing.pdf.

- Mississippi State University, Center for Sustainable Design. 1999. *Water Related Best Management Practices in the Landscape: Double Wing Deflector.* Created for United States Department of Agriculture, Natural Resource Conservation Service, Watershed Science Institute. http://abe.msstate.edu/csd/NRCS-BMPs/pdf/streams/bank/doublewing.pdf.

- Ohio DNR. No date. *Ohio Stream Management Guide: Deflectors.* Ohio Department of Natural Resources. http://www.ohiodnr.com/water/pubs/fs_st/stfs19.pdf.

- SMRC. No date. *Stream Restoration: Flow Deflection/Concentration Practices.* The Stormwater Manager's Resource Center. http://www.stormwatercenter.net/Assorted%20Fact%20Sheets/Restoration/flow_deflection.htm.

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Chapter 8: Modeling Information

Physical and chemical effects of hydraulic and hydrologic changes to streams, rivers, or other surface water systems can often be estimated with models and past experience (expert judgment). Several different models are available that can simulate many of the complex physical, chemical, and biological interactions that occur when hydraulic changes are imposed on surface water systems. Additionally, models can sometimes be used to determine a combination of practices to mitigate the unavoidable effects that occur even when a project is properly planned. Models, however, cannot be used independently of expert judgment gained through past experience. When properly applied models are used in conjunction with expert judgment, the effects of hydromodification activities (both potential and existing projects) can be evaluated and many undesirable effects prevented or eliminated. Models combined with expert judgment can also be used to evaluate existing hydromodification activities as part of operation and maintenance programs to identify possible opportunities to reduce or eliminate water quality impacts.

In the U.S. Army Corps of Engineers' (USACE's) report, *Review of Watershed Water Quality Models*[1] (Deliman et al., 1999), the authors compare and evaluate existing hydrologic and watershed water quality models, make recommendations for base model(s) for predicting nonpoint source (NPS) pollution, and identify areas for model improvement. The authors review commonly used and well validated models used in urban or nonurban settings. Users of the models can use the report to obtain basic model information and to review how well the models simulate NPS pollution and where the authors think improvements could be made. This information might be useful to readers who are trying to select the best model for analyzing how to reduce NPS pollution in their watersheds (Deliman et al., 1999).

Tables 8.1 and 8.2 below provided example of models and assessment approaches that could be used to determine the effects of hydromodification activities.

[1] http://el.erdc.usace.army.mil/elpubs/pdf/trw99-1.pdf

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Available Models and Assessment Approaches

Table 8.1 lists some of the models available for studying the effects of channelization and channel modification activities, as well as models to analyze watershed runoff and to assess BMPs and low impact development to reduce impacts (of hydromodification activities.) The table also provides a quick description of each model and the dimension in which it models, as well as source and contact information.

Table 8.1 Models Applicable to Hydromodification Activities

Model	Dimension	Description	Model Resources
Channelization and Channel Modification Models			
BRANCH	1	The Branch-Network Dynamic Flow Model is used to simulate steady state flow in a single open channel reach or throughout a system of branches connected in a dendritic or looped pattern. The model is typically applied to assess flow and transport in upland rivers where flows are highly regulated or backwater effects are evident, or in coastal networks of open channels where flow and transport are governed by the interaction of freshwater inflows, tidal action, and meteorological conditions. (Last updated: 1997)	http://water.usgs.gov/cgi-bin/man_wrdapp?branch
CE-QUAL-RIV1	1	CE-QUAL-RIV1 is a one-dimensional (cross-sectionally averaged) hydrodynamic and water quality model, meaning that the model resolves longitudinal variations in hydraulic and quality characteristics and is applicable where lateral and vertical variations are small. CE-QUAL-RIV1 consists of two parts, a hydrodynamic code (RIV1H) and a water quality code (RIV1Q). The hydrodynamic code is applied first to predict water transport and its results are written to a file, which is then read by the quality model. It can be used to predict one-dimensional hydraulic and water quality variations in streams and rivers with highly unsteady flows, although it can also be used for prediction under steady flow conditions.	http://www.wes.army.mil/el/elmodels/riv1info.html

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Model	Dimension	Description	Model Resources
CE-QUAL-W2	2	CE-QUAL-W2 is a two-dimensional, laterally averaged, finite difference hydrodynamic and water quality model for rivers, reservoirs, and estuaries. Because the model assumes lateral homogeneity, it is best suited for relatively long and narrow waterbodies exhibiting longitudinal and vertical water quality gradients. Branched networks can be modeled. The model accommodates variable grid spacing (segment lengths and layer thicknesses) so that greater resolution in the grid can be specified where needed.	http://smig.usgs.gov/cgi-bin/SMIC/model_home_pages/model_home?selection=cequalw2 http://www.ce.pdx.edu/w2
CH3D-SED	1, 2, or 3	The CH3D numerical modeling system can be used to investigate sedimentation on bendways, crossings, and distributaries. Applications address dredging, channel evolution, and channel training structure evaluations.	http://chl.erdc.usace.army.mil/chl.aspx?p=s&a=Software;22
EFDC	1, 2, or 3	The Environmental Fluid Dynamics Code is a single source, three-dimensional, finite-difference modeling system having hydrodynamic, water quality-eutrophication, sediment transport and toxic contaminant transport components linked together.	John Hamrick developed this at the Virginia Institute of Marine Science 1990-1991. Dr. John Hamrick, Tetra Tech, Inc. 10306 Eaton Place, Suite 340 Fairfax, VA 22030
EFM	1	Ecosystem Functions Model (EFM) is a planning tool that analyzes ecosystem response to changes in flow regime. EFM allows environmental planners, biologists, and engineers to determine whether proposed alternatives (e.g., reservoir operations, levee alignments) would maintain, enhance, or diminish ecosystem health. Project teams can use EFM software to visualize existing ecologic conditions, highlight promising restoration sites, and assess and rank alternatives according to the relative enhancement (or decline) of ecosystem aspects. The hydraulic modeling portion of the EFM process is performed by existing independent software, such as HEC-RAS.	http://el.erdc.usace.army.mil/elpubs/pdf/smartnote04-4.pdf

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Model	Dimension	Description	Model Resources
FESWMS-2DH	2	FESWMS-2DH is a finite element surface water modeling system for two-dimensional flow in a horizontal plane. The model can simulate steady and unsteady surface water flow and is useful for simulating two-dimensional flow where complicated hydraulic conditions exist (e.g., highway crossings of streams and flood rivers). It can also be applied to many types of steady or unsteady flow problems. (Last updated: 1995)	http://water.usgs.gov/cgi-bin/man_wrdapp?feswms-2dh
HEC-6	1	HEC-6 is a one-dimensional, moveable boundary, open channel flow numeric model designed to simulate and predict changes in river profiles resulting from scour and deposition over moderate time periods, typically years. Latest revision occurred in 1993.	http://www.hec.usace.army.mil/software/legacysoftware/hec6/hec6.htm
HEC-HMS	1	The HEC-HMS model is designed to simulate the precipitation-runoff processes of dendritic watershed systems. It is applicable in a wide range of geographic areas for solving the widest possible range of problems, including large river basin water supply and flood hydrology, and small urban or natural watershed runoff. Hydrographs produced by the program are used directly or in conjunction with other software for studies of water availability, urban drainage, flow forecasting, future urbanization impact, reservoir spillway design, flood damage reduction, floodplain regulation, and systems operation.	http://www.hec.usace.army.mil/software/hec-hms/index.html http://el.erdc.usace.army.mil/elpubs/pdf/smartnote04-3.pdf

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Model	Dimension	Description	Model Resources
HEC-RAS	1	HEC-RAS is an integrated system of software, designed for interactive use in a multi-tasking, multi-user network environment. The system is comprised of a graphical interface (GUI), separate hydraulic analysis components, data storage and management capabilities, graphics and reporting facilities. The model performs one-dimensional steady flow, unsteady flow, and sediment transport calculations. The key element is that all three components will use a common geometric data representation and common geometric and hydraulic computation routines. In addition to the three hydraulic analysis components, the system contains several hydraulic design features that can be invoked once basic water surface profiles are computed. The HEC-RAS modeling system was developed as a part of the Hydrologic Engineering Center's "Next Generation" (NexGen) of hydrologic engineering software. The NexGen project encompasses several aspects of hydrologic engineering, including: rainfall-runoff analysis; river hydraulics; reservoir system simulation; flood damage analysis; and real-time river forecasting for reservoir operations.	http://www.hec.usace.army.mil/software/hec-ras
HIVEL2D	1, 2	HIVEL2D is a free-surface, depth averaged model designed specifically to simulate flow in typical high-velocity channels.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;6
RiverWare™	1	RiverWare™ is a reservoir and river modeling software decision support tool. With RiverWare™, users can model the topology, physical processes and operating policies of river and reservoir systems, and make better decisions about how to operate these systems by understanding and evaluating the trade-offs among the various management objectives. Water management professionals can improve their management of river and reservoir systems by using the software. The Bureau of Reclamation, the Tennessee Valley Authority, and the USACE sponsor ongoing RiverWare™ research and development.	http://cadswes.colorado.edu/riverware

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Model	Dimension	Description	Model Resources
SAM	1	The model calculates the width, depth, slope and n-values for stable channels in alluvial material. SAM can be used to evaluate erosion, entrainment, transportation, and deposition in alluvial streams. Channel stability can be evaluated, and the evaluation used to determine the cost of maintaining a constructed project. The model is currently being improved and enhanced at WES.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;2
SIAM	N/A	SIAM is a model designed to simulate the movement of sediment through a drainage network from source to outlet. It allows for evaluation of numerous sediment management alternatives relatively quickly. The model provides an intermediate level of analysis more quantitative than a conventional geomorphic evaluation, but less specific than a numerical, mobile-boundary simulation. SIAM is to be incorporated into a future release of HEC-RAS.	http://www.usbr.gov/pmts/sediment/model/srhsiam/index.html http://www.wes.army.mil/rsm/pubs/pdfs/RSM-2-WS04.pdf
SMS (RMA2 and RMA4)	1, 2	The Surface-Water Modeling System is a generalized numerical modeling system for open-channel flows, sedimentation, and constituent transport.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;4
TABS-MD (RMA2, RMA4, RMA10, SED2D)	1, 2, or 3	The multi-dimensional numerical modeling system is a collection of generalized computer programs and utility codes, designed for studying multidimensional hydrodynamics in rivers, reservoirs, bays, and estuaries. The models can be applied to study project impacts of flows, sedimentation, constituent transport, and salinity.	http://chl.erdc.usace.army.mil/CHL.aspx?p=s&a=Software;10
WASP	1, 2, or 3	Water Quality Analysis Simulation Program. Framework for modeling contaminant fate and transport in surface waters. The WASP framework can be used to model biochemical oxygen demand and dissolved oxygen dynamics, nutrients and eutrophication, bacterial contamination, and organic chemical and heavy metal contamination.	http://www.epa.gov/athens/wwqtsc/html/wasp.html

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Model	Dimension	Description	Model Resources
Models to Analyze Watershed Runoff and Assess Practices to Reduce Impacts of Hydromodification			
BMP Decision Support System (BMP-DSS)	1	BMP-DSS is a decision-making tool for placement of BMPs/LID practices at strategic locations in urban watersheds based on integrated data collection and hydrologic/hydraulic/water quality modeling. The system uses GIS technology, integrates BMP processes simulation models, and applies system optimization techniques for BMP placement and selection. The system also provides interfaces for BMP placement, BMP attribute data input, and decision optimization management. The system includes a stand-alone BMP simulation and evaluation module, which complements both research and regulatory nonpoint source control assessment efforts and allows flexibility in examining various BMP design alternatives.	Developed by the EPA and Prince George's County Department of Environmental Resources. Contact Dr. Mow-Soung Cheng at 301-883-5836 for more information.
HSPF	1	Hydrological Simulation Program—FORTRAN (HSPF) is a comprehensive package for simulation of watershed hydrology and water quality for both conventional and toxic organic pollutants. HSPF incorporates watershed-scale ARM and NPS models into a basin-scale analysis framework that includes fate and transport in one dimensional stream channels. It is the only comprehensive model of watershed hydrology and water quality that allows the integrated simulation of land and soil contaminant runoff processes with In-stream hydraulic and sediment-chemical interactions. The result of this simulation is a time history of the runoff flow rate, sediment load, and nutrient and pesticide concentrations, along with a time history of water quantity and quality at any point in a watershed. HSPF simulates three sediment types (sand, silt, and clay) in addition to a single organic chemical and transformation products of that chemical.	http://www.epa.gov/ceampubl/swater/hspf/index.htm

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Model	Dimension	Description	Model Resources
LSPC	1	LSPC is the Loading Simulation Program in C++, a watershed modeling system that includes streamlined Hydrologic Simulation Program Fortran (HSPF) algorithms for simulating hydrology, sediment, and general water quality on land as well as a simplified stream transport model. LSPC is derived from the Mining Data Analysis System (MDAS), which was developed by EPA Region 3 and has been widely used for mining applications and TMDLs. A key data management feature of this system is that it uses a Microsoft Access database to manage model data and weather text files for driving the simulation. The system also contains a module to assist in TMDL calculation and source allocations. For each model run, it automatically generates comprehensive text-file output by subwatershed for all land-layers, reaches, and simulated modules, which can be expressed on hourly or daily intervals. Output from LSPC has been linked to other model applications such as EFDC, WASP, and CE-QUAL-W2.	http://www.epa.gov/ATHENS/wwqtsc/html/lspc.html
Program for Predicting Polluting Particle Passage through Pits, Puddles, and Ponds—Urban Catchment Model (P8–UCM)	1	P8–UCM is a model for predicting the generation and transport of stormwater pollutants in urban watersheds. Continuous water balance and mass balance calculations are performed on a user-defined system consisting of watersheds, devices (runoff storage/treatment areas, BMPs), particle classes, and water quality components. Simulations are driven by continuous hourly rainfall and daily air temperature time series data. The model simulates pollutant transport and removal in a variety of treatment devices (BMPs).	http://wwwalker.net/p8

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Model	Dimension	Description	Model Resources
Storm Water Management Model (SWMM)	1	SWMM is a dynamic rainfall-runoff simulation model used for single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas. The runoff component of SWMM operates on a collection of subcatchment areas that receive precipitation and generate runoff and pollutant loads. The routing portion of SWMM transports this runoff through a system of pipes, channels, storage/treatment devices, pumps, and regulators. SWMM tracks the quantity and quality of runoff generated within each subcatchment, and the flow rate, flow depth, and quality of water in each pipe and channel during a simulation period comprised of multiple time steps.	http://www.epa.gov/ednnrmrl/models/swmm/index.htm

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Table 8.2 lists some of the available assessment models and approaches for assessing the biological impacts of channelization. The table also provides a quick description of the model or approach, as well as sources of additional information.

Table 8.2 Assessment Models and Approaches

Model or Assessment Approach	Description	Model Resources
Assessment Models		
AQUATOX	A freshwater ecosystem simulation model designed to predict the fate of various pollutants such as nutrients and organic toxicants and their effects on the ecosystem, including fish, invertebrates, and aquatic plants (including periphyton).	http://epa.gov/waterscience/models/aquatox
Cornell Mixing Zone Expert System (CORMIX)	A water quality modeling and decision support system designed for environmental impact assessment of mixing zones resulting from wastewater discharge from point sources. The system emphasizes the role of boundary interaction to predict plume geometry and dilution in relation to regulatory mixing zone requirements.	http://www.epa.gov/waterscience/models/cormix.html
HEC-HMS, Hydrologic Modeling System	A system designed to simulate the precipitation-runoff processes of dendritic watershed systems. In addition to unit hydrograph and hydrologic routing options, capabilities include a linear quasi-distributed runoff transform (ModClark) for use with gridded precipitation, continuous simulation with either a one-layer or more complex five-layer soil moisture method, and a versatile parameter estimation option.	http://www.hec.usace.army.mil/software/hec-hms/index.html
HEC-RAS, River Analysis System	The HEC-RAS system is used to calculate water surface profiles for both steady and unsteady gradually varied flow. The system can handle a full network of channels, a dendritic system, or a single river reach.	http://www.hec.usace.army.mil/software/hec-ras/hecras-hecras.html http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/Ras.html

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Model or Assessment Approach	Description	Model Resources
Physical Habitat Simulation Model (PHABSIM)	A set of computer programs designed to predict the microhabitat (depth, velocities, channel indices) conditions in rivers at different flow levels and the relative suitability of those conditions for different life stages of aquatic life. (Serves as the key microhabitat simulation component of IFIM.)	http://www.fort.usgs.gov/Products/Software/PHABSIM
Riverine Community Habitat Assessment and Restoration Concept (RCHARC)	A simulation approach using computer models to compare hydraulic conditions and microhabitats of a reference reach to alternative study reach(es).	Nestler, J., T. Schneider, and D. Latka. 1993. RCHARC: A new method for physical habitat analysis. *Engineering Hydrology*, 294-99.
RiverWare™	RiverWare™ is a reservoir and river modeling software decision support tool. With RiverWare™, users can model the topology, physical processes, and operating policies of river and reservoir systems, and make better decisions about how to operate these systems by understanding and evaluating the trade-offs among the various management objectives. Water management professionals can improve their management of river and reservoir systems by using the software. The Bureau of Reclamation, the Tennessee Valley Authority, and the Army Corps of Engineers sponsor ongoing RiverWare™ research and development.	http://cadswes.colorado.edu/riverware
Salmonid Population Model (SALMOD)	A computer model that simulates the dynamics (spawning, growth, movement, and mortality) of freshwater salmonid populations, both anadromous and resident, under various habitat quality and capacities.	http://www.fort.usgs.gov/Products/Software/SALMOD
Assessment Approaches		
A Procedure to Estimate the Response of Aquatic Systems to Changes in Phosphorus and Nitrogen Inputs	A simple tool to estimate the responsiveness of a waterbody to changes in the loading of phosphorus and nitrogen using a dichotomous key that classifies it according to key characteristics.	ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/aqusens.pdf

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Model or Assessment Approach	Description	Model Resources
EPA Volunteer Stream Monitoring Methods	A series of methods geared for volunteer monitoring programs offering simple to advanced techniques for monitoring macroinvertebrates, habitat, water quality, and physical conditions.	http://www.epa.gov/owow/monitoring/volunteer/stream
Habitat Evaluation Procedures/Habitat Suitability Index (HEP/HSI)	HEP is an evaluation method that determines the suitability of available habitat for select aquatic and terrestrial wildlife species and measures the impact of proposed land or water use changes on that habitat. HSI is a measure of habitat suitability.	http://policy.fws.gov/870fw1.html http://www.fort.usgs.gov/Products/Software/HEP http://www.fort.usgs.gov/Products/Software/HSI
Index of Biological Integrity (IBI)	An aquatic ecosystem health index using measures of total native fish species composition, indicator species composition, pollutant intolerant and tolerant species composition, and fish condition.	http://www.epa.gov/owow/wetlands/wqual/bio_fact/fact5.html
Indicators of Hydrologic Alteration (IHA)	A method for assessing the degree of hydrologic alteration attributable to human impacts within an ecosystem. The method takes daily stream flow values and calculates indices relating to the five components of flow regime critical for ecological processes: magnitude, frequency, duration, timing, and rate of change of hydrologic conditions.	http://www.nature.org/initiatives/freshwater/conservationtools/art17004.html
Instream Flow Incremental Methodology (IFIM)	A river network analysis that incorporates fish habitat, recreational opportunity, and woody vegetation responses to alternative water management schemes. Information is presented as a time series of flow and habitat at select points within the network.	http://www.fort.usgs.gov/Products/Software/IFIM
Invertebrate Community Index (ICI)	An invertebrate community health index using ten structural and compositional invertebrate community metrics including number of mayfly, caddisfly, and dipteran taxa.	http://www.epa.state.oh.us/dsw/bioassess/BioCriteriaProtAqLife.html

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Model or Assessment Approach	Description	Model Resources
(Modified) Index of Well-Being (IWB)	The IWB is a fish community health index using measures of fish species abundance and diversity estimates. The *modified* index of well being factors out 13 pollutant tolerant species of fish from certain calculations to prevent false high readings on polluted streams which have large populations of pollutant tolerant fish.	http://www.epa.state.oh.us/dsw/bioassess/BioCriteriaProtAqLife.html
Rapid Bioassessment Protocols (RBP)	A set of protocols that offer cost-effective techniques of varying complexity to characterize the biological integrity of streams and rivers using the collection and analysis of biological, physical, and chemical data. It focuses on periphyton, benthic macroinvertebrates, and fish assemblages, and on assessing the quality of the physical habitat.	http://www.epa.gov/owow/monitoring/rbp
Rapid Channel Assessment (RCA)	A reference stream/integrated ranking approach to evaluate the physical condition of a stream channel based on channel geometry, percent channel-bank scour, sediment size distribution and embeddedness, large wood debris, and thalweg profiles.	CWP. 1998. *Rapid Watershed Planning Handbook: A Comprehensive Guide for Managing Urbanizing Watersheds*. Center for Watershed Protection, Ellicott City, MD. For a copy contact: The Center for Watershed Protection, 8391 Main Street Ellicott City, MD 21043, email: center@cwp.org.
Rapid Stream Assessment Technique (RSAT)	A reference stream/integrated ranking approach to evaluate steam health based on chemical stability, channel scouring/sediment deposition, physical instream habitat, water quality, riparian habitat, and biological indicators.	CWP. 1998. *Rapid Watershed Planning Handbook: A Comprehensive Guide for Managing Urbanizing Watersheds*. Center for Watershed Protection, Ellicott City, MD. For a copy contact: The Center for Watershed Protection, 8391 Main Street Ellicott City, MD 21043, email: center@cwp.org. http://www.stormwatercenter.net
Rosgen's Stream Classification Method	A classification method that uses morphological stream characteristics to organize streams into relatively homogeneous stream types to predict stream behavior and to apply interpretive information.	Reference: Rosgen, D. 1996. *Applied River Morphology*. Wildland Hydrology, Pagosa Springs, CO. For a copy contact: Wildland Hydrology Books, 1481 Stevens Lake Road, Pagosa Springs, CO 81147.

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Model or Assessment Approach	Description	Model Resources
Stream Network/Stream Segment Temperature Models (SNTEMP/SSTEMP)	Developed to help predict the consequences of stream manipulation on water temperatures, these computer models simulate mean daily water temperatures for streams and rivers from data describing the stream's geometry, meteorology, and hydrology. SNTEMP is for a stream network with multiple tributaries for multiple time periods. SSTEMP is a scaled down version suitable for single (to a few) reaches and single (to a few) time periods.	http://www.fort.usgs.gov/Products/Software/SNTEMP
Stream Visual Assessment Protocol (SVAP)	A simple procedure to evaluate the condition of a stream based on visual characteristics. It also identifies opportunities to enhance biological value and conveys information on how streams function.	ftp://ftp.wcc.nrcs.usda.gov/downloads/wqam/svapfnl.pdf
Systems Impact Assessment Model (SIAM)	An integrated set of models used to aid the evaluation of water management alternatives, it address significant interrelationships among selected physical (temperature, microhabitat), chemical (dissolved oxygen, water temperature), and biological variables (young-of-year Chinook salmon production), and stream flow. Developed for the Klamath River in northern California.	http://www.fort.usgs.gov/Products/Software/SIAM
Time-Series Library (TSLIB)	A set of DOS-based computer programs to create monthly or daily habitat time-series and habitat-duration curves using the habitat-discharge relationship produced by PHABSIM. (Can serve as the hydraulic component of IFIM).	http://www.fort.usgs.gov/Products/Software/TSLIB
TR-20, Computer Program for Project Formulation Hydrology	A physically based watershed scale runoff event model that computes direct runoff and develops hydrographs resulting from any synthetic or natural rainstorm. Developed hydrographs are routed through stream and valley reaches as well as through reservoirs.	http://www.wsi.nrcs.usda.gov/products/W2Q/H&H/Tools_Models/WinTR20.html
TR-55, Urban Hydrology for Small Watersheds	Simplified procedures to calculate storm runoff volume, peak rate of discharge, hydrographs, and storage volumes required for floodwater reservoirs.	http://www.info.usda.gov/CED/ftp/CED/tr55.pdf

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Examples of Channel Modification Activities and Associated Models/Practices

Modeling for Impoundments

A low-complexity option for modeling impoundments is to use simple models like the Bathtub model to simulate the waterbody. Compared to more complex multi-dimensional models, which use multiple computational cells to estimate volumetric and contaminant fluxes between the cells, Bathtub-type models typically use a single cell. This single cell, while a simplification of the system, may be appropriate if the system is fully mixed in both the horizontal and vertical dimensions. This approach can also be economically developed using spreadsheets (such as Excel) to calculate the results. However, a Bathtub-type model has limited utility if the water body is stratified or if results are required at more than one location in the system.

Another example of a modeling tool that has the ability to simulate impoundments is CE-QUAL-W2, a two-dimensional hydrodynamic water quality model. CE-QUAL-W2 provides results for either a horizontal or cross-sectional, two-dimensional plane. Because the model assumes a vertically or horizontally-mixed environment, it is best suited for relatively long and narrow water bodies (rivers, lakes, reservoirs, and estuaries) that exhibit longitudinal or vertical water quality stratification. The water quality portion of CE-QUAL-W2 includes the major processes of eutrophication kinetics and a single algal compartment. The bottom sediment compartment stores settled particles, releases nutrients to the water column, and exerts sediment oxygen demand based on user-supplied fluxes; a full sediment diagenesis (i.e., the process of chemical and physical change in deposited sediment during its conversion to rock) model is under development.

The Environmental Fluid Dynamics Code (EFDC) is a general-purpose modeling package for simulating one- or multi-dimensional flow, transport, and bio-geochemical processes in surface water systems including rivers, lakes, estuaries, reservoirs, wetlands, and coastal regions. The EFDC model was originally developed by Hamrick in 1992 at the Virginia Institute of Marine Science for estuarine and coastal applications and is considered public domain software. This model is now EPA-supported as a component of EPA Region 2's PRVI BASINS software system and EPA's TMDL Toolbox,[2] and has been used extensively to support TMDL development throughout the country. In addition to hydrodynamic, salinity, and temperature transport simulation capabilities, EFDC is capable of simulating cohesive and non-cohesive sediment transport, near field and far field discharge dilution from multiple sources, eutrophication processes, the transport and fate of toxic contaminants in the water and sediment phases, and the transport and fate of various life stages of finfish and shellfish.

Modeling for Estuary Tidal Flow Restrictions

Artificial hydraulic structures have the ability to alter natural flow patterns (hydrodynamic) in an estuary, which may modify erosion patterns, salinity regimes, and the fate and transport of pollutants. Some examples of artificial hydraulic structures include culverts, bridges, tide gates,

[2] http://www.epa.gov/athens/wwqtsc/html/efdc.html

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and weir structures. Installation or removal of these structures may cause a significant change in local hydrodynamics, and tools may be used to estimate the impacts prior to the modification.

The EFDC model, as described above, allows modelers to evaluate the impacts of hydraulic structures, such as culverts, bridges, tide gates, and weirs. Due to the flexibility of EFDC, each of these structures can also be conceptually represented in a variety of ways. For example, the weir equation can be applied to locations in the modeling grid to estimate water surface-dependent flow through one or more grid cells. This enables a modeler to evaluate the effect of placement of structures that modify surface flow patterns (such as a weir). Structures such as piers and impermeable barriers (e.g. jetties, breakwaters) can also be simulated using this code.

Another modeling tool that can address estuary tidal flow restrictions is the Finite Element Surface Water Modeling System (FESWMS) model. This modeling code was developed by the Federal Highway Administration (FHA) and is distributed by the U.S Geological Survey (USGS). FESWMS is a hydrodynamic modeling code that simulates two-dimensional, depth-integrated, steady or unsteady surface-water flows. It supports both super and subcritical flow analysis, and area wetting and drying. FESWMS is also suited for modeling regions involving flow control structures, such as are encountered at the intersection of roadways and waterways. Specifically, the FESWMS model allows the user to include weirs, culverts, drop inlets, and bridge piers into a standard two-dimensional finite element model. FESWMS does not have three-dimensional capabilities.

Modeling for Estuary Flow Regime Alterations

A number of structures or processes can alter the flow regime of a system. Flow contributions to an estuary can be altered by upstream rediversions or basin transfers, dams and dam releases, or other channel modifications. For example, when freshwater flows patterns are altered by the presence and operation of a dam, EFDC can be used to model the impact to downstream estuaries. EFDC can provide modelers with a time series representation of flow that is withdrawn from a simulated reservoir/dam system. Coupling the time series flow projections with hydrodynamic analysis of the receiving esturay enables modelers to determine potential impacts of altered flow patterms and to evaluate various spill options for the dam operation. Structures within the estuary that may alter the flow patterns include marinas, piers, jetties, and other similar type structures. Flow regime alterations due to these structures can be simulated using the same modeling tools described in the Flow Restrictions section above. Flow restrictions are the cause of most changes in the flow regime, so the simulation of the causes of restriction using a process-based modeling tool produces the desired flow alterations. Therefore, EFDC and FESWMS can be utilized in the same manner to obtain flow regime results.

Temperature Restoration Practices

Several computer models that predict instream water temperature are currently available. These models vary in the complexity of detail with which site characteristics, including meteorology, hydrology, stream geometry, and riparian vegetation, are described. The U.S. Fish and Wildlife Service developed an instream surface water temperature model (Theurer et al., 1984) to predict mean daily temperature and diurnal fluctuations in surface water temperatures throughout a stream system. The model, Stream Network Temperature Model (SNTEMP), can be applied to any size watershed or river system. This predictive model uses either historical or synthetic

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hydrological, meteorological, and stream geometry characteristics to describe the ambient conditions. The purpose of the model is to predict the longitudinal temperature and its temporal variations. The instream surface water temperature model has been used satisfactorily to evaluate the impacts of riparian vegetation, reservoir releases, and stream withdrawal and returns on surface water temperature. In the Upper Colorado River Basin, the model was used to study the impact of temperature on endangered species (Theurer et al., 1982). It also has been used in smaller ungauged watersheds to study the impacts of riparian vegetation on salmonid habitat.[3]

The Stream Segment Temperature Model (SSTEMP) is a much-scaled down version of the SNTEMP model developed by the USGS Biological Resource Division. Unlike the large network model (SNTEMP), this program only handles single stream segments for a single time period (e.g., month, week, day) for any given "run." Initially designed as a training tool, SSTEMP may be used satisfactorily for a variety of simple cases that one might face on a day-to-day basis. It is especially useful to perform sensitivity and uncertainty analysis. The model predicts minimum 24-hour temperatures, mean 24-hour temperatures, and maximum 24-hour stream temperatures for a given day, as well as a variety of intermediate values. The SSTEMP model identifies current stream and/or watershed characteristics that control stream temperatures. The model also quantifies the maximum loading capacity of the stream to meet water quality standards for temperature. This model is important for estimating the effect of changing controls or factors (such as riparian grazing, stream channel alteration, and reduced streamflow) on stream temperature. The model can also be used to help identify possible implementation activities to improve stream temperature by targeting those factors causing impairment to the stream. Good input data and an awareness of the model's assumptions are critical to obtaining reliable predictions. SSTEMP may be used to evaluate alternative reservoir release proposals, analyze the effects of changing riparian shade or the physical features of a stream, and examine the effects of different withdrawals and returns on instream temperature.[4]

Selecting Appropriate Models

Although a wide range of adequate hydrodynamic and surface water quality models are available, the central issue in selecting appropriate models for evaluating hydromodification projects is the appropriate match of the financial and geographical scale of the proposed project with the cost required to perform a credible technical evaluation of the projected environmental impact. It is highly unlikely, for example, that a proposal for a relatively small stream channel modification project, such as installing culverts in a stream segment, would be expected or required to contain a state-of-the-art hydrodynamic and surface water quality analysis that requires one or more person-years of effort. In such projects, a simplified, desktop approach (e.g., HEC-RAS Model) requiring less time and money would most likely be sufficient (USACE, 2002a). In contrast, substantial technical assessment of the long-term environmental impacts would be expected for channelization proposed as part of construction of a major harbor facility or as part of a system of navigation and flood control locks and dams. The assessment should

[3] For more information or to download SNTEMP, see the U.S. Geological Survey Web site: http://www.fort.usgs.gov/Products/Software/SNTEMP.

[4] More information about the model is available on the U.S. Geological Survey Web site: http://www.mesc.usgs.gov/products/software/default.asp (navigate to Stream Network Temperature Model and Stream Segment Temperature Model).

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incorporate the use of detailed 2D or 3D hydrodynamic models coupled with sediment transport and surface water quality models.

In general, six criteria can be used to review available models for potential application in a given hydromodification project:

1. Time and resources available for model application
2. Ease of application
3. Availability of documentation
4. Applicability of modeled processes and constituents to project objectives and concerns
5. Hydrodynamic modeling capabilities
6. Demonstrated applicability to size and type of project

The Center for Exposure Assessment Modeling (CEAM),[5] EPA Environmental Research Laboratory, Athens, Georgia, provides continual support for several hydrodynamic and surface water quality models, such as HSCTM2D, HSPF, PRZM3, and SED3D. Another source of information and technical support is the Waterways Experiment Station, USACE, Vicksburg, Mississippi.[6] Although a number of available models are in the public domain, costs associated with setting up and operating these models may exceed the project's available resources. For a simple to moderately difficult application, the approximate level of effort varies, but could range from 1 to 12 person-months.

Several factors need to be considered in the application of mathematical models to predict impacts from hydromodification projects including:

- Variations and uncertainties in the accuracy of these models when they are applied to the short- and long-term response of natural systems.
- Availability of relevant information (data collection) to derive the simulations and validate the modeling results.

The cost of a given modeling project depends on a number of factors. Questions need to be asked prior to the start of a modeling project to determine the purpose and future use of the model, and/or its results. For example, the modeler needs to know if the model results are to be used deterministically (the model assumes there is only one possible result that is known for each alternative course or action), or if the model is to be used for a heuristic (involving or serving as an aid to learning, discovery, or problem-solving by experimental and especially trial-and-error methods) scoping exercise to identify data gaps in a system. In a deterministic study, the results are traditionally compared to observed data in an effort regarded as calibration and validation. The model must therefore be rigorous enough to represent the system accurately. The complexity of the system under study is also a consideration that must be made prior to the project. The complexity of the system generally correlates well with the level of complexity of the model required to simulate it. Likewise, the more complex the model is, the more intensive it is to develop and run, and the more costly the modeling project is.

[5] http://www.epa.gov/ceampubl
[6] http://www.erdc.usace.army.mil

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A number of approaches are available to model a given system, and the discussion above only highlights a few of the modeling tools currently available. The cost to set up a model for a given system varies tremendously, based not only on the modeling code selected, but also on what the modeler decides to simulate. For example, a modeler may aim to obtain flow results for an estuary using a given model. In reality, surface winds in that estuary may or may not be influencing the flow regime. If observed wind data is available from a weather station nearby, the modeler may choose to incorporate these data into the model to better represent that influence. The modeler may also choose not to incorporate these data, or the data may not be available. Although the modeler is utilizing the same modeling code, the decision regarding whether or not to simulate the wind conditions is not only a question regarding the model's purpose, but also what the development of this model will cost.

Modeling tools can range from simple spreadsheet tools using "back of the envelope" type calculations, to complex processed based models that must be run on high performance computing systems. As discussed previously, the tool selected for a given modeling project needs to be chosen with a number of questions in mind. As a result, each system can be modeled in a number of different ways with a number of different modeling codes. Therefore, the range in cost for even a single estuary or impoundment may range tenfold depending on the model's purpose. Typically, the cost of developing a model may range from a few thousand dollars for a simple spreadsheet model, to in excess of one million dollars for a more robust modeling system.

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Chapter 9: Dam Removal Requirements, Process, and Techniques

Chapter 2 provided a discussion of specific impacts from dams, water quality above and below the dam, suspended sediment and recharge issues, and biological and habitat impacts. Chapter 4 then provided a discussion of types of dams, Federal Energy Regulatory Commission (FERC) requirements, management measures and practices that can be used to mitigate for some of the effects of dams, and information to consider when contemplating removing a dam. Chapter 9 focuses on what occurs after the decision has been made to remove a dam. This chapter provides a more detailed discussion on some permitting requirements for removing dams, the dam removal process, and sediment removal techniques to consider when removing a dam.

Requirements for Removing Dams

Removing a dam may require evaluations and permits from state, federal, and local authorities. These requirements are typically to ensure that the removal is done is a manner that is safe and minimizes short and long term impacts to the river and floodplain. States and local governments have different requirements. The following federal requirements may apply to dam removal:

- Rivers and Harbors Act Permit
- FERC License Surrender or Non-power License Approval
- National Environmental Policy Act (NEPA) Review
- Federal Consultations (Endangered Species Act Section 7 Consultation, Magnuson-Stevenson Act Consultation, National Historic Preservation Act Compliance)
- State Certifications (Water Quality Certification, Coastal Zone Management Act Certification)

The following state requirements might apply to dam removal:

- Clean Water Act (CWA) Section 404 Dredge and Fill Permit
- Waterway Development Permits
- Dam Safety Permits
- State Environmental Policy Act Review
- Historic Preservation Review
- Resetting the Floodplain
- State Certifications

Demolition and building permits may also be required for dam removal. Individual state and local governments may have additional requirements as well.

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Tips for a Successful Permitting Process (American Rivers, 2002b)

Dam removal is relatively new and the permitting process can be difficult. Most state and federal agencies are not yet practiced at moving dam removal through the permitting process. The relevant permitting requirements were designed for more destructive activities, and dam removal does not easily fit into the requirements. Tips to help make the process smoother include:

Schedule Time

- *Expect dam removal projects to take longer than construction efforts.*
- *Schedule more lead-time into the permitting process to avoid delays and frustrations.*

Establish a Relationship with the Permitting Agencies

- *Hold a pre-application meeting with key agency staff once your project is well thought out.*
- *Do not attempt to circumvent the process and stick with the permitting timeline.*
- *Do not provide inconsistent information.*
- *A single point of contact for the group applying for the permit will help avoid confusion and maintain communication.*

Providing Information about the Proposed Project

- *Create clear and simple descriptions and drawings (to scale) of the proposed project.*
- *Be sure to identify complicating conditions, schedules, seasonal constraints, etc.*
- *Provide and discuss alternatives, but make it clear why the chosen approach should be used.*
- *Assume the reviewers know nothing about your project.*

Dam Removal Process

The complexity of the removal process of a dam is specific to each particular case of removal. There are two major components of the removal process: the stakeholders involved in the decision-making process of removing the dam and the actual physical removal of the dam itself. The authorities that govern dams are numerous, yet overlapping. These entities include: USACE, Bureau of Reclamation, FERC, and other federal agencies; interest groups; and state and local governments. There are also various state programs that have been created to keep dams safe and environmentally friendly, as well as to help owners finance dam removal. A study by the Aspen Institute (2002) provides a list of priority issues to consider when dam removal may be a possibility. Among the considerations listed are dam and public safety, economics, environmental concerns, risk, social values and community interests, scientific information, and stakeholder participation. This report suggests that success of dam removal is dependent upon a thorough analysis of these competing factors and input from all interested parties (Aspen Institute, 2002). Often, the dam owner makes the decision to remove a dam, deciding that the costs of continuing operation and maintenance are greater than the cost of removing the dam. However, state dam safety offices can order for a dam to be removed if there are safety concerns; FERC can order removal of dams under their jurisdiction for environmental and safety reasons (American Rivers, n.d.a.).

State governments have authority over the dams in their jurisdiction. Other state and local government agencies dealing with issues such as water quality, water rights, and fish and wildlife protection can also play a role in overseeing dams within their jurisdiction if they so choose

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(FOE et al., 1999). Certain states have implemented stringent rules for dams that are and are not regulated by FERC or USACE. For example, the state of Wisconsin has a Dam Safety Inspection Program that requires dams to be inspected every 10 years by the Wisconsin Department of Natural Resources (WDNR) (Doyle et al., 2000). Any dam that fails to meet safety requirements set by WDNR must be repaired or removed. The state of Pennsylvania has implemented a law that was written under the order of the Pennsylvania Fish and Boat Commission that states that any newly constructed or existing dam that requires a state permit for construction or modification must also include provisions for fish passage (Doyle et al., 2000).

Some states have programs that aid dam owners in the process of removing their structures. The Pennsylvania Department of Environmental Protection (DEP) has adopted procedures to make it easier and less expensive for dam owners to remove unsafe, unused, or unwanted dams. In this process, owners of dams on third order or larger streams are contacted and asked if they are interested in removing their dams. If they are, then all the landowners affected by the removal are contacted, and a public meeting is held if interest warrants one. After public comments, an engineering design is created, followed by an environmental assessment, then sediment and erosion control (ESC) plans are established, and finally approval is sought by the USACE. This program was used in the removal of seven dams on Conestoga River and also in the removal of the Williamsburg Station Dam on the Juniata River. This approval process takes between 12 and 18 weeks (FOE et al., 1999). However, the physical decommissioning and removing of a dam can still be a lengthy and diversified process.

Sediment Removal Techniques

Large dams can trap thousands to millions of cubic yards of sediment over time, eliminating the flood control or storage capacity of the dam. Removal or control of sediment behind a dam can represent a large portion of the cost and planning effort of a dam removal project. There are several methods available to project planners and dam owners that target different pollution concerns and budgetary limitations (International Rivers Network, 2003). The options in terms of sediment removal range from complete removal and relocation of all accumulated material from the inundated regions; removing sediment only from the anticipated channel of the river, or allowing the river to erode a new channel through the sediment (Wunderlich et al., 1994).

If the sediment is basically clean and the main concern is turbidity and clogging downstream streambed spawning areas, gradual incremental drawdowns of the reservoir behind the dam allow the sediment to be transported downstream in smaller portions and avoids the release one large, lethal volume of sediment. If contaminated sediment is the main concern, dredging is an option that can be used. While the use of silt curtains can minimize turbidity during dredging, silt curtains do not contain dissolved substances such as metals, which can pose a threat to downstream ecosystems (EMC2, 2001). Another option for contaminated sediments is to stabilize the sediment in place within the stream. This can be accomplished by leaving a portion of the dam in place to hold back an area of sediment that is of concern. The strategic placement of boulders can also contain the sediment from moving downstream.

For more information on issues associated with dam removal, see the Additional Resources section of this document.

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Additional Resources

The following are additional resources that may be used to obtain supplementary information for topics presented in this document.

Background on Streams, Restoration, and Hydrology

The following are basic references regarding stream ecology, restoration, and hydrology:

Allan, J.D. 1995. *Stream Ecology—Structure and Function of Running Waters*. Chapman and Hall, New York.

Brookes, A. and F.D. Shields, eds. 1999. *River Channel Restoration: Guiding Principles for Sustainable Projects*. John Wiley and Sons, Chichester, U.K.

Cooke, G.D., E.B. Welch, S.A. Peterson, and P.R. Newroth. 1993. *Restoration and Management of Lakes and Reservoirs*. 2nd ed. Lewis Publishers, Boca Raton, FL.

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Gordon, N.D., T.A. McMahon, and B.L. Finlayson. 1992. *Stream Hydrology: An Introduction for Ecologists*. John Wiley and Sons, Chichester, U.K.

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Poff, N., J.D. Allan, M.B. Bain, J.R. Karr, K.L. Prestegaard, B.D. Richter, R.E. Sparks, and J.C. Stromberg. 1997. The natural flow regime: A paradigm for river conservation and restoration. *BioScience* 47:769-784.

Ponce, V.M. 1989. *Engineering Hydrology: Principles and Practices*. Prentice-Hall, Englewood Cliffs, New Jersey.

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USEPA. 1995. *Ecological Restoration: A Tool to Manage Stream Quality*. EPA 841-F-95-007, U.S. Environmental Protection Agency, Office of Wetlands, Oceans, and Watersheds, Washington, DC. http://www.epa.gov/owow/nps/Ecology.

Detailed Information for Practices to Achieve Management Measures

Additional information about practices, their effectiveness, limitations, and cost estimates are available from a number of sources, including:

Allen, H.H. and J.R. Leech. 1997. *Bioengineering for Streambank Erosion Control: Report 1 Guidelines*. U.S. Army Corps of Engineers, Environmental Impact Research Program, Technical Report EL-97-8. http://el.erdc.usace.army.mil/elpubs/pdf/trel97-8.pdf.

American Society of Civil Engineers and the U.S. Environmental Protection Agency (ASCE and USEPA). 2007. *International Stormwater Best Management Practices (BMPs) Database*. http://www.bmpdatabase.org.

Center for Watershed Protection (CWP). 2007. *The Stormwater Manager's Resource Center*. http://www.stormwatercenter.net.

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Fischenich, J. C. and H. Allen. 2000. *Stream Management*. ERDC/EL SR-W-00-1, U.S. Army Engineer Research and Development Center, Vicksburg, MS. http://el.erdc.usace.army.mil/elpubs/pdf/srw00-1/srw00-1.pdf. Accessed October 2004.

Knutson, P.L., and M.R. Inskeep. 1982. *Shore Erosion Control with Salt Marsh Vegetation*. Coastal Engineering Technical Aid No. 82-3. U.S. Army Corps of Engineers Coastal Engineering Research Center, Vicksburg, MS.

National Association of Home Builders (NAHB). 1995. *Storm Water Runoff & Nonpoint Source Pollution Control Guide for Builders and Developers*. National Association of Home Builders, Washington, DC. http://www.nahbrc.org.

Oregon Association of Conservation Districts. 1999. *Protecting Streambanks from Erosion: Tips for Small Acreages in Oregon*. http://www.or.nrcs.usda.gov/news/factsheets/fs4.pdf.

Urban Drainage and Flood Control District. 1999. *Urban Storm Drainage Criteria Manual: Volume 3—Best Management Practices*. Urban Drainage and Flood Control District, Denver, CO. http://www.udfcd.org.

U.S. Army Corps of Engineers (USACE). 2007. *Engineer Research and Development Center (ERDC) Web site*. http://www.erdc.usace.army.mil.

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U.S. Department of Agriculture, Forest Service (USDA-FS). 2002. *A Soil Bioengineering Guide for Streambank and Lakeshore Stabilization*. http://www.fs.fed.us/publications/soil-bio-guide.

U.S. Environmental Protection Agency (USEPA). 2002. *Development Document for Proposed Effluent Guidelines and Standards for the Construction and Development Category*. EPA-821-R-02-007. http://www.epa.gov/waterscience/guide/construction/devdoc.htm.

U.S. Environmental Protection Agency (USEPA). 2007. *National Menu of Stormwater Best Management Practices*. http://cfpub.epa.gov/npdes/stormwater/menuofbmps/menu.cfm.

Additional information about hydromodification, soil bioengineering, and restoration is available from the following:

- *Ann Riley, Urban Stream Restoration: A Video Tour of Ecological Restoration Techniques* (http://www.noltemedia.com/nm/urbanstream): This video, which can be ordered online, is a documentary tour of six urban stream restoration sites. It provides background information on funding, community involvement, and the history and principles of restoration. The demonstration includes examples of stream restoration in very urbanized areas, re-creating stream shapes and meanders, creek daylighting, soil bioengineering, and ecological flood control projects. Ann Riley, a nationally known hydrologist, stream restoration professional, and executive director of the Waterways Restoration Institute in Berkley, California, leads the tour.

- *California Forest Stewardship Program*. Bioengineering to Control Streambank Erosion (http://ceres.ca.gov/foreststeward/html/bioengineering.html): This fact sheet discusses various bioengineering techniques applicable to California streams.

- *Lower American River Corridor River Management Plan* (http://www.safca.com): The plan provides information on aquatic habitat management goals, including restoration to improve aquatic habitat impaired by low flows from channel modification of the Lower American River.

- *Natural Resources Conservation Service, Watershed Technology Electronic Catalog* (http://www.wcc.nrcs.usda.gov/wtec/wtec.html): This online catalog is a source of technical guidance on a variety of restoration techniques and management practices, to provide direction for watershed managers and restoration practitioners. The site is focused on providing images and conceptual diagrams.

- *North Delta Improvements Project* (http://ndelta.water.ca.gov/index.html): The North Delta Improvements Project (NDIP), which is under the California Department of Water Resources, presents unique opportunities for synergy in achieving flood control and ecosystem restoration goals.

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- *Ohio Department of Natural Resources*. Stream Management Guide Fact Sheets (http://www.dnr.state.oh.us/water/pubs/fs_st/streamfs.htm): This is a compilation of fact sheets offering technical guidance for streambank and instream practices, general stream management, and stream processes.

- *Sacramento River Riparian Habitat Program* (http://www.sacramentoriver.ca.gov): The Sacramento River Riparian Habitat Program is working to ensure that riparian habitat management along the river addresses the dynamics of the riparian ecosystem and the reality of the local agricultural economy.

- Schueler, T. 1987. *Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs*. Metropolitan Washington Council of Governments, Washington, DC.

- *South Delta Improvements Program* (http://baydeltaoffice.water.ca.gov/sdb/sdip/index_sdip.cfm): The purpose of the South Delta Improvements Program (SDIP) is to incrementally maximize diversion capability into Clifton Court Forebay, while providing an adequate water supply for diverters within the South Delta Water Agency and reducing the effects of State Water Project exports on both aquatic resources and direct losses of fish in the South Delta.

- *South Sacramento County Streams Project* (http://www.spk.usace.army.mil): South Sacramento County Streams Project provides flood damage reduction to the urban areas of the Morrison Creek and Beach Stone Lake drainage basins in the southern area of Sacramento, as well as around the Sacramento Regional Waste Water Treatment Plant. The project will fund stream restoration in southern Sacramento County.

- *USDA Natural Resources Conservation Service, Stream Visual Assessment Protocol* (http://www.nrcs.usda.gov/technical/ECS/aquatic/svapfnl.pdf): This document outlines methods for field conservationists and landowners to evaluate stream ecological conditions.

- *Washington State Department of Transportation, Soil Bioengineering Web site* (http://www.wsdot.wa.gov/eesc/design/roadside/sb.htm): This is a comprehensive Web site, with information on cost, specifications for project design, funding, and case studies.

- *WATERSHEDSS:Water, Soil and Hydro-Environmental Decision Support System* (http://www.water.ncsu.edu/watershedss): The "Educational Component" of this Web site contains fact sheets with information on a variety of techniques for management practices, including soil bioengineering and structural streambank stabilization.

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Resources for Dams

Thornton, K.W., B.L. Kimmel, and F.E. Payne, eds. 1990. *Reservoir Limnology: Ecological Perspectives*. John Wiley and Sons, Inc., New York, NY.

U.S. Army Corps of Engineers. No date. *The WES Handbook on Water Quality Enhancement Techniques for Reservoirs and Tailwaters*. U.S. Army Engineer Research and Development Center Waterways Experiment Station, Vicksburg, MS.

Web sites for dam removal include the following:

- American Rivers' Rivers Unplugged Program: http://www.americanrivers.org/site/PageServer?pagename=AMR_content_1270
- Association of State Dam Safety Officials: http://www.damsafety.org
- Friends of the Earth's River Restoration: http://www.foe.org/camps/reg/nw/river/index.html
- International River Network's River Revival Program: http://www.irn.org/revival/decom
- Massachusetts Department of Fisheries, Wildlife, and Environmental Law Enforcement River Restore Program: http://www.mass.gov/dfwele/river/programs/riverrestore/riverrestore.htm
- National Performance of Dams Program Stanford University: http://www.stanford.edu/group/strgeo/researchcenters.html
- New Hampshire Department of Environmental Services: http://www.des.state.nh.us/dam.htm
- Pennsylvania Department of Environmental Protection, Division of Dam Safety, Dam Safety Program: http://www.dep.state.pa.us/dep/deputate/watermgt/we/damprogram/Main.htm
- Pennsylvania Fish & Boat Commission: http://www.fish.state.pa.us
- River Recovery—Restoring Rivers through Dam Decommissioning: http://www.recovery.bcit.ca/index.html
- United States Society on Dams: http://www.ussdams.org
- Wisconsin Department of Natural Resources: http://www.dnr.state.wi.us/org/water/wm/dsfm/dams/removal.html

Additional information about dam removal is available from the following resources:

- ASCE. 1997. *Guidelines for the Retirement of Hydroelectric Facilities*. American Society of Civil Engineers.
- Bednarek, A.T. 2001. Undamming rivers: A review of the ecological impacts of dam removal. *Environmental Management* 27(6):803-814.
- Bioscience. 2002. Dam removal and river restoration: Linking scientific, socioeconomic, and legal perspectives. Summer (special issue).
- Born, S.M., et al. 1998. Socioeconomic and institutional dimensions of dam removals: The Wisconsin experience. *Environmental Management* 22(3):359-370.

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- Hart, D.D. and N.L. Poff. 2002. A special section on dam removal and river restoration. *BioScience* 52:653-655.
- Heinz Center. 2002. *Dam Removal: Science and Decision Making*. Available at: http://www.heinzctr.org/Programs/SOCW/dam_removal.htm.
- International Rivers Network: http://www.irn.org/pubs/wrr.
- Niemi, G.J., et al. 1990. Overview of case studies on recovery of aquatic systems from disturbance. *Environmental Management* 14(5):571-587.
- United States Society on Dams Publications: http://www.ussdams.org/pubs.html.
- University of Wisconsin-Madison/Extension. 1996. *The Removal of Small Dams: An Institutional Analysis of the Wisconsin Experience*. Extension Report 96-1, May. Department of Urban and Regional Planning.
- Wisconsin Department of Natural Resources Projects: http://www.dnr.state.wi.us/org/gmu/sidebar/iem/lowerwis/index.htm#baraboo or http://www.dnr.state.wi.us/org/gmu/lowerwis/baraboo.htm; http://www.dnr.state.wi.us/org/gmu/sidebar/iem/milw/index.htm; http://www.dnr.state.wi.us/org/gmu/sidebar/iem/superior/index.htm; http://www.dnr.state.wi.us/org/gmu/sidebar/iem/sheboygan/index.htm

Noneroding Roadways

The following sources may be used to obtain additional information on noneroding roadways:

- *Controlling Nonpoint Source Runoff Pollution from Roads, Highways, and Bridges* http://www.epa.gov/owow/nps/roads.html
- *Erosion, Sediment, and Runoff Control for Roads and Highways* http://www.epa.gov/owow/nps/education/runoff.html
- *Gravel Roads: Maintenance and Design Manual*—the purpose of the manual is to provide clear and helpful information for doing a better job of maintaining gravel roads. The manual is designed for the benefit of elected officials, mangers, and grader operators who are responsible for designing and maintaining gravel roads. http://www.epa.gov/owow/nps/gravelroads
- *Low-Volume Roads Engineering Best Management Practices Field Guide* http://zietlow.com/manual/gk1/web.doc
- *Massachusetts Unpaved Roads BMP Manual* http://berkshireplanning.org/4/download/dirt_roads.pdf
- *Planning Considerations for Roads, Highways, and Bridges* http://www.epa.gov/owow/nps/education/planroad.html
- *Pollution Control Programs for Roads, Highways, and Bridges* http://www.epa.gov/owow/nps/education/control.html
- *Recommended Practices Manual: A Guideline for Maintenance and Service of Unpaved Roads* http://www.epa.gov/owow/nps/unpavedroads.html
- The "Road Maintenance Video Set" is a five-part video series developed for USDA Forest Service equipment operators that focuses on environmentally sensitive ways of maintaining low volume roads. http://www.epa.gov/owow/nps/maint_videoset.html

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Additional Information

Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. *Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish*, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C. http://www.epa.gov/owow/monitoring/rbp/ Accessed July 2007.

International Commission on Large Dams
http://www.icold-cigb.org

International Rivers Network
http://www.irn.org

U.S. Army Corps of Engineers, Engineer Research and Development Center
http://www.erdc.usace.army.mil

U.S. Department of Agriculture, Farm Service Agency
http://www.fsa.usda.gov/pas

U.S. Department of Agriculture, Natural Resources Conservation Service
http://www.nrcs.usda.gov

U.S. Department of the Interior, Bureau of Reclamation
http://www.usbr.gov

U.S. Department of the Interior, National Park Service
http://www.nps.gov

U.S. Department of the Interior, U.S. Fish and Wildlife Service
http://www.fws.gov

U.S. Department of the Interior, U.S. Geological Survey
http://www.usgs.gov

USEPA. 1994. *A State and Local Government Guide to Environmental Program Funding Alternatives*. EPA 841-K-94-001. http://www.epa.gov/owow/nps/MMGI/funding.html

USEPA. 1994. *A Tribal Guide to the Section 319(h) Nonpoint Source Grant Program*. EPA 841-S-94-003.

USEPA. 1994. *Section 319 Success Stories: Volume I*. EPA 841-S-94-004.
http://www.epa.gov/owow/nps/Success319

USEPA. *Catalog of Federal Funding Sources for Watershed Protection*
http://cfpub.epa.gov/fedfund

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USEPA. 1997. *Section 319 Success Stories: Volume II—Highlights of State and Tribal Nonpoint Source Programs*. EPA 841-R-97-001.
http://www.epa.gov/owow/nps/Section319II

USEPA. 2002. *Section 319 Success Stories: Volume III*.
http://www.epa.gov/owow/nps/Section319III

USEPA Clean Lakes Program
http://www.epa.gov/owow/lakes/cllkspgm.html

USEPA Environmental Finance Information Network (EFIN)
http://www.epa.gov/efinpage/efin.htm

USEPA Nonpoint Source Pollution Control Program Homepage
http://www.epa.gov/OWOW/NPS

USEPA Surf Your Watershed
http://www.epa.gov/surf

USEPA Watershed Academy
http://www.epa.gov/owow/watershed/wacademy

Watershedss, (Water, Soil, and HydroEnvironmental Decision Support System)—North Carolina State University
http://www.water.ncsu.edu/watershedss

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Appendix A
U.S. Environmental Protection Agency Contacts

This appendix provides wetlands contacts, nonpoint source regional contacts, and Clean Water State Revolving Fund Contacts.

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U.S. Environmental Protection Agency Contacts

EPA is grouped into 10 Regions. For questions about a particular state, contact the appropriate EPA Regional Coordinator listed below.

EPA Region	Wetland Contact	Nonpoint Source Regional Coordinators	Clean Water State Revolving Fund Regional Coordinators
Region 1: CT, MA, ME, NH, RI, VT http://www.epa.gov/region01/	U.S. EPA-Region 1 Wetlands Protection Unit One Congress Street Boston, MA 02114-2023 http://www.epa.gov/region01/topics/ecosystems/wetlands.html	U.S. EPA-Region 1 Nonpoint Source Coordinator One Congress Street, Boston, MA 02114-2023 http://www.epa.gov/region01/topics/water/npsources.html	U.S. EPA-Region 1 SRF Program Contact One Congress Street Boston, MA 02114-2023 http://www.epa.gov/ne/cwsrf/index.html
Region 2: NJ, NY, PR, VI http://www.epa.gov/Region2	U.S. EPA-Region 2 Water Programs Branch Wetlands Section 290 Broadway New York, NY 10007-1866 http://www.epa.gov/region02/water/wetlands/	U.S. EPA-Region 2 Water Programs Branch Nonpoint Source Coordinator 290 Broadway New York, NY 10007-1866 http://www.epa.gov/region02/water/npspage.htm	U.S. EPA-Region 2 Water Programs Branch SRF Program Contact 290 Broadway New York, NY 10007-1866 http://www.epa.gov/Region2/water/wpb/staterev.htm
Region 3: DC, DE, MD, PA, VA, WV http://www.epa.gov/region03	U.S. EPA-Region 3 Wetlands Protection Section 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3esd1/hydricsoils/index.htm	U.S. EPA-Region 3 Nonpoint Source Coordinator 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3wapd/nps/	U.S. EPA-Region 3 Construction Grants Branch SRF Program Contact 1650 Arch Street (3WP12) Philadelphia, PA 19103 http://www.epa.gov/reg3wapd/srf/index.htm
Region 4: AL, FL, GA, KY, MS, NC, SC, TN http://www.epa.gov/region4/	U.S. EPA-Region 4 Wetlands Section 61 Forsyth Street, SW Atlanta, GA 30303 http://www.epa.gov/region4/water/wetlands/	U.S. EPA-Region 4 Nonpoint Source Coordinator 61 Forsyth Street, SW Atlanta, GA 30303 http://www.epa.gov/region4/water/nps/	U.S. EPA-Region 4 Surface Water Permits & Facilities SRF Program Contact 61 Forsyth St. Atlanta GA, 30303 http://www.epa.gov/Region4/water/gtas/grantprograms.html
Region 5: IL, IN, MI, MN, OH, WI http://www.epa.gov/region5/	U.S. EPA-Region 5 Watersheds and Wetlands Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/water/wshednps/topic_wetlands.htm	U.S. EPA-Region 5 Nonpoint Source Coordinator Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/water/wshednps/topic_nps.htm	U.S. EPA-Region 5 SRF Program Contact Water Division (W-15J) 77 West Jackson Blvd. Chicago, IL 60604 http://www.epa.gov/region5/business/fs-cwsrf.htm

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EPA Region	Wetland Contact	Nonpoint Source Regional Coordinators	Clean Water State Revolving Fund Regional Coordinators
Region 6: AR, LA, NM, OK, TX http://www.epa.gov/region6	U.S. EPA-Region 6 Marine and Wetlands Section 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/region6/water/ecopro/index.htm	U.S. EPA-Region 6 Nonpoint Source Coordinator 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/region6/water/ecopro/watershd/nonpoint/	U.S. EPA-Region 6 SRF Program Contact 1445 Ross Ave., Suite 1200 Dallas, TX 75202 http://www.epa.gov/Arkansas/6en/xp/enxp2c4.htm
Region 7: IA, KS, MO, NE http://www.epa.gov/region7	U.S. EPA-Region 7 Wetlands Protection Section (ENRV) 901 N. 5th St. Kansas City, KS 66101 http://www.epa.gov/region7/wetlands/index.htm	U.S. EPA-Region 7 Nonpoint Source Coordinator 901 N. 5th St. Kansas City, KS 66101	U.S. EPA-Region 7 SRF Program Contact 901 N. 5th St. Kansas City, KS 66101 http://www.epa.gov/Region7/water/srf.htm
Region 8: CO, MT, ND, SD, UT, WY http://www.epa.gov/region8	U.S. EPA-Region 8 Wetlands Program 999 18th Street, Suite 500 Denver, CO 80202-2405 http://www.epa.gov/region8/water/wetlands/wetlands.html	U.S. EPA-Region 8 Nonpoint Source Coordinator 999 18th Street, Suite 300 Denver, CO 80202-2405 http://www.epa.gov/region8/water/nps/contacts.html	U.S. EPA-Region 8 SRF Program Contact 999 18th Street, Suite 300 Denver, CO 80202-2405
Region 9: AZ, CA, HI, NV, Pacific Islands http://www.epa.gov/region9/	U.S. EPA-Region 9 Water Division, Wetlands 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region09/water/wetlands/index.html	U.S. EPA-Region 9 Nonpoint Source Coordinator 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region09/water/nonpoint/index.html	U.S. EPA-Region 9 Construction Grants Branch SRF Program Contact 75 Hawthorne Street San Francisco, CA 94105 http://www.epa.gov/region9/funding/
Region 10: AK, ID, OR, WA http://www.epa.gov/region10/	U.S. EPA-Region 10 Wetlands Section 1200 Sixth Ave. Seattle, WA 98101 http://yosemite.epa.gov/R10/ECOCOMM.NSF/webpage/Wetlands	U.S. EPA-Region 10 Nonpoint Source Coordinator 1200 Sixth Ave. Seattle, WA 98101	U.S. EPA-Region 10 Ecosystems & Communities SRF Program Contact 1200 Sixth Ave. Seattle, WA 98101 http://yosemite.epa.gov/r10/ecocomm.nsf/webpage/Clean+Water+State+Revolving+Fund+in+Region+10
General Program Information	U.S. EPA Wetlands Division (4502F) Mail Code RC-4100T 1200 Pennsylvania Ave., NW Washington, DC 20460 http://www.epa.gov/owow/wetlands/	U.S. EPA Nonpoint Source Control Branch (4503-T) Ariel Rios Bldg. 1200 Pennsylvania Ave., NW Washington, DC 20460 http://www.epa.gov/owow/nps	U.S. EPA The Clean Water State Revolving Fund Branch (4204M) 1201 Constitution Ave., NW Washington, DC 20004 http://www.epa.gov/owm/cwfinance/cwsrf/index.htm

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Technical Report 475
December 2005

Managing Runoff to Protect Natural Streams: The Latest Developments on Investigation and Management of Hydromodification in California

Eric D. Stein
Susan Zaleski

Southern California Coastal Water Research Project

Administrative Record Page No. 039254

Managing Runoff to Protect Natural Streams: The Latest Developments on Investigation and Management of Hydromodification in California

Proceedings of a Special Technical Workshop
Co-sponsored by:

- California Stormwater Quality Association (CASQA)
- Stormwater Monitoring Coalition (SMC)
- University of Southern California Sea Grant (USC Sea Grant)

Eric D. Stein
Southern California Coastal Water Research Project (SCCWRP)

Susan Zaleski
University of Southern California Sea Grant (USC Sea Grant)

December 30, 2005

Technical Report #475

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EXECUTIVE SUMMARY

Stream channel downcutting, widening, and erosion due to increased surface runoff present the most profound and difficult to manage problems resulting from conversion of natural land surfaces to developed areas. Land use changes that reduce the capacity for infiltration and evapotranspiration of rainfall may result in an increase in the magnitude and frequency of erosive flows and changes in the proportion and timing of sediment delivery downstream. These effects, termed *hydromodification*, can adversely impact the physical structure, biologic condition, and water quality of streams.

This document summarizes the presentations and discussions from a workshop convened to provide an overview of key technical and managerial issues associated with hydromodification, with specific focus on California's climatic setting. The goal of this workshop was to identify key conclusions regarding the mechanisms and causes of hydromodfication and to provide managers and decision makers with a list of recommended priorities for future work in terms of both technical and managerial products.

Recent studies indicate that California's intermittent and ephemeral streams are more susceptible to the effects of hydromodification than streams from other parts of the United States (US). Physical degradation of stream channels in the central and eastern US can initially be detected when watershed impervious cover approaches 10%, although biological effects (which may be more difficult to detect) may occur at lower levels. In contrast, initial response of streams in the semi-arid portions of California appears to occur between 3% and 5% impervious cover.

Managing the effects of hydromodification requires attention to changes in runoff volume, magnitude of flows, frequency of erosive events, duration of flows, timing of high flows, magnitude and duration of base flows, and patterns of flow variability. Slope, composition of bed and bank materials, underlying geology, watershed position, and connections between streams and adjacent floodplains are also key considerations in the management of hydromodification effects.

A contemporary toolbox for assessing the effects of hydromodification consists of three technical approaches: continuous simulation modeling, physical process modeling using geomorphic metrics, and risk-based modeling. Independently and in a range of combinations, these approaches are instrumental to understanding and predicting channel responses. In conjunction with these approaches, the following research areas are recommended for enhanced understanding and assessment of hydromodification:

- Establishment of appropriate reference conditions for various stream types
- Establishment of linkage between geomorphic changes and biologic effects
- Development and calibration of linked models that provide long-term simulation of hydrologic, and resultant physical changes in channel morphology

Furthermore, ongoing monitoring programs should be established for reference streams, streams subject to effects of hydromodification, and streams where various hydromodification management strategies have been employed.

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Hydromodification is best addressed with a suite of strategies including site design, on-site controls, regional controls, in-stream controls, and restoration of degraded stream systems. To improve the effectiveness of hydromodification management, it is important to identify the most appropriate set of strategies based on the type of channel, setting, stage of channel adjustment, and amount of existing and expected impervious cover in drainage catchments. Management of hydromodification could be improved by integrating it into a multi-objective strategy that addresses hydrology, water quality, flood control, and stream ecology. In addition, streams should be surveyed and classified in order to identify areas with the greatest risk of impact from hydromodification. Output from dynamic modeling can be used to develop easy to use management guides, and standard monitoring protocols and performance criteria need to be developed. These management tools should be geared toward application by land-use planners and regulators at the municipal and state levels. Finally, a hydromodification workgroup should be formed to facilitate communication and exchange of ideas and information on technical and management strategies relevant to hydromodification.

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ACKNOWLEDGEMENTS

This document summarizes two days of collaborative, prescient, and enlightening discussion on one of the most daunting challenges facing aquatic resource managers. We would like to thank all workshop presenters and panelist for sharing their insight and expertise to help develop the conclusions and recommendations contained in this document. We would like to especially thank the workshop organizing committee who made this event possible. Finally, we thank the California Association of Stormwater Quality Agencies, the southern California Stormwater Monitoring Coalition, and University of Southern California (USC) Sea Grant for their generous funding and support.

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WORKSHOP OVERVIEW

The process of urbanization has the potential to affect stream courses by altering watershed hydrology. Development and redevelopment can increase impervious surfaces on formerly undeveloped (or less developed) landscapes and reduce the capacity of remaining pervious surfaces to capture and infiltrate rainfall. In addition, in semi-arid regions, development is usually accompanied by significant supplemental landscape irrigation that maintains high soil moisture conditions. Development practices also tend to reduce or eliminate native vegetation, thus reducing evapotranspiration of rainfall. Consequently, as watersheds develop, a larger percentage of rainfall becomes runoff during any given storm; runoff reaches stream channels much more rapidly, resulting in peak discharge rates that are higher than those for an equivalent rainfall prior to development. These changes to the runoff hydrograph have been termed *hydromodification*.

Hydromodification can result in adverse effects to stream habitat and water supply, and stream erosion associated with hydromodification often threatens infrastructure, homes, and businesses. In response to these effects, state and local agencies have developed, or are developing, standards and management approaches to control and/or mitigate the effects of hydromodification on natural and semi-natural stream courses.

On October 2 and 3, 2005, 26 speakers and 175 participants gathered in Ontario, California to discuss the results of recent research inside and outside of California. This technical workshop was convened to provide an overview of the key technical and managerial issues associated with hydromodification, with specific focus on California's climatic setting. The specific objectives of the workshop were:

- Exchange of information on technical and managerial approaches to hydromodification
- Identification of common conclusions regarding a general understanding of hydromodification
- Recommendation of priority needs for future work relevant to technical and managerial products in response to hydromodification issues

The workshop consisted of two evening and one all-day session. The first night, a small group of scientists and managers gathered to discuss key knowledge gaps and technical information needs. The day session was open to all attendees, who interacted with a slate of speakers summarizing technical, regulatory, and management approaches to responding to the effects of hydromodification. The workshop concluded with an evening session in which a small group discussed priority needs for future research and management tool development. The agenda for the workshop is provided in Appendix A.

This document summarizes key conclusions resulting from the presentations and discussions that occurred during the workshop. The document also provides managers and decision makers with a list of recommend priorities for future work in terms of both technical and managerial products related to hydromodification response.

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INTRODUCTION TO HYDROMODIFICATION

Hydromodification is defined by the Environmental Protection Agency (EPA) as the "alteration of flow characteristics through a landscape which has the capacity to result in degradation of water resources" (http://www.epa.gov/owm/mtb/cwns/1996rtc/glossary.htm). Most often, hydromodification results from changes in land use practices or direct management of surface runoff. Consequences of hydromodification can include stream channel incision, aggradation, desiccation, and/or inundation.

Land use practices over the past several hundred years have resulted in hydromodification of western landscapes (Haltiner et al. 1996, Leopold 1968). Historically, many small streams were not connected to main river channels, but rather existed as shallow swales and wetland systems connected to larger rivers via subsurface flow. Surface hydrologic connections occurred intermittently following periodic large storm events. Increased surface runoff and channel disturbance, beginning during the cattle-grazing era circa 1700 – 1900, resulted in many of these systems becoming permanently channelized (Cooke and Reeves 1976). Channel modification through either direct alteration, or as a consequence of changes in patterns of surface runoff, e.g. through increases in impervious cover, continues today.

Hydromodification has typically resulted in channel incision and bank erosion in the upper and middle portions of the watershed, and in deposition, aggradation, and increased channel meandering in the downstream, flatter portions of the watershed. Often, as the main channel has incised, the lowered base level results in the formation of "knickpoints" (abrupt drops in the channel floor) that migrate upstream into the headwater areas. Often, these migrating "knickpoints" result in severe gully formation in lower order streams, i.e. first- through third-order streams, based on the Strahler stream ordering system. These smaller headwater streams are important from a watershed perspective because much of the sediment generation, carbon export, and initial nutrient processing occur in the upper watershed (Rheinhardt et al. 1999). The vast majority of stream miles in any given watershed exist as small headwater streams (Beschta and Platts 1986); consequently, impacts to these streams can result in profound cumulative effects to sediment and water movement patterns throughout the watershed. In many areas, the majority of remaining semi-intact streams is in the upper portions of watersheds. Notably, these areas are the most susceptible to land use change and associated effects of hydromodification. When development occurs in headwater areas rather than lower in the watershed, it tends to result in larger increases in peak discharge due to cumulative decreases in the time of concentration of rainfall to runoff (Beighley and Moglen, 2002).

Small, frequent runoff events, i.e. two-year frequency storms and smaller, demonstrate the most dramatic effects due to increased imperviousness, effects of supplemental irrigation, or other changes in land use practices (Beighley et al. 2003, Donigian and Love 2005, Hollis 1975). These small events account for the majority of long-term movement of sediment and consequently are the most deterministic of the geomorphic stability of the stream channels (Wolman and Miller 1960). However, small increases in basin impervious cover can also result in dramatic increases in runoff during 0.5-5 year flow events. For example, an increase of a few percent in impervious cover can increase the magnitude of a 1- or 2-year flood event by 20-fold (Hollis 1975, Urbonas and Roesner 1992).

Studies from parts of the country with climates more humid than California's indicate that physical degradation of stream channels can initially be detected when watershed impervious cover approaches 10%, although biological effects, which may be more difficult to detect, may

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occur at lower levels (CWP 2003). Recent studies from both northern and southern California indicate that intermittent and ephemeral streams in California are more susceptible to the effects of hydromodification than streams from other regions of the US, with stream degradation being recognized when catchment's impervious cover is as little as 3-5%[1] (Coleman et al. 2005). Furthermore, supplemental landscape irrigation in semi-arid regions, like California, can substantially increase the frequency of erosive flows (AQUA TERRA Consultants 2004). However, because all streams are constantly undergoing change and adjustment, effects of impervious cover should be investigated in terms of changes in the rate of channel response in addition to the absolute magnitude of response.

Managing the effects of hydromodification requires attention to more than just the peak runoff. The work (or energy) that affects physical and biological channel structure results from movement of water and sediment controlled by runoff volume, flow magnitude and duration, frequency of erosive events, timing of high flows, and magnitude and duration of base flows (Konrad and Booth 2005, Montgomery and MacDonald 2002, Paul and Meyer 2001, Roesner and Bledsoe 2003). Changes in patterns of flow variability and increases in the frequency of high flows have been shown to have measurable effects on the community composition of stream biota (Konrad and Booth 2005). Because streams are coupled hydrologic, geomorphic, biologic systems, it is important to understand the various effects of all changes in surface runoff patterns and to develop appropriate management strategies for each potential effect.

As channels incise, they often go through a series of adjustment stages from initial downcutting, to widening, to establishing new floodplains at lower elevations (Figure 1). This process can occur over years or decades depending on the type of channel and flow regime. Sand-dominated channels may pass through the full sequence of stages in a few decades, whereas channels in more resistant materials, such as clay, may take much longer, in some cases 50–100 years (Roesner and Bledsoe 2003). Therefore, it is important to understand a channel's stage of adjustment, and target management strategies to account for current and expected future evolution of the channel form.

[1] Most studies evaluate the response of stream channels to "total impervious cover". However, a more appropriate assessment would be based on "effective impervious cover", i.e., the amount of impervious cover that is hydrologically connected to the stream channel. Assessment based on effective impervious cover is more likely to result in observed channel response at lower levels of imperviousness.

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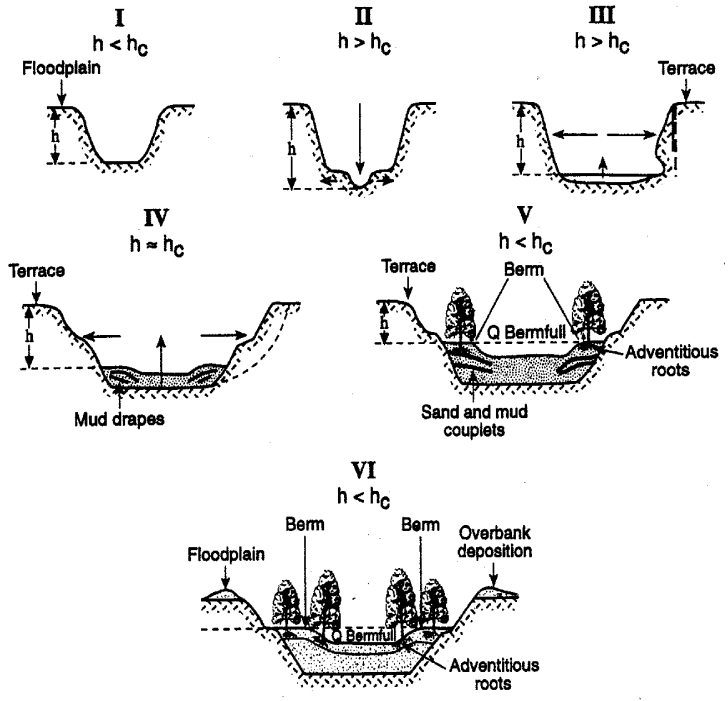

Figure 1: Stages of sand-bed channel adjustment (Schumm et al. 1984).

The pattern and rate of channel response to hydromodification will vary based on channel type and recent disturbance history (Montgomery and MacDonald 2002). Underlying geology, composition of bed and bank materials, slope, watershed position, and floodplain connectivity all affect channel response. Several stream classification systems have been developed over the years, including Shumm (1963), Montgomery and Buffington (1993), Rosgen (1994), and Church (2002). Most of these systems classify streams based on their sensitivity to change and therefore can be used to help assess, prioritize, and customize hydromodification management approaches. For example, Montgomery and Buffington (1993) define the following five channel types, listed from most to least resilient:

- Cascade
- Step pool
- Plane bed
- Pool riffle
- Dune ripple

Classification systems provide a useful starting point for evaluation of channel response to hydromodification; however, the classification systems above were developed in regions more humid and/or mountainous than those typical to California. Given differences in substrate and the extreme range of flows typically observed in arid regions, it is important to develop and regionally calibrate a classification system for dryland channels. Furthermore, the assessment of channel condition and the development of management strategies must be interpreted in terms of both spatial context (i.e. valley slope and position within the watershed) and temporal context (i.e. disturbance history) of the stream (Montgomery and MacDonald 2002). For example,

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channel incision may be most dramatic in the middle portions of the watershed; however, these reaches may have stabilized, while the most active erosion and sediment production is occurring in smaller headwater channels. For these reasons, simplistic classification and assessment schemes based on channel appearance must be supported by in-depth geomorphic assessment, historical studies, and thorough understanding of physical and hydrologic processes.

Ultimately, some management strategies may vary based on the channel type, as well as the degree of current and anticipated hydromodification, while others may be more uniformly applied. For example, controlling the magnitude and duration of runoff may be an effective strategy for all stream types, while bioengineered streambank stabilization may only be effective for specific stream types under specific circumstances.

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TECHNICAL APPROACHES TO ASSESSING HYDROMODIFICATION

The contemporary toolbox for assessing the effects of hydromodification consists of several technical approaches that may be combined in various ways. Continuous simulation hydrologic models can be used to assess elements in rainfall-runoff cycles and to describe conditions of flow in stream channels. These approaches can be used to assess the way changes in land cover may affect stream flow and to develop management strategies aimed at preventing or reducing such effects. A second, more involved approach, physical process modeling uses hydrologic models to predict changes in stream flow and to predict how these changes may affect the physical structure of the channel itself. This approach may couple hydraulic and sediment transport models, and/or incorporate geomorphic metrics to predict whether or not a channel will remain stable when subjected to the effects of hydromodification. Finally, risk-based assessments are used to account for the uncertainty associated with long-term cumulative effects of altered hydrology on stream channel flow, sediment transport, and stream geomorphology.

Continuous Simulation Modeling

Continuous simulation modeling provides a powerful tool for investigating the way rainfall-runoff patterns change over time with respect to normal climatic cycles and changes in land use practices. Hydrologic models integrate land use, precipitation, soils, topography, and other physical factors to simulate resultant runoff patterns. These models can be used to evaluate the way changes in the extent and distribution of impervious cover may affect flow magnitude, timing, frequency, and duration. In addition, continuous simulation models can be used to assess changes in the shear stress of channel beds and banks over time. Predicted shear stress (τ_{actual}) values can be compared to critical shear stress ($\tau_{critical}$) values associated with the onset of erosion in order to predict conditions that may result in initiation of scour. Recent studies in Ventura County have successfully used $\tau_{actual}/\tau_{critical}$ values between 1.2 - 1.5 as a threshold for initiation of channel scour along with an assessment of the frequency of occurrence of these erosive flow events (AQUA TERRA Consultants 2004). When using hydrologic models it is important to simulate runoff and erosion patterns over periods of at least 20-30 years. Short-term or single-event modeling is not sufficient to capture the continuous erosion and aggradation processes that occur during large and small storm events over extended periods of time.

Physical Process Modeling/Geomorphic Metrics

Physical process modeling aims to establish relationships between impervious cover, runoff patterns, and channel response based on field observations of changes in channel form over time. These field observations are used to derive mathematical relationships that can be used to predict channel response to changes in land use practices. Erosion Potential (E_p) is a geomorphic metric that has been used in several recent studies relevant to the effects of increased runoff associated with increases in impervious cover. The E_p represents the ratio of pre- and post-development erosive forces for a given stream type, expressed as:

$$E_p = \frac{W_{post}}{W_{pre}}$$

Where: W_{post} = Cumulative erosive energy or work after development
W_{pre} = Cumulative erosive energy or work before development

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Where: Erosive energy is defined as the energy that is above the threshold of erosion for the stream boundary materials, also referred to as excess specific stream power

Values for E_p are derived for both the channel bed and bank, and the boundary that is more susceptible to erosion is used as the basis of setting response thresholds. The E_p of a stream channel should be evaluated based on long-term simulations (e.g. 50 yrs) or based on empirical data collected over extended periods of time. Geomorphic metrics can be used to project changes in channel cross-section area over time in response to increases in impervious cover, as shown in Figure 2, which describes the expected effect of increases in total impervious cover (TIMP) on channel cross-sectional area. Channel response thresholds can be inferred according to inflection points on the curve. In this plot, the upper curve is derived from southern California data; the lower curve is derived from data observed in other parts of the US. Expected threshold of response for southern California streams is approximately 4% (Coleman et al. 2005).

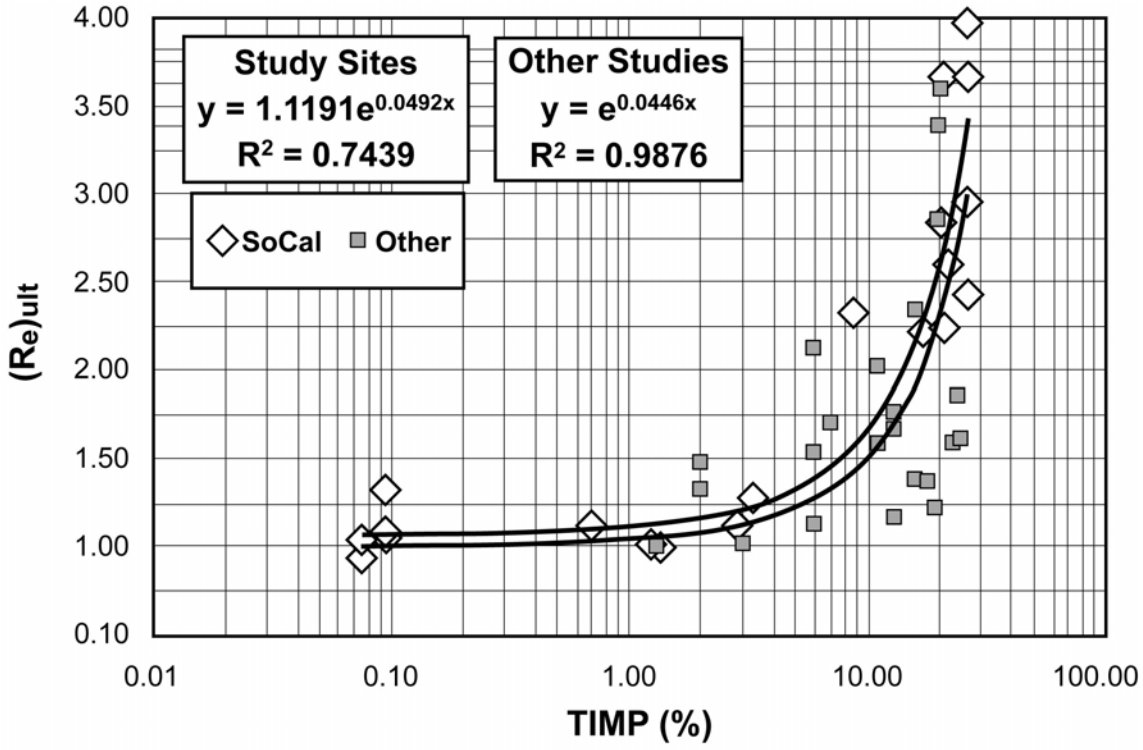

Figure 2: Enlargement curve showing expected effect of increases in total impervious cover (TIMP) on channel cross-sectional area. (Re) is the ratio of ultimate channel cross-sectional area to current cross sectional area. Upper curve is derived from data from southern California, lower curve is derived from data from other parts of the US. Expected threshold of response for southern California streams is approximately 4% (from Coleman et al. 2005 and C. MacRae).

It is important to note that curves such as those shown in Figure 2 assume a consistent hydrologic response to increased impervious cover. Long-term hydrologic simulations should be coupled with physical process models to fully explore these relationships and help validate the curves. Furthermore, different channel types respond differently to changes in runoff. Therefore, an enlargement curve, such as the one shown in Figure 2 for a single channel type, should be developed for each major channel type in a region in order to help focus the timing and location of strategic runoff management measures.

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Risk-based Modeling

Unlike physical process modeling, which aims to establish response thresholds, risk-based modeling estimates the probability of channel response to increases in erosion potential associated with anticipated changes in runoff as a result of increases in impervious cover. Managers can then determine acceptable risk levels. Typically, risk-based modeling uses the output of continuous simulation or physical process models to generate time-series data relevant to flow and sediment transport. Often this type of modeling includes linear and logistic regressions, in addition to probability networks. These data are then used to estimate the risk of channel response with respect to anticipated changes in runoff volume and sediment. Figure 3 provides an example of the way logistic regression analysis can be used to estimate the likelihood of channel instability based on progressive degrees of erosion potential.

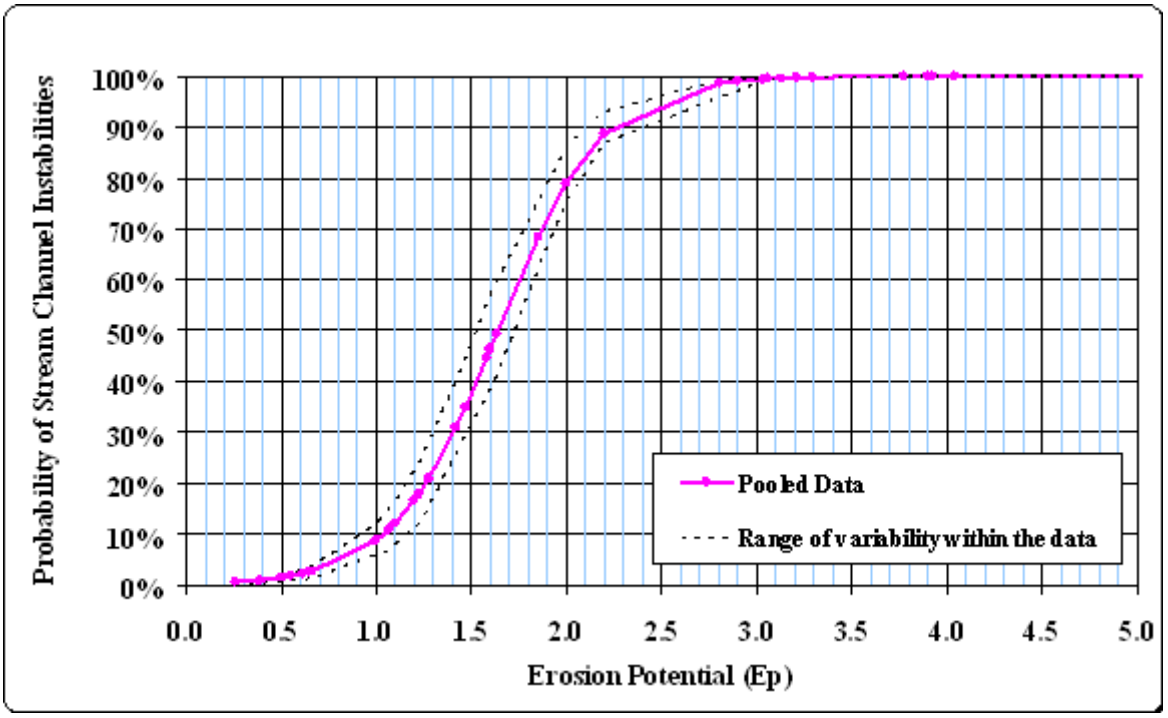

Figure 3: Logistic regression analysis showing the probability of various channel erosion potentials (from B. Bledsoe).

For studies conducted in the San Francisco Bay Area, an E_p value of 1.2 was proposed as an acceptable threshold based on a 15% probability of channel instability[2]. This was typically associated with approximately 3 - 6% impervious cover for channels in sand substrates and 10-12% for channels in clay substrates.

[2] The negotiated Ep value of 1.0 was adopted for the final Hydromodification Management Plan for Santa Clara Valley and included in a permit amendment for agencies in that area.

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PRIORITY TECHNICAL NEEDS AND INFORMATION GAPS

Workshop participants identified five priority areas for additional research and data collection:

- Regional reference conditions for various stream channel types
- Links between geomorphic change and biologic effects
- Dynamic simulation models calibrated for local conditions
- Potential consequences of increased storm water infiltration from urbanized areas
- Ongoing monitoring programs to assess hydromodification impacts and to develop effective management strategies

Regional reference conditions for various stream channel types need to be established

Because most areas in the western US have been subjected to historic grazing or logging, many channels in this region have undergone some degree of change over time. Furthermore, the dynamic nature of this region's fluvial systems means that these streams are constantly undergoing some degree of change. Understanding the historic conditions of stream channels can provide valuable insight; however, historic conditions may not be the most appropriate "reference" in light of current constraints. Rather, reference should be considered a condition where stream channels are in a state of dynamic equilibrium under contemporary natural watershed processes. Once a regional reference condition is defined, data on flow, sediment movement, and geomorphology should be collected on an ongoing basis from representative reference stream reaches. These data will facilitate modeling that more effectively differentiates natural cycles from human-induced changes, especially during long wet or dry cycles where changes may be dramatic but infrequent.

Links between geomorphic change and biologic effects need to be more clearly defined

Hydromodification can cause a variety of physical changes to streams. However, hydrologic changes that are most relevant to biologic communities have not been well defined. For example, it is unclear how changes in base flow duration; peak flow magnitude, duration, and timing; or flow variability affect the structure and function of stream communities. Ultimately, there is a need to develop biologic indices to assess the effects of hydromodification and more effectively direct management strategies.

Dynamic simulation models need to be developed and calibrated for local conditions

Although continuous hydrologic simulation and physical process models have been developed for California streams, these models have not been routinely linked to the assessment of stream channel response to various forms of hydromodification. Hydrologic, physical process, and risk-based models are much more effective when used in combination and appropriately calibrated and validated for California streams. The resultant tool(s) can greatly improve assessments that predict the likelihood of stream channel response to anticipated changes in hydrology associated with changes in land use patterns. Model output may also be useful in the development of objective criteria for establishing land use practices that minimize

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hydromodification effects, designing tools for best management practices (BMP) design, and evaluating the performance of management measures.

Potential consequences of increased storm water infiltration from urbanized areas need to be investigated

Infiltration of substantial volumes of storm water runoff from developed land surfaces may introduce unacceptable levels of contaminants into groundwater and/or shallow aquifers. The risk of groundwater contamination and the fate of pollutants introduced into subsurface waters need to be investigated by increased monitoring, development of coupled surface water-groundwater models, and implementation of demonstration projects.

Ongoing monitoring programs to assess hydromodification impacts and develop effective management strategies need to be designed and implemented

First, more extensive flow monitoring needs to be instituted to compensate for the difficulty of calibrating hydrologic models for un-gauged headwater streams. Second, regular geomorphic data needs to be collected from reference streams as well as streams subject to the effects of hydromodification. Routine measurement of channel cross-sections and substrate will greatly improve understanding of channel adjustment processes and allow better discrimination between natural and anthropogenic changes. Third, streams subject to various hydromodification management strategies need to be monitored and documented to support adaptive management and education on emerging techniques and strategies.

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REGULATORY AND MANAGEMENT STRATEGIES

Regulatory Approaches to Address Potential Effects of Hydromodification

A variety of regulatory programs and tools exist to help in the regulation of hydromodification effects, including:

- Clean Water Act Section 401 certifications
- Total Maximum Daily Loads (TMDLs)
- Municipal storm water (MS4) permits under Section 402 of the Clean Water Act, and the associated Standard Urban Storm Water Mitigation Program (SUSMP) requirements
- Watershed Urban Runoff Management Plans (WURMPs) and the Watershed Management Initiative (WMI) which encourage municipalities to work cooperatively to manage issues such as hydromodification

In addition, California Environmental Quality Act/National Environmental Policy Act (CEQA/NEPA) processes can be used to better address hydromodification issues, especially with regard to cumulative effects.

Looking to the future, Regional Water Boards in California are considering development of numeric criteria and objectives for new development and redevelopment projects to offset and/or mitigate hydromodification effects. These objectives may involve requirements for managing flow and/or reducing effective impervious cover as well as strategies to maximize infiltration and reuse of storm water. Some Regional Boards are also considering ways to better coordinate with other regulatory agencies that have authority over hydromodification and stream alteration. Similarly, some State and Regional Water Boards are evaluating their existing regulatory authority over hydromodification and considering ways to strengthen their authority, particularly under section 401 of the Clean Water Act, or as part of
Basin Plans.

Management Approaches to Address the Effects of Hydromodification

Hydromodification is best addressed by using a suite of strategies, including site-design, restoration of degraded stream systems, as well as in-stream, on-site control, and regional controls. Managers need to identify the most appropriate set of strategies based on channel type and setting, channel adjustment stage, and amount of existing and anticipated impervious cover in the drainage catchment. However, attempting to have the post-development condition match pre-development runoff magnitude and duration should be an initial consideration for all circumstances.

Management strategies should address not only changes in peak flows but also changes in flow duration and sediment yield. Research to support development of several recent Hydromodification Management Plans indicates that post-project BMPs should ensure no change in runoff volume and cumulative duration of all flows greater than the critical flow for bed or bank mobility. Case studies of three Hydromodification Management Plans/Strategies are provided in Appendix B.

Over the long term, land-use planning, runoff management, as well as channel and floodplain restoration, should be the cornerstones of any hydromodification management strategy. The planning cycle for new development or re-development projects should begin with

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hydromodification management assessment as part of the preparation of General and Specific Plans, master drainage plans, and zoning designations. Hydromodification effects must be managed with respect to long-term cycles; therefore, strategies should be adaptive. As conditions change and stream channels evolve, the management approaches must be adjusted. However, it is important to recognize that because changes to watershed hydrology are continual; it is unlikely that any management strategy will be able to achieve full hydrologic mitigation. Over the long term, some lasting physical and biological effects should be expected. Management goals should realistically reflect these anticipated changes.

The Center for Watershed Protection, the National Association of Homebuilders, the Water Environment Research Foundation, the Bay Area Stormwater Management Agencies Association, and others have developed resources that land managers can use to guide improved site design. A list of some of these resources is provided in Appendix C.

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PRIORITY MANAGEMENT NEEDS

In response to rapidly developing technical tools, regulations, and management goals, workshop participants identified the following management and information priorities:

1. Establish mapping and classification of streams based on their susceptibility to hydromodification effects. Susceptibility should be evaluated with respect to both stream properties, potential for future increases in impervious cover, and concomitant changes in land use practices, such as supplemental irrigation. Such a system would help managers prioritize streams requiring protection and hydromodification management.
2. Model stream systems in ways that are useful for regulators to make decisions. Once models are validated with local data, output should be:
    - Readily understandable and usable by planners and managers
    - Easily interpreted by regulators for development of consistent requirements and evaluation criteria for the specific region
    - Readily used to develop standardized flow control sizing and design tools for BMPs, where applicable
3. Develop a series of management tools that can be easily used to make recommendations or set requirements relative to hydromodification for new development and re-development projects. These tools would utilize the results of monitoring, modeling, and assessment completed under previous projects to develop a series of plots, nomographs, checklists, or similar managerial tools. It is envisioned that ideally, tools should be developed for three different levels of analysis:

    Screening tools – Checklists or similar tools that allow planners and managers to evaluate whether or not a project is likely to involve substantial hydromodification issues.

    Effects tools – For projects that are considered likely to have hydromodification effects based on the results of the screening tool, this tool would serve as a nomograph or series of plots used to evaluate the expected magnitude or intensity of effects associated with a particular project. This tool could also be used to identify projects that should be subjected to subsequent in-depth analysis.

    Mitigation tools – Once the expected magnitude of effects are determined, this tool would be used to guide recommended mitigation and management measures. This tool could be a series of fact sheets, design criteria, and sizing standards to be used to aid in the development of standards or mitigation requirements.
4. Construct metrics and monitoring protocols to measure the effects of hydromodification on biological communities including riparian habitat.
5. Determine standard monitoring protocols for hydromodification effects and facilitate regional information sharing on project performance.
6. Evaluate the relative costs and benefits of hydromodification management at the site level (e.g. low impact development), and at the regional level (e.g. large retention and infiltration facilities). The economic costs of hydromodification have not been well documented, nor have the economic benefits of managing the physical and biological

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effects of hydromodification. Information is also needed on the cost to maintain and manage hydromodification BMPs.

7. Establish recommended short-term measures for use while longer-term solutions, such as low-impact development and alternative site design are evolving.

In addition to management and information priorities, several institutional barriers were identified that may hinder effective management of hydromodification effects. Steps to overcome such barriers include:

A. Hydromodification management needs to be part of an integrated multi-objective management strategy. Stream planning and management should integrate hydromodification, water quality, flood control, and habitat management strategies as a whole rather than addressing each issue in isolation. Increased coordination between agencies, departments, and stakeholders should be strongly supported. Specifically, agencies that have authority over hydromodification and stream alteration should work toward coordinating regulatory approaches to achieve greater consistency.

B. Local ordinances need to be revised to facilitate integrating water quality and water quantity management into project design. These ordinances should be flexible enough to allow for variances from standard design requirements, such as curb and gutter and street width parameters, to help reduce impervious cover and increase infiltration.

C. Hydromodification needs to be addressed in both General and Specific Plans in terms of the location and design of new development. Site-by-site or project-specific approaches tend to be less effective and more costly to implement.

D. Better linkage between theory and practice need to be established through case studies, academic research, demonstration projects, and long-term BMPs monitoring.

E. Management of hydromodification needs to be incorporated into regional resource planning efforts, such as the Corps of Engineers Special Area Management Plans (SAMPs) or US Fish and Wildlife Service's Multi-species Habitat Conservation Plans. These regional planning efforts may be effective tools to address cumulative effects of hydromodification at the watershed scale.

F. A more effective public communication and education strategy needs to be developed. Property owners, local businesses, and community groups need to be better educated about the causes and effects of hydromodification in the context of the watersheds where they live and work. Simple definitions of streams and watersheds should be provided as part of the education strategy. Hydromodification effects need to be linked to health, aesthetic, recreational, and economic endpoints. Citizens should be made aware of simple actions, such as redirecting downspouts, using xeriscaping, and installing planter boxes, that help reduce hydromodification effects.

G. An ongoing working group should be established to coordinate research, monitoring, technology transfer, education, and management approach evaluation that includes all stakeholder groups.

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CONCLUSIONS AND RECOMMENDATIONS

Presentations and discussions during the two-day hydromodification workshop resulted in the following key conclusions and recommendations:

Conclusions

- Physical degradation of stream channels in semi-arid climates of California may be detectable when basin impervious cover is between 3% and 5%. However, biological effects are probably occurring at lower levels.
- Frequent, 0.5-5 years, small runoff events, are most affected by hydromodification.
- Not all streams will respond in the same manner. Certain management strategies need to account for differences in stream type, stage of channel adjustment, current and expected amount of basin impervious cover, and existing or planned BMPs.
- Management strategies should address effects on flow magnitude, duration, and volume.
- Assessment of potential effects and suitability of possible management approaches must account for decadal scale climatic cycles and associated stream channel response.
- Improved site design is likely to be the most effective hydromodification management strategy and should be incorporated at the planning stage of a project.
- It is unlikely that all the effects of hydromodification can be fully mitigated. Changes in impervious cover will result in some changes to the flow patterns and ecology of the affected stream. Realistic management goals should be established to acknowledge long-term effects of increased impervious cover.

Recommendations

- Integrate management of hydromodification into a multi-objective strategy that addresses hydrology, water quality, flood control, stream ecology, and overall watershed and land use planning.
- Institute interim management measures until runoff management becomes a more standard and accepted element of site design, for example, low impact development principles become commonly accepted and implemented in all site designs.
- Establish and implement a stream channel classification system based on expected vulnerability of different streams to hydromodification-induced change.
- Establish appropriate regional reference conditions should for each stream type based on the established classification system.
- Develop and calibrate dynamic simulation models for local streams. Models that combine continuous hydrologic simulations, physical process models, and risk-based modeling will be the most effective.
- Establish ongoing regional hydromodification monitoring programs. These programs should collect flow and geomorphic data from reference streams, unmitigated streams impacted by hydromodification, and streams subject to hydromodification management measures. Helping to separate natural variability from urban-induced changes in stream condition should be a primary goal of such ongoing monitoring programs.
- Develop indices to assess the biological effects of hydromodification.

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- Develop protocols for measuring the economic costs and benefits of hydromodification management. Assemble case studies that document these economic costs and benefits.
- Initiate a hydromodification workgroup to facilitate exchange of ideas and information on technical and managerial approaches.
- Increase public education about what can be done at homes, businesses, and in the community to address hydromodification effects.

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APPENDIX A – WORKSHOP AGENDA

HYDROMODIFICATION WORKSHOP AGENDA – October 2-3, 2005

SUNDAY EVENING, INVITED SESSION

5:00- 5:15 **Welcome and Introductions** – Eric Stein (Chair), *Southern California Coastal Water Research Project*

5:15 – 5:30 **Regulatory Perspective** – John Robertus, *San Diego Regional Water Quality Control Board*

5:30 – 6:30 ***Status of Science on Evaluating/Studying Hydromodification*** (panel discussion)

- Jeff Haltiner, *Philip Williams and Associates*
- Gary Palhegyi, *Geosytec Consultants*
- Craig MacCrae, *Aquafor Beech*
- Brian Bledsoe, *Colorado State University*
- Derek Booth, *University of Washington*

7:30 – 8:30 **Dinner and Open Discussion of Data Gaps and Areas for Future Research**

MONDAY, OPEN SESSION

8:30 – 8:40 **Welcome and Opening Remarks** – Chris Crompton (Chair), *SMC*

8:40 – 9:15 **Introduction to Hydromodification** – Jeff Haltiner, *Philip Williams and Associates*

9:15 – 10:15 ***Why is Hydromodification Such a Big Deal?*** (mini-panel discussion)

- Policy Perspective – Susan Cloke, *Los Angeles Regional Water Quality Control Board*
- Regulatory Perspective – John Robertus, *San Diego Regional Water Quality Control Board*
- Homebuilders Perspective – Marolyn Parson, *National Association of Home Builders*
- Natural Resource Perspective – Shelley Luce, *Santa Monica Bay Restoration Commission*

10:15 – 10:30 **Break ~**

10:30 – 12:30 **Hydromodification Research and Studies**

- Risk-Based Channel Stability Analysis for Urbanizing Watersheds – Brian Bledsoe, *Colorado State University*
- Changes in Streamflow Patterns from Urbanization: A Humid-Region Perspective – Derek Booth, *University of Washington*
- Modeling Urbanization Impacts and Channel Stability in Ventura County – Tony Donigian, *AQUA TERRA Consultants*
- Southern California Peak Flow study results and conclusions – Craig MacRae, *Aquafor Beech*
- Santa Clara Valley HMP Studies- Gary Palhegyi, *GeoSyntec Consultants*

12:30 – 1:30 **Lunch ~**

1:30 – 2:15 **Regulatory Response to Hydromodification**

- Northern California Perspectives – Larry Kolb, *San Francisco Bay Regional Water Quality Control Board*
- Southern California Perspectives – Xavier Swamikannu, *Los Angeles Regional Water Quality Control Board*

2:15 – 3:30 **Implementation of Hydromodification Management Practices**

- Contra Costa County – Dan Cloak, *Dan Cloak Consulting (for Contra Costa County)*
- Santa Clara Valley – Jill Bicknell, *Santa Clara Valley Urban Runoff Program*
- Newhall Land and Farming– Mark Subbotin, *Newhall Land and Farming Company*
- Control of Hydromodification Through Land Planning – Laura Coley-Eisenberg, *Rancho Mission Viejo*

3:30 – 4:30 **Panel Discussion on Implementation Issues** – Facilitated by Matt Yeager, *San Bernardino County Flood Control District*

- Rene DeShazo, *Los Angeles Regional Water Quality Control Board*
- Mark Abramson, *Heal the Bay*
- Marolyn Parson, *National Association of Home Builders*
- Jeff Haltiner, *Philip Williams and Associates*
- Jill Bicknell, *Santa Clara Valley Urban Runoff Program*

MONDAY EVENING, INVITED SESSION

5:30 – 6:00 **Welcome & Summary of Open Session** – Matt Yeager, *San Bernardino County Flood Control District*

6:00 – 7:00 **Dinner ~**

7:00 – 8:00 **Key Needs of Managers for Addressing Hydromodification** (panel discussion)

- Jeff Pratt, *Ventura County Watershed Protection District*
- Bill DePoto, *Los Angeles County Dept. of Public Works*
- Aaron Allen, *US Army Corps of Engineers - Regulatory Branch*
- Laura Coley-Eisenberg, *Rancho Mission Viejo*
- Jon Bishop, *Los Angeles Regional Water Quality Control Board*
- Rebecca Drayse, *TreePeople*

8:00 – 8:30 **General Conclusions and Outline for Workshop Report**

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APPENDIX B – CASE STUDIES

Case Study 1 – Contra Costa County

Contra Costa County's Hydromodification Management Plan was developed in response to the National Pollutant Discharge Elimination System (NPDES) permit requirements from the San Francisco Bay Regional Water Quality Control Board. The goal of this Hydro-modification Management Plan (HMP) is to protect urban watersheds from ongoing hydro-modification by applying these requirements to development projects that are greater than or equal to 1 acre. They assist applicants to comply by providing designs and sizing factors. Permit conditions require municipalities to propose a plan to manage increases in flow and volume where increases could:

- Increase erosion
- Generate silt pollution
- Impact beneficial uses

The goal of these plans is to ensure that post-project runoff does not exceed pre-project rates and durations. Contra Costa's plan encourages Low Impact Development Integrated Management Practices (LID IMPs) and allows proposals for stream restoration in lieu of flow control where benefits clearly outweigh potential impacts. The plan includes four options for compliance:

1. Demonstrate project will not increase directly connected impervious area
2. Implement pre-designed hydrograph modification IMPs
3. Use a continuous simulation model to compare post- to pre-project flows
4. Demonstrate increased flows will not accelerate stream erosion

Management approaches are selected according to risk:

- Low risk = channelized systems
- Medium risk = channels in substrates with high bed and bank resistance
- High risk = all other channels

Project proponents need to develop a comprehensive analysis of management options for all high risk channels.

Case Study 2 – Santa Clara Valley

The Santa Clara Valley Urban Runoff Pollution Prevention Program's (SCVURPPP's) NPDES permit requires that increases in runoff peak flow, volume, and duration shall be managed for all projects involving one or more acres of impervious cover, where increased flow and/or volume can cause increased erosion of creek beds and banks. SCVURPPP's overall approach to creating a HMP was to conduct geomorphic and hydrologic assessments of three representative watersheds in the valley, conduct channel stability analyses to establish thresholds

for hydromodification control, develop design criteria for flow control measures, and provide guidance for best management practice implementation[3].

The performance criteria in the HMP state that post-project runoff shall not exceed estimated pre-project rates and/or durations, where the increased storm water discharge rates and/or durations will result in increased potential for erosion. Projects shall not cause an increase in Ep of the receiving stream over the pre-project (existing) condition. Furthermore, the Ep value should not be increased at any point downstream of the project. These requirements can be met with a combination of on-site and off-site control measures.

On-site controls should be designed to match flow-duration curves of post-development conditions to pre-development conditions for all flows between 10% of the 2-year peak flow and the 10-year peak flow. Example sizing of flow-duration basins are shown in Table B-1. Management measures are considered "practicable" if construction cost of treatment plus flow controls is less than or equal to 2% of project cost, excluding land value.

Table B-1: Basin Sizing Case Studies from the Santa Clara Valley Urban Runoff Program Hydromodification Management Plan (SCVURPPP Final HMP Report, 2005).

	Thompson	San Jose	Alameda
Basin Depth	4 feet	2.25 feet	2 feet
Basin Area	30 acres	0.06 acre	0.8 acre
Basin Size % DCIA	5.7% (4% catchment)	3.7% (1.7% catchment)	10% (7% catchment)
Drain Time	3 days (90% of the time)	< 1 day	1 day
Q_{cp} (low flow)	2.4 cfs	0.1 cfs	0.25 cfs
Infiltration Rate (rainfall)	0.2 inch/hour	0.2 inch/hour	0.5 inch/hour
Infiltration Rate (flow)	5.5 cfs	0.012 cfs	--

*cfs = cubic feet per second

This hydromodification management plan lays out on-site and in-stream options. Projects in highly urbanized areas with more than 90 % build out and a large percentage of impervious cover are exempt. Additional information on this program is available at www.SCVURPPP.org.

Case Study 3 – Newhall Land

Newhall Ranch is a specific plan approved for 26,000 homes in the Santa Clara watershed. Runoff from the proposed new development will be addressed by a Natural River Management Plan and a Newhall Ranch Stormwater Plan developed by the land owner.

[3] The Final HMP Report (April 2005) is available at http://www.eoainc.com/hmp_final_draft

The Natural River Management Plan is a long-term (20-year) master plan that provides for the construction of various infrastructure improvements to the Santa Clara River and tributaries. The plan maintains 15 miles of the Santa Clara River and its tributaries in a natural state with 75- to 200-foot setbacks from the river that sustains habitat quality and meets requirements for flood control. The plan calls for buried bank stabilization, instead of hardened systems, to meet county flood protection requirements and maintain habitat functions in riparian areas. Trenches have been dug far up from the streambed, filled with a compound called "sand cement" – similar to sandstone, then topped with soil, and replanted with native plant species.

The Newhall Ranch Stormwater Plan is a regional approach to storm water management that incorporates both water quality treatment and hydromodification control. The goals of this plan include:

- Reduction in percentage of impervious cover in the upper watershed using cluster design of development and maximizing open space
- Utilization of BMPs for both water quality and hydromodification source control
- Design of in-stream solutions that protect or enhance habitat.
- Incorporation of the "avoidance, minimization, mitigation" hierarchy in plan development

Case Study 4 – Rancho Mission Viejo

Rancho Mission Viejo, a private landowner, has voluntarily developed a set of land planning principles as part of a comprehensive land-use planning and resource management program for 25,000 acres in Orange County California. These planning principles will serve as self-imposed requirements, intended to minimize the effects of future development on natural streams in planning areas. Using these principles, the landowners are proposing to focus development on ridges, which are underlain by less pervious material, thereby preserving valleys which contain pervious areas that support infiltration important to creek functions.

Planning Principles:

Geomorphology/Terrains

- Recognize and account for the hydrologic response of different terrains at the sub-basin and watershed scale

Hydrology

- Emulate, to the extent feasible, the existing runoff and infiltration patterns in consideration of specific terrains, soil types, and ground cover
- Address potential effects of future land use changes on hydrology
- Minimize alterations of the timing of peak flows of each sub-basin relative to the mainstem creeks
- Maintain and/or restore the inherent geomorphic structure of major tributaries and their floodplains

Sediment Sources, Storage, and Transport

- Maintain coarse sediment yields, storage and transport processes

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Groundwater Hydrology

- Utilize infiltration properties of sandy terrains for groundwater recharge and to offset potential increases in surface runoff and adverse effects to water quality
- Protect existing groundwater recharge areas supporting slope wetlands and riparian zones and maximize alluvial groundwater recharge to the extent consistent with aquifer capacity and habitat management goals

Water Quality

- Protect water quality using a variety of strategies, with particular emphasis on natural treatment systems, water quality wetlands, swales, and infiltration areas

APPENDIX C – ADDITIONAL RESOURCES

BASMAA's Start at the Source: Design Guidance Manual for Stormwater Quality Protection, 1999. Prepared by Tom Richman & Associates and CDM. Available from www.basmaa.org .

BASMAA's Using Site Design Techniques to Meet Development Standards for Stormwater Quality: A Companion Document to Start at the Source, 2003. Prepared by CDM. Available from www.basmaa.org

Better Site Design: A Handbook for Changing Development Rules in Your Community
Available for $35.00 from the Center for Watershed Protection at www.cwp.org, under the "Publications" tab.

Redevelopment Roundtable, Consensus Agreement, Smart Practices for Redevelopment and Infill Projects.
Available for free download from the Center for Watershed Protection at www.cwp.org, under the "Publications" tab; it is listed with the "Better Site Design" publications.

Builders for the Bay Program
Information about this program, which is joint project of the Alliance for the Chesapeake Bay, the Center for Watershed Protection and the National Association of Home Builders, can be found at http://www.cwp.org/builders_for_bay.htm.

The Practice of Low Impact Development
Available for $5.00 from the U.S. Department of Housing and Urban Development, at http://www.huduser.org/publications/alpha/alpha.html. It is also available for $50.00 from the NAHB Research Center's bookstore at www.nahbrc.org.

National Association of Homebuilders Research Center
"Builder's Guide to Low Impact Development" and "Municipal Guide to Low Impact Development". Available for free download from
http://www.toolbase.org/tertiaryT.asp?TrackID=&CategoryID=36&DocumentID=3834

"Growing Greener: Putting Conservation into Local Codes". Available for free download from http://www.dcnr.state.pa.us/growinggreener/growinggreener.htm.

Low-Impact Development Design Strategies: An Integrated Approach; Low-Impact Development Hydrologic Analysis
Both are available for free download from US Environmental Protection Agency's website at http://www.epa.gov/owow/nps/lid/.

Truckee Meadows Structural Control Design Manual: Guidance on Source and Treatment Controls for Storm Water Quality Management - Kennedy/Jenks Consultants
http://ci.reno.nv.us/gov/pub_works/stormwater/management/controls/pdfs/TOC.pdf

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National NEMO (Non Point Education for Municipal Officials) Network - Educational Materials on the link between land use and water quality
http://nemonet.uconn.edu/

Physical Effects of Wet Weather Flows on Aquatic Habitats: Present Knowledge and Research Needs , by L.A. Roesner and B.P. Bledsoe – Water Environment Research Foundation, 2003.
http://www.werf.org

Impacts of Impervious Cover on Aquatic Systems – Center for Watershed Protection, 2003.
http://www.cwp.org/

ATTACHMENT
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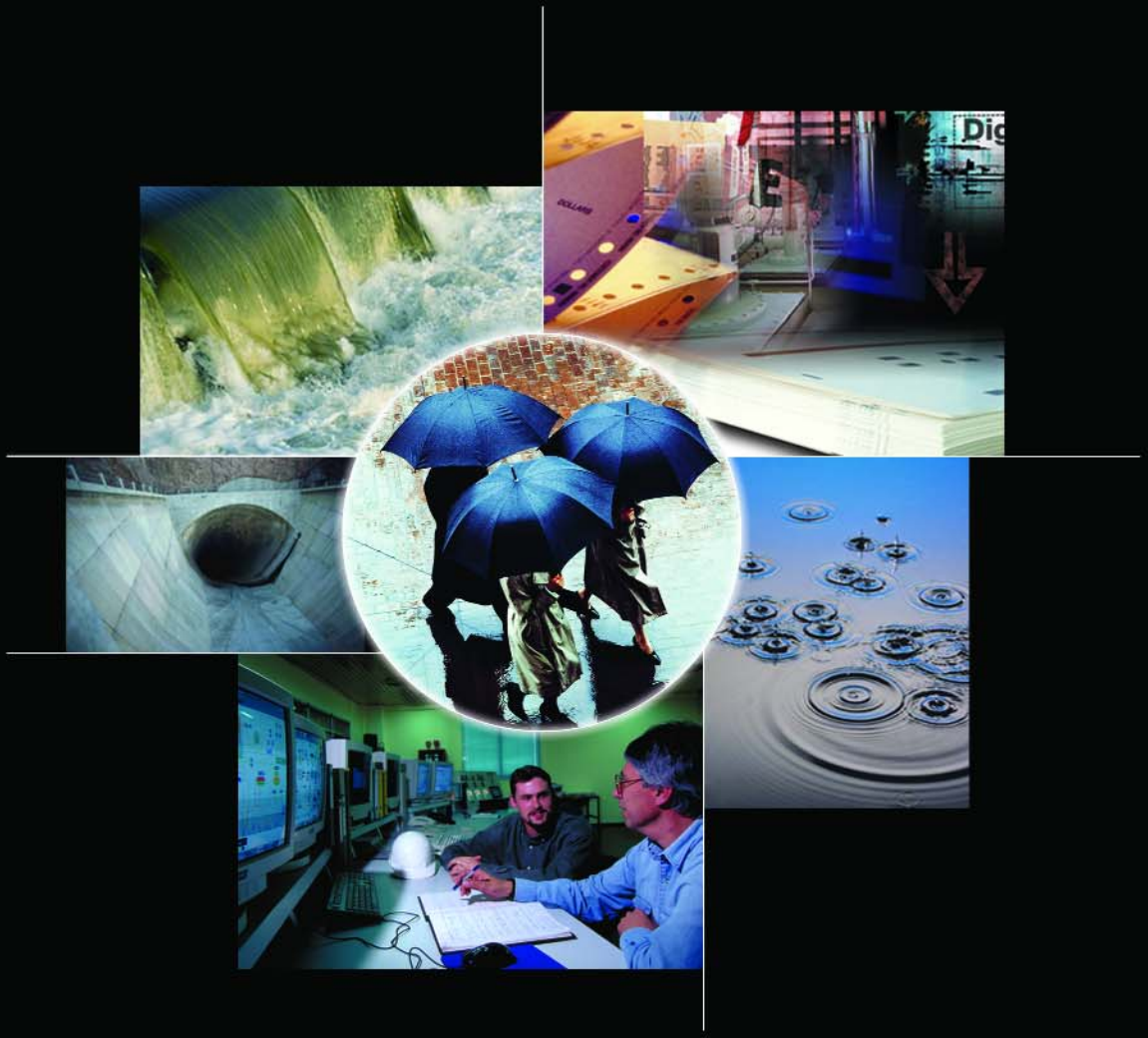
2005 STORMWATER UTILITY SURVEY



BLACK & VEATCH
building a world of difference™

ENERGY WATER INFORMATION GOVERNMENT

Black & Veatch is pleased to provide the results of its sixth national Stormwater Utility Survey, to help those involved in the stormwater industry stay well-informed across a range of issues. The survey results offer insight into the following topics:

- Organization/Administration
- Planning
- Operations
- Finance/Accounting
- Stormwater User Fees and Billing
- Quality Issues – Best Management Practices
- Public Information/Education
- Major Challenges Recently Faced
- Significant Events Affecting Utilities

These results can be used for numerous purposes, from performance management to financial planning to organization strengthening. At Black & Veatch, we understand the value of knowing what others are doing in the industry. For 90 years, meeting the needs of the utility industry has been at the core of our business. We are happy to discuss any questions you might have regarding this survey.

Profile of Respondents

- Responses were received from 99 utilities in 21 states and one Canadian province. All of these utilities are funded in whole or in part through user fees.
- Approximately 86 percent of the respondents serve a city, rather than a county or region.
- The population served by the respondents ranges from 1,400 (Atlantic Beach, FL) to 3.9 million people (Los Angeles, CA) and the area served varies from 3 to 1,500 square miles. Eighty-one percent indicate they are responsible for stormwater facilities only, while the balance report they are responsible for combined sanitary/stormwater facilities. Approximately 88 percent indicate that they use their own staff to provide a majority of operation and maintenance services.
- For those utilities that base charges on gross property area, equivalent residential units ranged from 1,600 square feet total area to 11,000 square feet, with a mean of 6,964 square feet. For those utilities that base charges on impervious area, impervious areas per equivalent residential unit ranged from 1,500 square feet to 10,000 square feet, with a mean of 2,647 square feet.

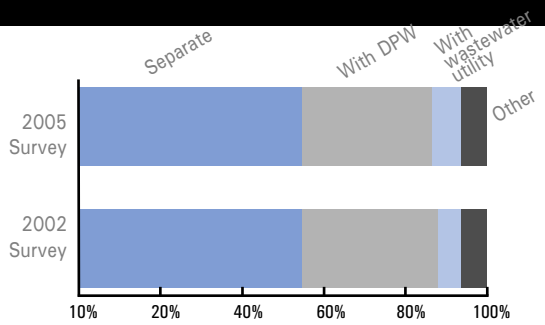
What's New

Feedback from participants prompted us to add a new question to the 2004-2005 version of the Stormwater Utility Survey. In recent years, a number of stormwater treatment systems have become commercially available. Fifty-six percent of respondents have installed at least one of these devices with the most popular being Stormceptor, StormFilter, and CDS Separator. Thirty-six percent have had a favorable experience with these devices in terms of treatment efficiency and ease of maintenance, while 41 percent are still in the evaluation process.

Organization / Administration

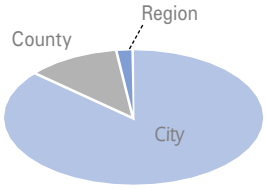
How is your operation organized?

55% Separate utility
32% Combined with Department of Public Works
7% Combined with wastewater utility
6% Other



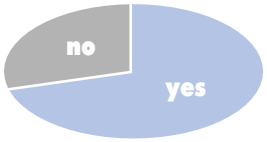
What area does your utility serve?

86% Within city limits
12% County
2% Region



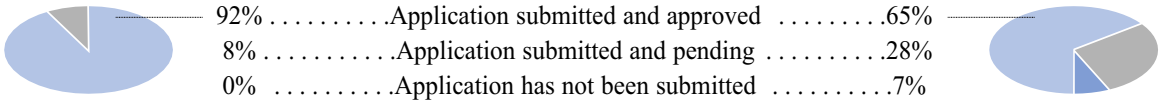
Does your state have specific statutes that govern the formation of stormwater utility and user fee financing?

71% Yes
29% No



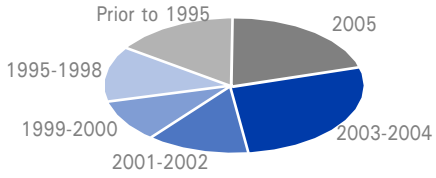
Planning

What is the status of your NPDES permit?



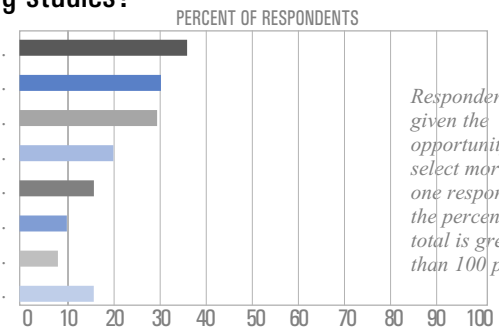
When was your most recent stormwater plan or stormwater facilities plan?

21% 2005
27% 2003–2004
13% 2001–2002
10% 1999–2000
13% 1995–1998
16% Prior to 1995



What stormwater computer models do you use for planning studies?

36% HEC-2
30% XP-SWMM
29% HEC-1
20% TR-55
16% EPA SWMM
10% HEC-RAS
7% HEC-HMS
15% Other

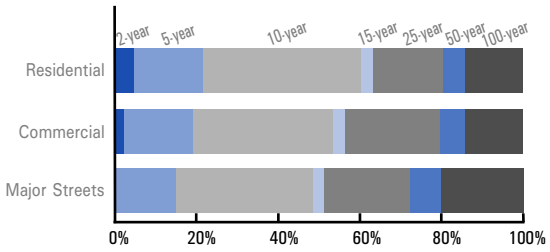


Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Planning (continued)

What return periods do you use to design your major stormwater structures?

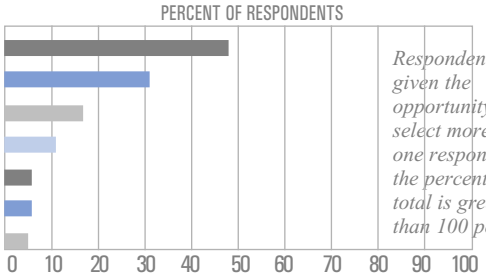
	Residential	Commercial	Major Streets
2-year	3%	1%	0%
5-year	18%	17%	14%
10-year	39%	35%	34%
15-year	3%	3%	3%
25-year	17%	23%	21%
50-year	6%	7%	8%
100-year	14%	14%	20%



Several respondents provided a range of return period.
The percentages above represent the smallest return period provided.

Which performance indicators do you consider most important in measuring improvement in stormwater management success?

47%	Flood control
31%	Monitoring pollutants
17%	Customer complaints/satisfaction
11%	Cost control measures
6%	Erosion control
6%	Maintenance
5%	Habitat

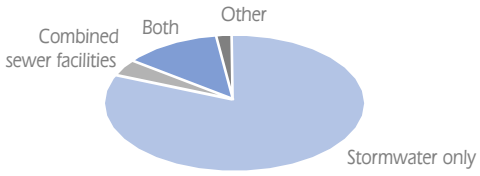


Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Operations

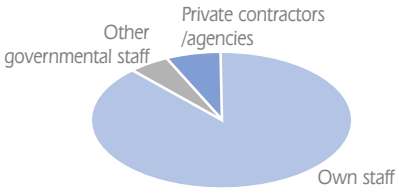
What is your utility responsible for?

81%	Stormwater facilities only
4%	Combined sewer (sanitary/stormwater) facilities
13%	Both
2%	Other



Who provides the majority of your O&M services?

88%	Own Staff
5%	Other Governmental Staff
7%	Private contractors/agencies

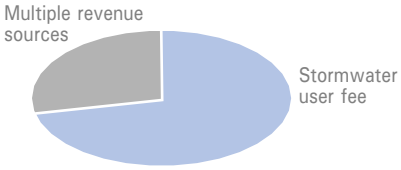


Finance/Accounting

What are your major (at least 90 percent of total income) revenue sources?

(Excludes 7 utilities that reported no single major source)

72% Stormwater user fee
28% Multiple revenue sources



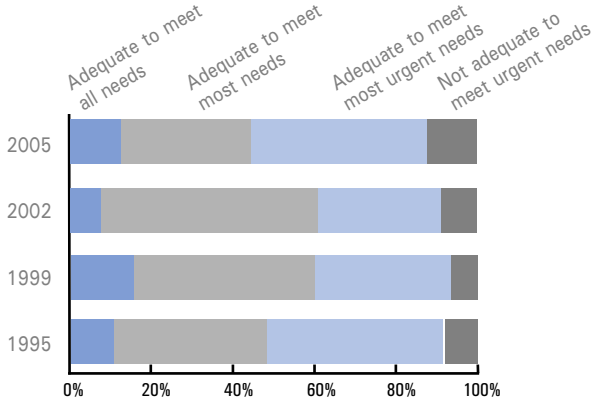
How adequate is available funding?

13% Adequate to meet all needs
2002 = 8% • 1999 = 16% • 1995 = 11%

32% Adequate to meet all needs
2002 =53% • 1999 = 44% • 1995 = 38%

43% Adequate to meet most urgent needs
2002 = 30% • 1999 = 34% • 1995 = 44%

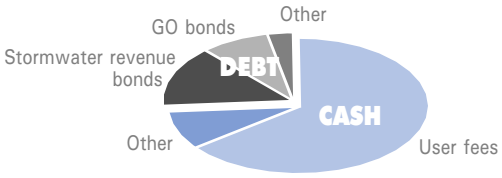
12% Not adequate to meet urgent needs
2002 = 9% • 1999 = 6% • 1995 = 7%



How is the majority of capital improvement needs financed?

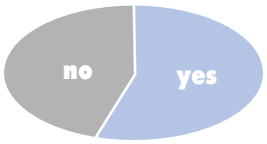
74% Cash financed
- 65% From user fees
- 0% From ad valorem taxes
- 9% Other

26% Debt financed
- 14% Stormwater revenue bonds
- 9% General obligation bonds
- 0% Combined bonds
- 3% Other



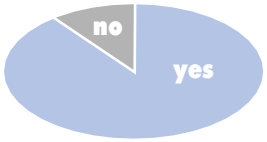
Does your accounting system permit cost tracking by operating activity (e.g., inlet cleaning)?

55% Yes
45% No



Does your accounting system identify user fee revenues by customer class (e.g., residential)?

89% Yes
11% No

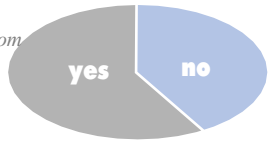


Stormwater User Fees and Billing

Q Were your rates revised in the last 12 months?

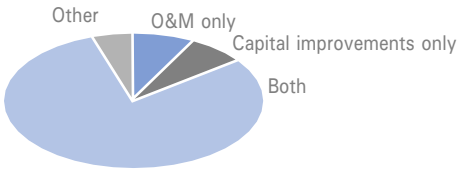
41% No
59% Yes

Increases ranged from 1% minimum to 117% maximum



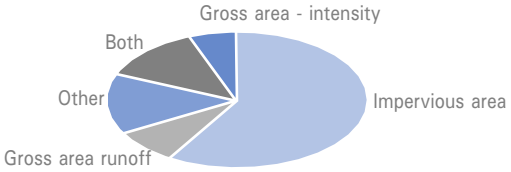
Q What are your user fees designed to pay for?

8% Operation and maintenance (O&M) expenses only
7% Capital improvements only
80% Both O&M expenses and capital improvements
5% Other



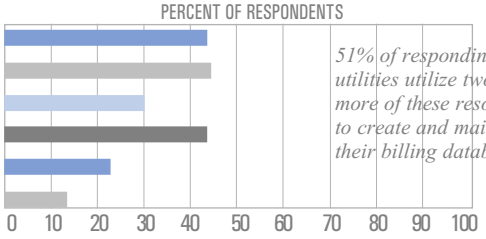
Q What is the basis for your user fees?

59% Impervious area
8% Gross area with intensity of development factor
14% Both impervious and gross areas
13% Other (e.g., number of rooms, water use, flat fee)
6% Gross area with runoff factor

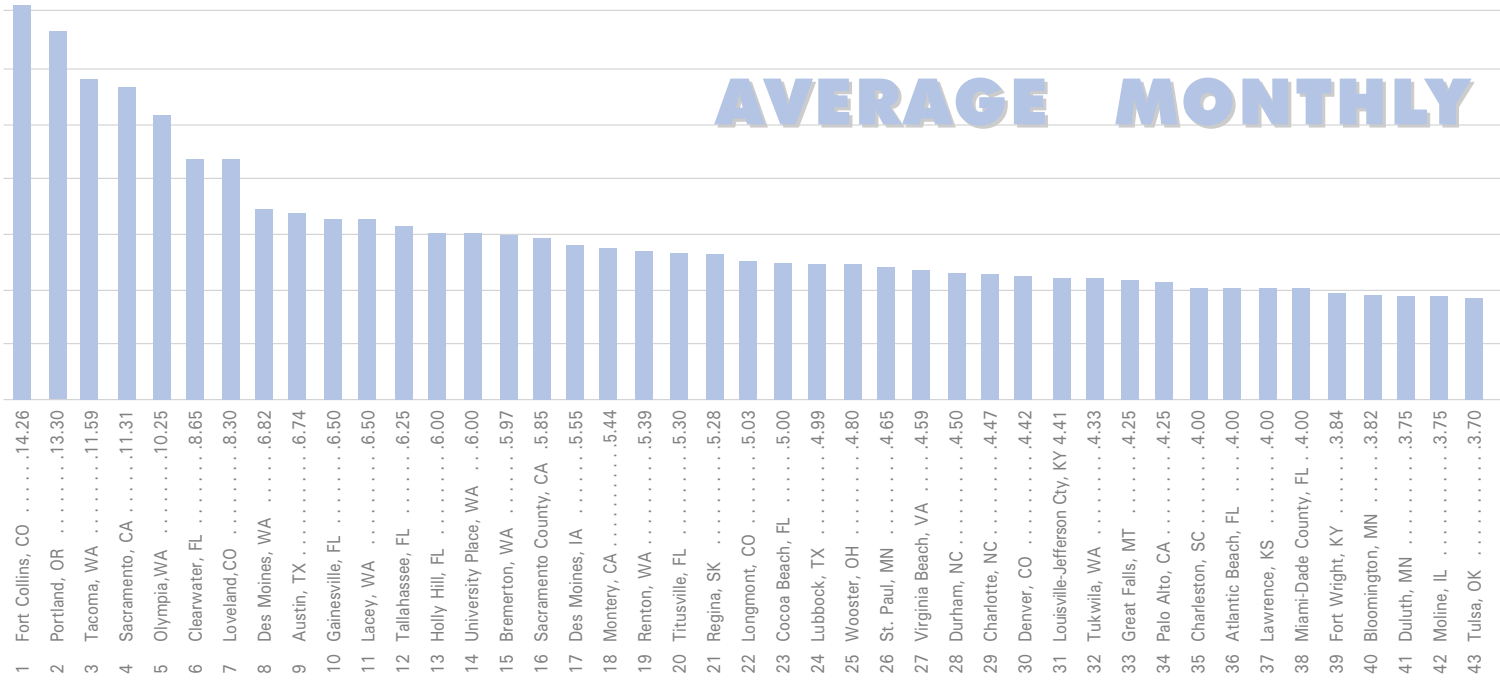


Q If user fees are area-based, what principal resources were employed to create and maintain the customer database used to compute charges?

42% Property tax assessor records
43% Aerial photographs
29% On-site property measurement
42% Geographic Information System (GIS)
22% Planimetric map take-offs
13% Other (e.g., building permits, site plans)



51% of responding utilities utilize two or more of these resources to create and maintain their billing database



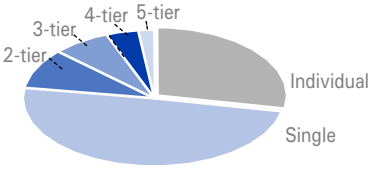
Are your stormwater charges based on individual or class average characteristics?

Residential

27% Individual parcel

73% Class average as:

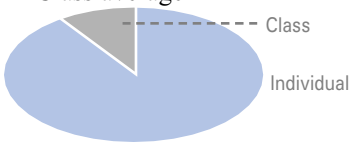
- 48% Single tier
- 9% 2-Tier rate
- 7% 3-Tier rate
- 4% 4-Tier rate
- 2% 5-Tier rate



Non-Residential

90% Individual parcel

10% Class average



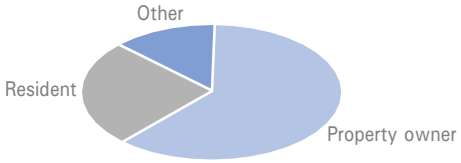
3% of respondents who answered class average did not provide the number of rate tiers.

Who is responsible for the payment of user fees?

62% Property owner

25% Resident

13% Other (e.g., water or other utility bill recipient)



How frequently do you bill?

56% Monthly

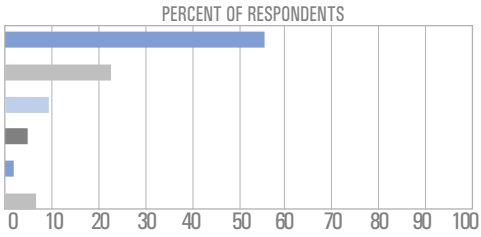
22% Annually

9% Bi-monthly

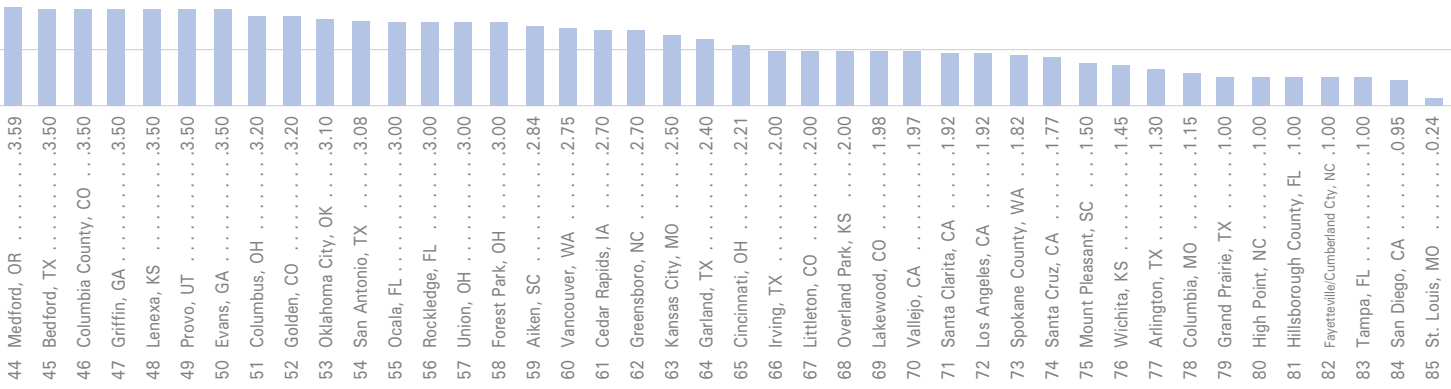
5% Quarterly

2% Semi-annually

6% Other

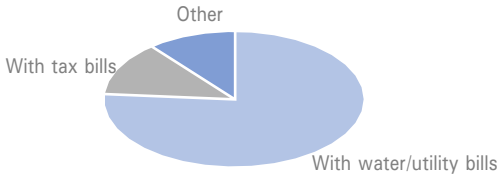


RESIDENTIAL CHARGE



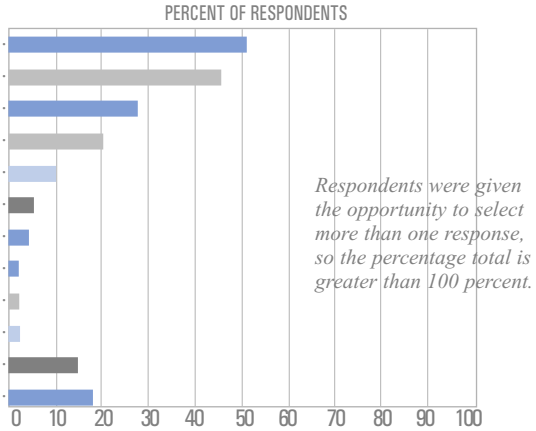
Stormwater User Fees and Billing (continued)

How are your user fees billed?



76% With water or other utility bills
13% With tax bills
11% Other

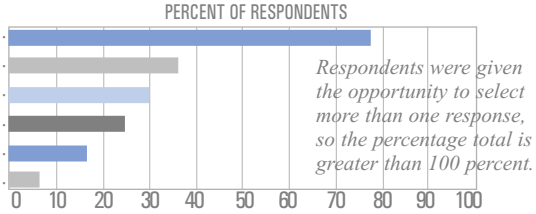
What types of properties are exempt from user fees?



Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

51% Streets/highways
46% Undeveloped land
27% Rail rights-of-way
20% Public parks
10% Government
5% School districts
4% Churches
2% Airports
2% Colleges/universities
2% Water front
14% None
17% Other

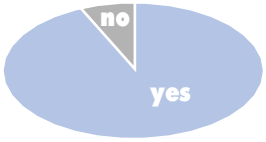
What customer classifications are recognized in your stormwater fee structure?



Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

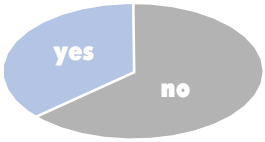
77% Residential
36% Commercial
30% Combined commercial/industrial
25% Other
17% Industrial
7% No designation

Are rates the same for all service areas or watersheds?



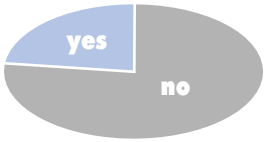
93% Yes
7% No

Are your user fees for single family dwellings the same as for individual multiple residential units, such as apartments and condominiums?



64% No
36% Yes

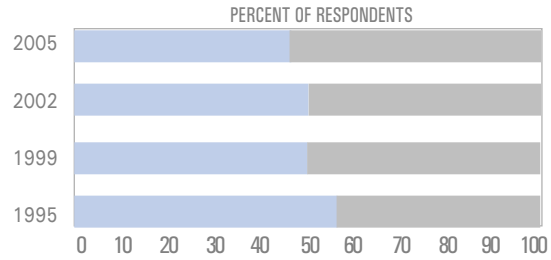
Are one-time impact/capital recovery fees applied to new stormwater utility customers or new development?



77% No
23% Yes

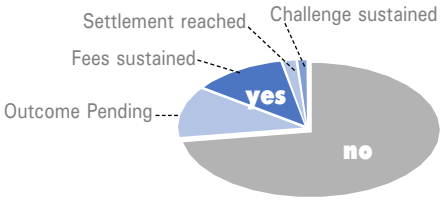
Are credits provided for private detention/retention facilities?

46% Yes
2002 = 53% • 1999 = 50% • 1995 = 57%
54% No



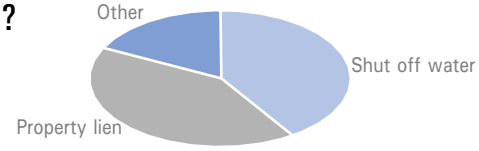
Have your user fees faced a legal challenge?

72% No
28% Yes
12% Outcome pending
12% Fees sustained
2% Settlement reached
1% Challenge sustained (2 later remedied by legislation)



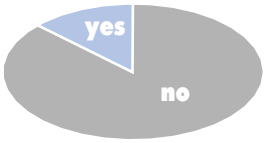
On what basis is payment of your user fees enforced?

41% Lien on property
42% Shut off water
18% Other



Is a significant share of your utility costs attributable to stormwater from outside your service area?

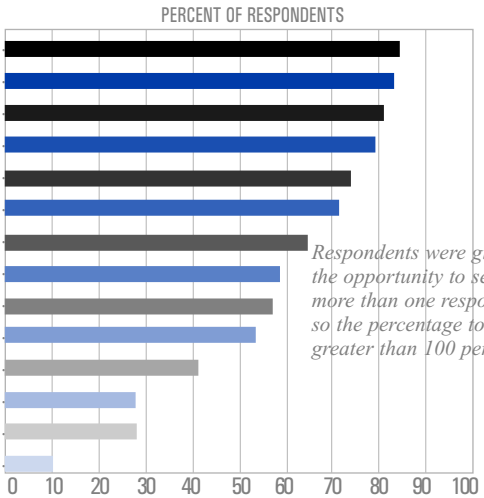
87% No
13% Yes



Quality Issues — Best Management Practices

Which programs and practices are being used to protect or improve water quality?

84% Public education
83% Erosion/sediment controls
81% Street sweeping
79% Detention/retention basins
73% Inlet stenciling
71% Illegal discharge detection
64% Stormwater quality monitoring
59% Public volunteer involvement
58% Residential toxins collection
53% Commercial/industrial regulation
41% Constructed wetlands
28% Lawn herbicide/pesticide control
28% Treatment
10% Other

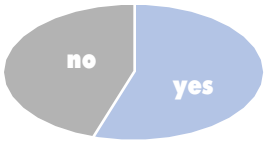


Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Quality Issues Best Management Practice (continued)

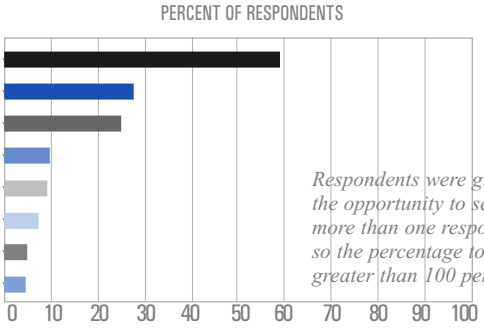
Q Have you installed any stormwater treatment systems in your stormwater conveyance system?

55% Yes
45% No



Devices installed:

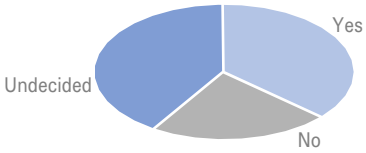
59% Stormceptor
28% CDS Separator
24% StormFilter
9% Downstream Defend
9% Vortechnics
7% Bay Saver
4% Abtech
4% SunTree Technologies



Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

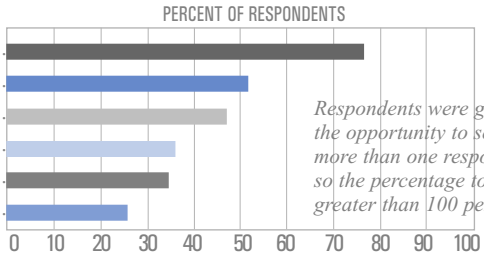
Have these devices met your expectations?

36% Yes
23% No
41% Undecided



Q What contaminants are your greatest concern?

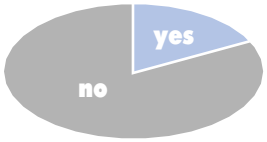
76% Sediments
51% Nutrients
47% Oil and grease
35% Heavy metals
34% Pesticides
25% Other



Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

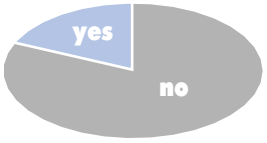
Q Are quality-based user fee credits or other incentives provided to encourage customers to control or reduce stormwater pollution?

18% Yes
82% No



Q Are your user fees specifically designed to provide for the separate recognition and equitable recovery of costs associated with stormwater quality management and quantity(runoff) management, respectively?

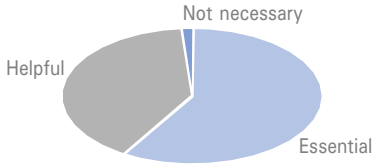
81% No
19% Yes



Public Information/Education

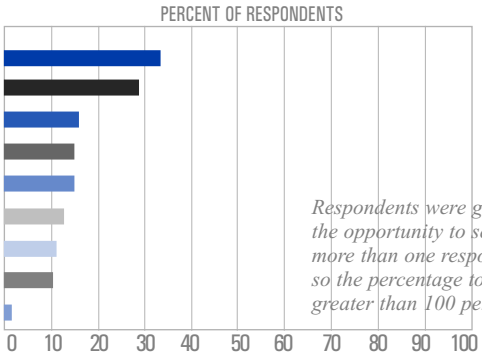
How important is an organized public information/education effort to the continuing success of a user fee funded stormwater utility?

59% Essential
40% Helpful
1% Not necessary



What means have you found to be the most effective in educating the public about utility services, program needs and financing, and citizen responsibilities?

33% Bill inserts
29% Public hearings/presentations
16% Internet
15% Brochures/flyers/newsletters
15% Newspaper
12% Television
11% Public schools
10% Speakers bureau
1% Direct mail



Respondents were given the opportunity to select more than one response, so the percentage total is greater than 100 percent.

Major Challenges Recently Faced

Financial, rate, and billing related issues ..... 19 utilities
(e.g., financing growth, capital replacements, NPDES and other environmental mandates; rate increases, rate equitability, rate challenges; and billing database updating or conversion to GIS)

Weather and flooding issues ..... 10 utilities
(e.g., high amounts of rainfall, standing water, West Nile concerns, localized flooding)

Erosion control ..... 8 utilities
(e.g., run-off, erosion problems)

Regulatory and quality control compliance ..... 8 utilities
(e.g., illicit discharges, quality monitoring, and difficulties of complying with more stringent state and federal quality mandates related to Endangered Species Act, TMDLs, et al.)

Infrastructure planning issues ..... 7 utilities
(e.g., need for integrated flood, quality and environmental planning; remedy of specific infiltration/inflow or local flooding problems; and system-wide flood control master planning)

Jurisdictional issues ..... 3 utilities
(e.g., incorporation of added cities into service area and co-permittee coordination)

Public education ..... 2 utilities
(e.g., need for increased education regarding new programs or rate increases)

Significant Events Affecting Utilities in Past Two Years

NPDES compliance ..... 21 utilities

CIP related (funding, projects started/completed) ..... 14 utilities

User fee related (increases, lack of increases) ..... 14 utilities

Weather related (heavy rains, storms, drought) ..... 8 utilities

Organization/administration/staffing changes ..... 7 utilities

Public education/awareness ..... 4 utilities

Urban growth/decline in service area ..... 4 utilities

Legal challenges ..... 2 utilities

Some respondents listed the same events as positive, negative, or both (e.g., heavy rains or flooding brought both damage and increased public awareness of needs).

Stormwater Management

From run-off to potential revenue stream, stormwater management is uniquely challenging. It is often not source-specific, not metered or monitored closely within the community, and not tied to customers' daily decisions. Black & Veatch's Enterprise Management Solutions team assists utilities nationwide in stormwater management issues to help provide stable funding for operations as well as capital projects.

ABOUT ENTERPRISE MANAGEMENT SOLUTIONS

Black & Veatch is pleased to provide this survey as an industry service. For 90 years, meeting the needs of utilities nationwide has been at the core of our business. We understand the value of knowing how others are addressing the industry's complex issues. From organization effectiveness to financial structuring to risk management, it helps to know the industry's trusted business partner. Black & Veatch brings it all together.

BLACK & VEATCH
building a world of difference™

ENERGY WATER INFORMATION GOVERNMENT

For custom strategies, proven processes and high-value results, contact:
Anna White
Black & Veatch • 11401 Lamar Avenue • Overland Park, KS 66211 USA
Tel: 913-458-4322
Stormwater@bv.com

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04/19/05

ATTACHMENT
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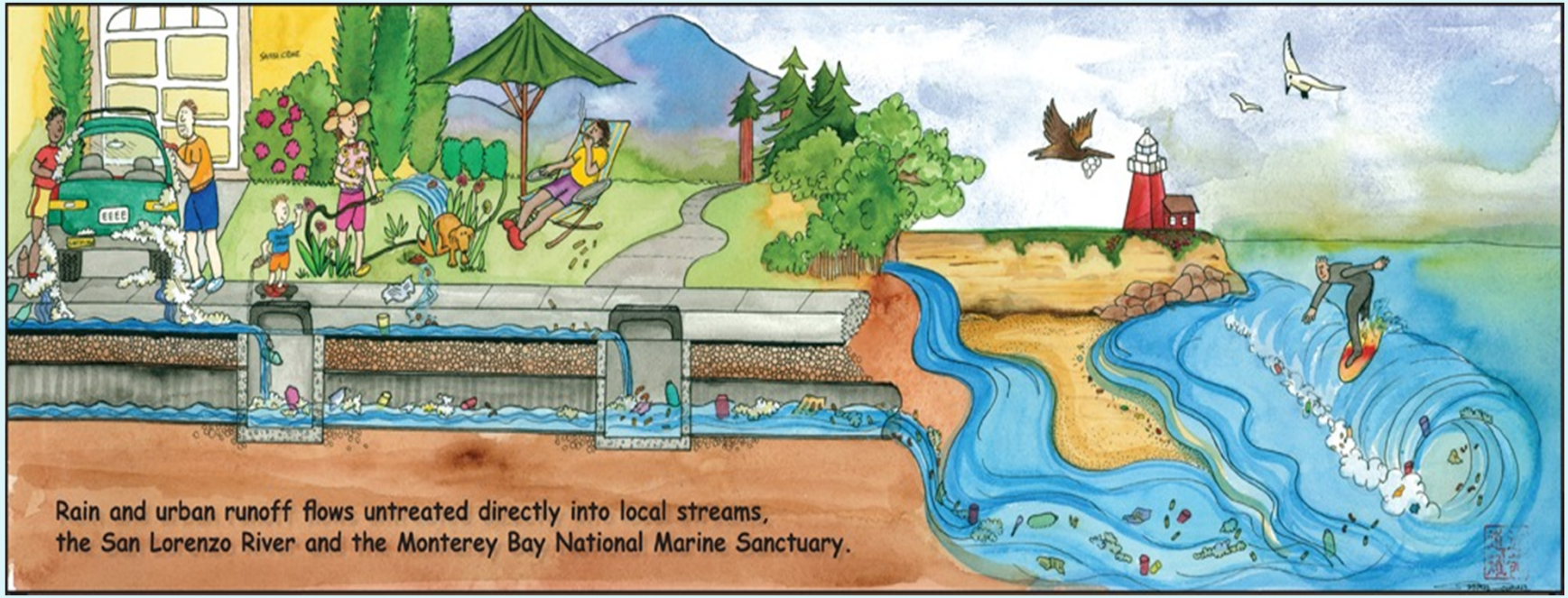
City Storm Water Program and Measure E: Clean River, Beaches and Ocean Fund

FY 2015 Highlights

Dedicated funding for programs

to prevent pollution from reaching our waterways and beaches

Urban Runoff



Rain and urban runoff flows untreated directly into local streams, the San Lorenzo River and Monterey Bay

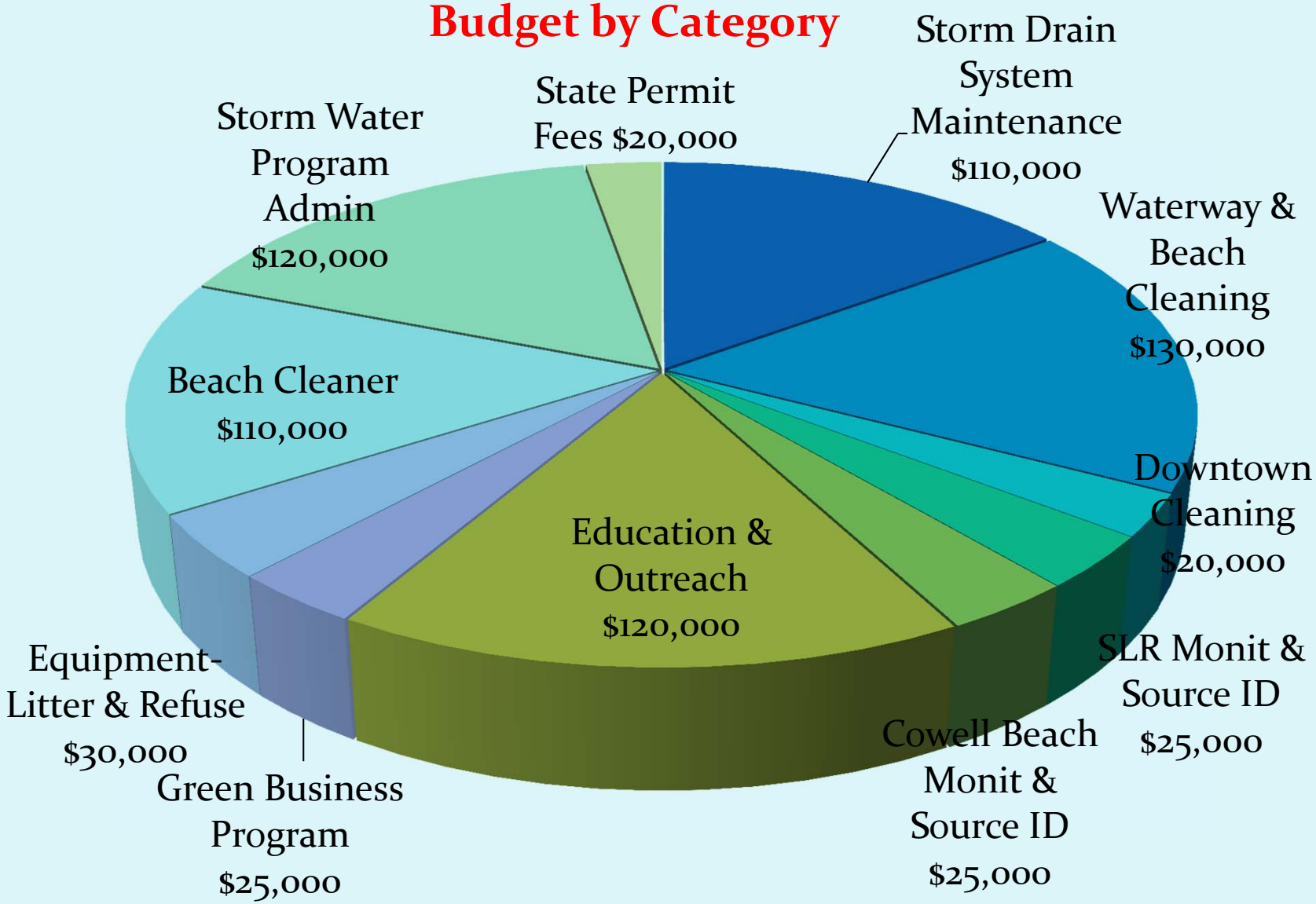
FY 2015 Expenses

- Storm Drain System Maintenance: $110,000
- Waterway & Beach Cleaning: $130,000
- Downtown Cleaning: $20,000
- San Lorenzo River Monitoring & Source ID: $25,000
- Cowell Beach Monitoring & Source ID: $25,000
- Education & Outreach: $120,000
- Green Business Program: $25,000
- Equipment: Litter & Refuse: $30,000
- Beach Cleaner: $110,000*
- Storm Water Program Staff: $120,000
- State Permit Fees=$20,000

Revenue: $630,000 Expenses: $740,000

FY 2015 Expenses

Budget by Category



Municipal Operations

Focus on cleaning:

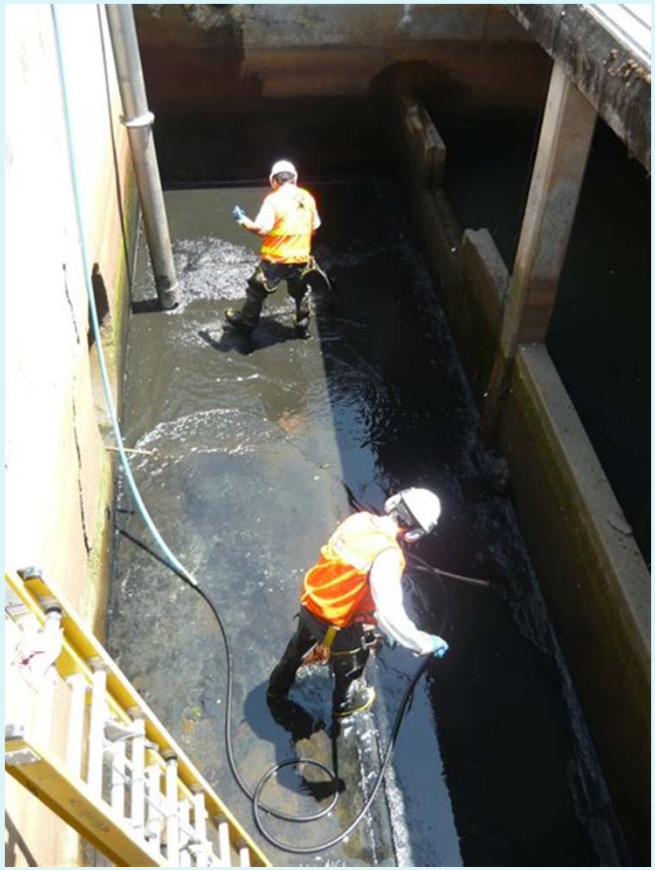
To keep debris & pollutants from flowing into the San Lorenzo River and Monterey Bay

- Storm drain pipelines
- Pump Stations
- River Toe Ditches
- Street Catch basins

Municipal Operations

City Crews clean:

- Storm drain pipelines-9 miles
- River pump stations-5 vaults



Municipal Operations

Storm Drain System Inspection & Cleaning:

- Extensive catch basin inspection & cleaning program. All downtown catch basins plus outlying areas inspected & cleaned.
  - Labor costs
  - Vactor Operation
  - Debris Disposal
  - Televising storm drain lines

Cost: $110,000

Waterway, River Levee & Beach Cleaning

Ongoing Maintenance Efforts:

- San Lorenzo River
  - Parks Temp Staff-$70,000
  - Contracted cleanups-$25,000

  Subtotal: $95,000

- Cowell & Main Beaches
  - Wharf Temp Staff $35,000

Cost: $130,000

Beach Cleaning

Beach Cleaning Machine for Cowell & Main Beaches

Cherrington Beach Cleaner
Cost: $110,000

Waterway, River Levee & Beach Cleaning

Parks Rangers Temp Staff-cleanups & restoration efforts

Cost=$70,000

Municipal Operations

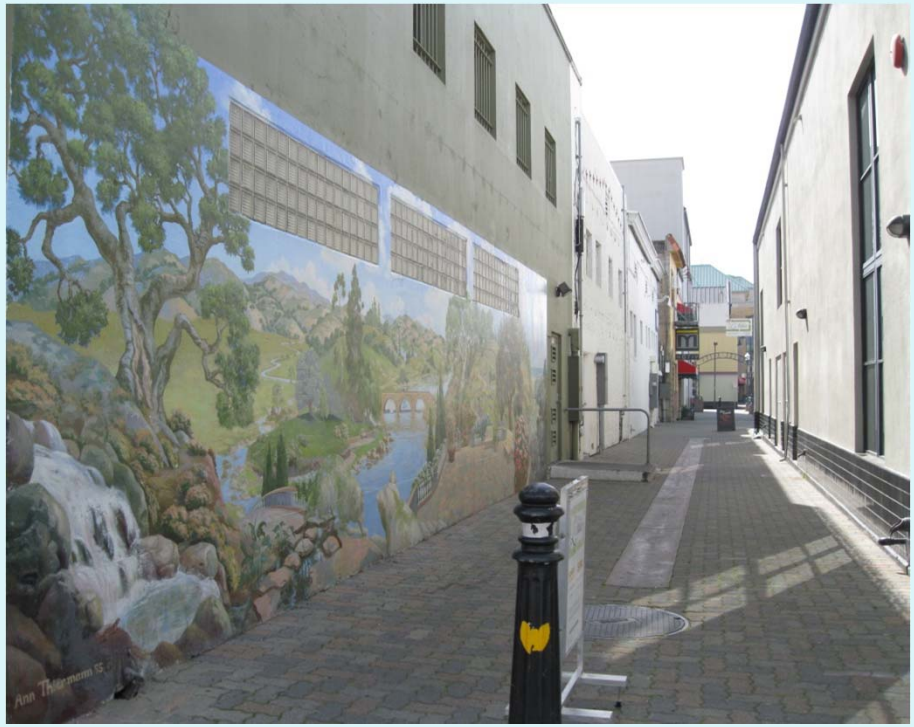
Downtown Cleaning:

Hand Sweeping-Hope Services

Cost=$20,000

Municipal Operations

Downtown Cleaning: Alleyways



Cleaned by contractors

River Levee & Beach Volunteer Cleanups

Save Our Shores:

- San Lorenzo River-Adopt a Levee cleanups
- San Lorenzo River-4 seasonal cleanups
- Annual Coastal Cleanup Day-beach & river cleanups
- July 4th & 5-beach outreach & cleanups
- Disposal of debris

Cost=$25,000

Education & Outreach Program

School Programs:

- O'Neil Sea Odyssey-Field trip & class 4-5th grades
- Save The Whales-K-12th Grade class presentations
- Save Our Shores-Middle & High School assemblies and classes
- ZunZun-Musical Assemblies K-6th grades

Cost=$35,000

Education & Outreach Program

Volunteer Monitoring & Stewardship:

- CWC Snapshot Day
- CWC San Lorenzo River Alliance

Cost=$15,000

Education & Outreach Program

Residential Outreach:

- Arana Gulch Watershed Coordinator
- EA-Our Water Our World: pesticides & herbicides
- EA-Green Gardner Program
- RCD-Low Impact Development
- SW agencies-Region-wide TV ads

Cost=$15,000

Education & Outreach Program

Business Outreach & Recognition:

- City Clean Ocean Business Program
- Monterey Bay Green Business Program
- Green Gardner/ Landscaping Program

Cost=$30,000

Education & Outreach Program

Litter & Illegal Dumping:

Catch Basin Labeling (SOS)

Cost=$10,000

Cigarette Butt "Bait Tank" containers

San Lorenzo River Pollution Prevention

Litter & Illegal Dumping

- Trash/Recycling and Cigarette Butt containers on SLR levee & other areas

Cost=$15,000

SLR Watershed Monitoring

State Total Maximum Daily Load Limits: San Lorenzo River

- **TMDL: Bacteria and Sediment**
- State requires monitoring, remedial measures & reports
- Monitoring of SLR, Branciforte & Carbonera Creeks by City Lab & Env Compliance Program
- Results indicate birds and sediment are primary sources of elevated bacteria levels in SLR
- City is an active partner in the SLRA led by Coastal Watershed Council (staff time, funding, specialized lab work, data sharing)

Cost= $25,000 (Lab)

Cowell Beach

- City participates in Cowell Beach Working Group
- City & County both monitor Cowell Beach
- Results show low bacteria levels during winter months
- Sewer source unlikely since levels not high year round

In 2014, City added caffeine test as indicator of sewage (none found so far)
In 2015, City conducted a preliminary bacteria gradient study

New State Requirements
Outfall Inventory and Sampling

- Staff checked 236 storm drain outfalls
- 26 outfalls had flows during summer and were sampled
- Results showed 1 suspect outfall which led staff to identify a cracked storm drain

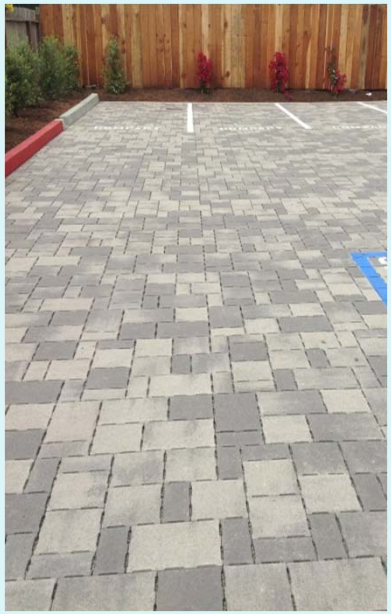
New State Requirements Construction: Erosion Control

- Grading ordinance revised June 2014: Projects need to submit erosion & sediment control plans
- Increased PW and Building staff oversight of construction projects

New State Requirements Development: Low-Impact Design

- New (2014) requirements to collect & infiltrate (sink) storm runoff on property
- Applies to private developments, retrofits, and City projects
- *Examples of LID techniques:*

Pervious Pavement



Bio-retention

Drainage Swale

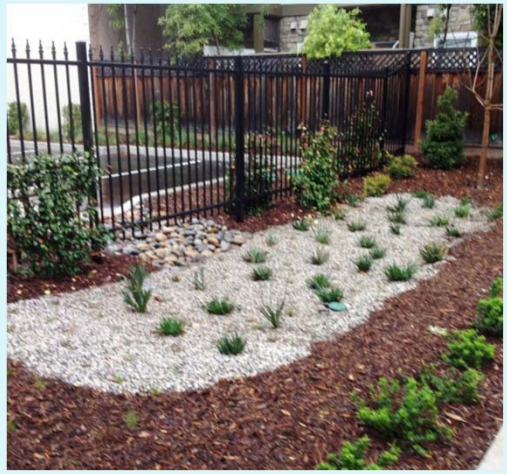
Rain Barrel

Low-Impact Development on Recent Private Projects

Madrone Street (Sports Authority)

Frederick Street (Multi-family)

West Cliff Drive (Multi-family



Low-Impact Development on Recent City Projects

Kaiser Permanente Arena

Wharf Roundabout (not vegetated yet)

Arana Gulch Multi-Use Trail

Tannery Arts New Parking Lot

Grants & Projects

State Prop 84 Grant: Low Impact Development Design & Build Parking Lot #9

- Goal to reduce runoff & pollutant loads to River
- LID to sink rain runoff and divert pollutants into soil

Construction completed August 2015

Grants & Projects

State Prop 84 Grant: Low Impact Development Parking Lot #9

- Sloping & curb cuts to bio-swales redirect 75% of lot runoff

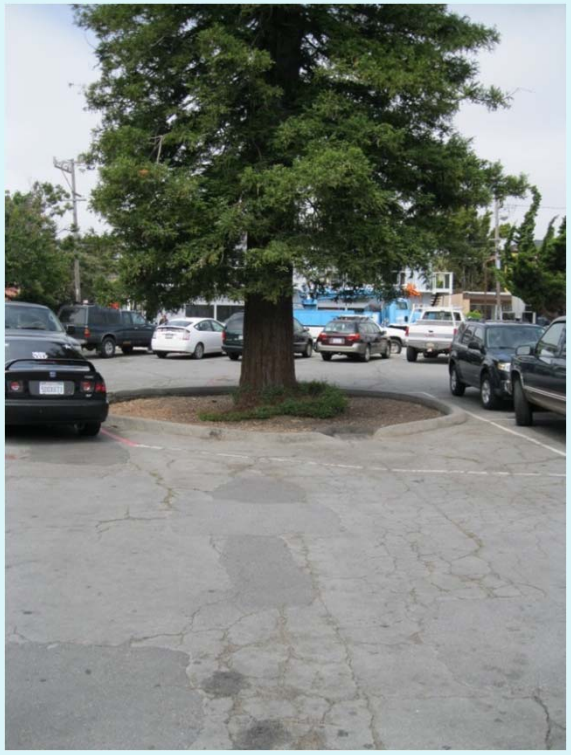
Grants & Projects

Bio-swales installed to sink rain runoff & filter pollutants

Vegetated bio-swale with curb cuts

Grants & Projects

Bio-swales installed to sink rain runoff & filter pollutants



Vegetated bio-swale with curb cuts

Grants & Projects

State Prop 84 Grant: Low Impact Development Design & Build Parking Lot #9

- Lot repaved as part of project
- Match $40,000 from FY14 budget

Grants & Projects

State Clean Beaches Initiative Grant & CIP Project

- Neary Lagoon Storm Drain Improvement Project
- Goal: Reduce bacteria levels at Cowell Beach
- Storm drain pipes exit at Cowell Beach-buried under sand in summer

Neary Lagoon Beach Outlet Vault

Grants & Projects

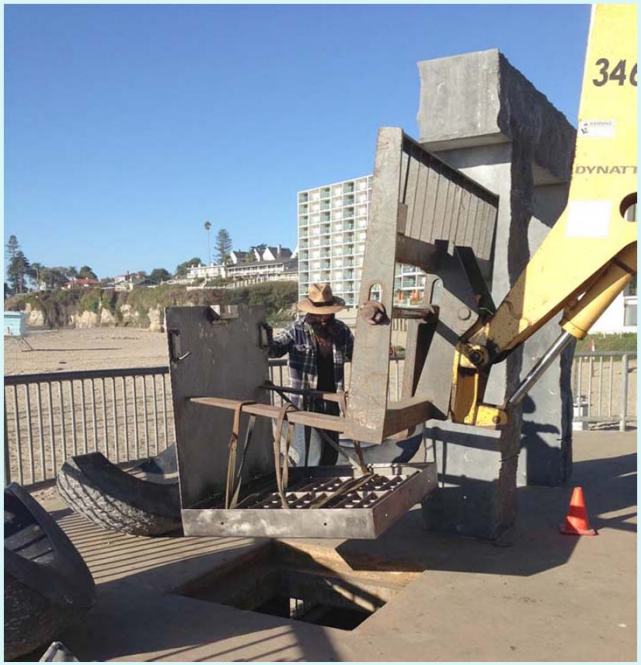
Neary Lagoon

Gates closed in Summer & opened in Winter

Installed Spring 2014

Grants & Projects

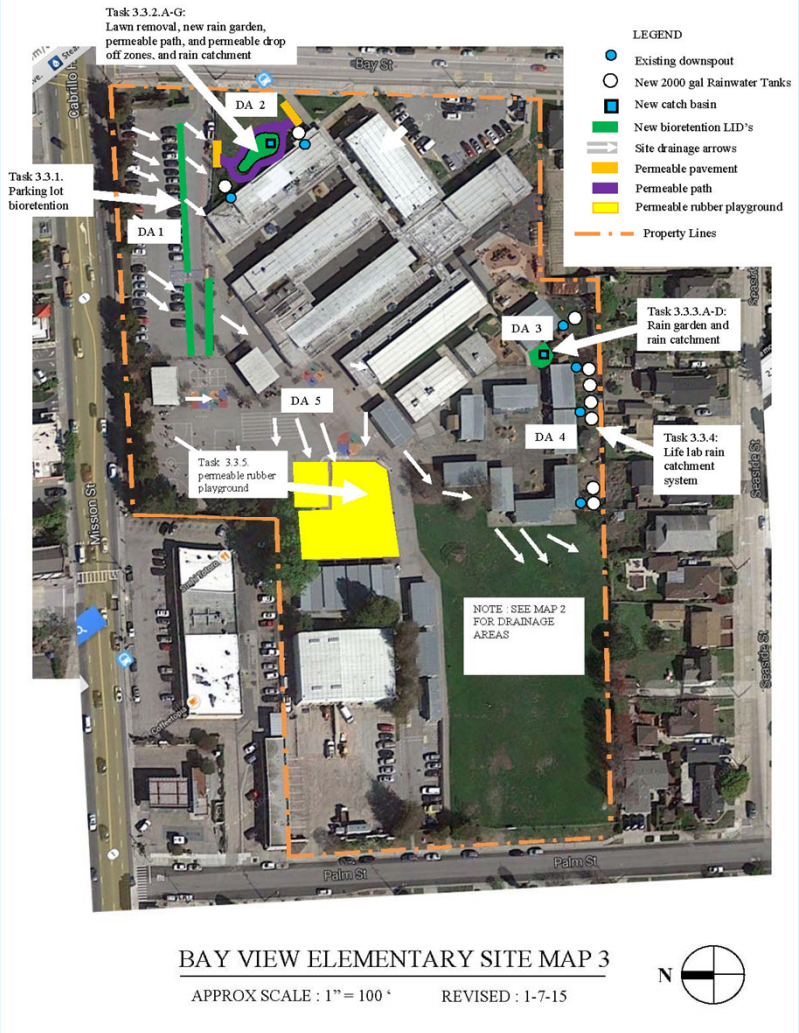
- New hatch at beach outlet vault
- Temp steel plate on gravity pipe opening at beach during summer
- Neary pump station & storm drain lines now cleaned late Spring & Fall



Grants & Projects

State DROPS Grant: Low Impact Design for Schools

- City partnered w/Santa Cruz City Schools and UCSC IDEASS
- $486,000 Grant Awarded to SC City Schools for Bay View Elementary
- Retrofit LID project: Bio-swales, pervious playground, and rain water catchment/cisterns
- City cost $15,000 (FY16) towards large rain garden and educational signage



The End

ATTACHMENT
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Environment

Commercial Sewer Service Charge

Residential Sewer Service Charge

Contact Us

City of San José
Revenue Management – Sewer Billing Unit

200 East Santa Clara Street
4th Floor
San José, CA 95113

Phone: (408) 535-7055

Home > Environment > Utility Services > Stormwater > Storm Sewer Service Charge

Storm Sewer Service Charge

Storm Sewer Service Charge Rate

The Storm Sewer Service Charge rate structure charges users of the storm sewerage system in San José based on the relative quality and quantity of stormwater runoff contributed by residential, commercial, institutional, and industrial properties. The rate structure apportions the costs of storm sewer service to properties in proportion to their relative contribution of flow and pollution to the storm sewer system.

Rates are computed to recover projected costs of the following:

- Stormwater pollution control and permit compliance
- Management, operation, maintenance, and rehabilitation of the storm sewer system
- Improvements to the storm sewer system
- Street sweeping
- Administrative services

Storm Sewer Service Charge rates are reviewed and adjusted annually, as cost and service demand levels change. The current rate structure for storm sewerage services described below became effective July 1, 2011, with San José City Council adoption of Resolution No. 75857 on June 14, 2011. The rates are structured for the estimated cost recovery requirements and the service demand levels of Fiscal Year 2011-12. View the current residential rates and commercial rates.

For Fiscal Years 2013-14, 2014-15, and 2015-16, no rate increases were adopted. Rates maintain at the same level as Fiscal Year 2011-12.

If you have questions regarding rates for storm sewerage service, please call us at (408) 535-7055.

ATTACHMENT
61

City of San Clemente Clean Ocean Program & Fee
Frequently Asked Questions

What is the Clean Ocean Program?
It is the City's effort to prevent stormwater and urban runoff pollution from entering the storm drain system and being discharged at the beach.

Why does the City need a Clean Ocean Program?
- To protect the environment (water quality in local channels and coastal waters);
- To protect public health and safety (from bacteria and other pollution that could reach the beach);
- To protect local quality of life (local business/tourism, "beach town" reputation, etc.); and
- To meet State Water Code and Federal Clean Water Act permit requirements issued to South Orange County cities by the State.

Who developed the Clean Ocean Program?
The City prepared an Urban Runoff Management Plan (URMP), which included participation and feedback from the community as well as the City's Coastal Advisory Committee (local citizens appointed by the City Council to consider and provide advice on coastal and water quality issues). The URMP guides the Clean Ocean Program, and outlines activities and projects to meet the State and Federal water quality requirements and protect local water quality.

What does the Clean Ocean Program include?
- *Runoff treatment projects*
  - Poche Beach: A treatment system was constructed and is maintained to filter and kill bacteria in the runoff before it reaches the beach. Construction was completed in March of 2009. The system treats up to 1.1 million gallons per day. Weekly water quality tests indicate that the UV treatment removes between 95% - 99% of the bacteria in the storm drain runoff before it discharges to the beach. The current water quality grade at Poche Beach is an A+.
  - North Beach: A system was constructed to divert dry weather runoff away from North Beach and send it to the City's Water Reclamation Plant for treatment. The system started operating on June 1, 2009. It diverts and filters about 350,000 gallons per day. The current water quality grade at North Beach is an A+.
  - Underground storm drain units were installed to remove trash, oil & grease and sediment from runoff before it gets to the beach. Six units have been installed. They are located near Calafia Beach, in the Pier Bowl area, at the west ends of El Portal, at the end of Linda Lane and at Mariposa. In 2013, 35 cubic yards of material was captured and removed by these units. This is material that would have otherwise have ended up in the ocean.
- *Pollution prevention activities*
  - Street Sweeping: the City sweeps public residential streets twice per month and major streets and business areas about 3 times per week. Over 22,000 tons of material has been collected over the last ten several years, enough to fill 550 large (40 cubic yard) trash bins.
  - Catch Basin Inspection and Cleaning: the City inspects at least 2,205 catch basins annually, cleaning them as needed. In 2013, 2,432 catch basins were cleaned and a total of 914 cubic feet of material was removed.
  - Water Quality Testing: water samples from over 20 locations throughout town are sampled each year to help identify potential problem areas and monitor quality progress over time. Flow measurements are also taken to help measure progress in reducing urban runoff flows.
  - Special Studies: the City consulted with scientists to conduct an in depth investigation to find sources of bacteria in the Poche Beach watershed. A year long study which included molecular

marker testing culminated in focused recommendations and a strategic plan for reducing bacteria at Poche Beach. The final report of the study is located on the Clean Ocean Program website at www.sccleanocean.org.

- Commercial, Industrial and Construction Site Inspections: Inspections of businesses, industrial facilities and construction sites are conducted to make sure these sites are using proper Best Management Practices (BMPs) to prevent pollution from entering the storm drain system and reaching the beach. Over 9,000 inspections have been completed in the last 10 years.
- Spill Cleanups and Storm Drain Maintenance: A 24/7 hotline number (**366-1553**) is in place to respond to and cleanup spills or investigate reported illegal discharges. In addition, the City performs ongoing maintenance to ensure proper function of the storm drain system and inspects all public catch basins annually and removes materials that might be discharge into the system.
- Enforcement of Anti-pollution Ordinances: Dedicated officials enforce water quality laws to identify and correct violations. Depending on the severity of the violation, enforcement may include verbal warnings, written correction orders, and/or fines of $100, $200, or $500 per violation.
- Public Outreach and Education: Efforts promote awareness of stormwater and urban runoff pollution impacts, and ways the public can help prevent this pollution from happening in the first place.

What is the cost of implementing the Clean Ocean Program?
The cost to implement the program is about $2.2 million per year.

What is the cost of not implementing the Clean Ocean Program?
The City could be liable for large fines if the State finds that the City is not meeting the requirements of the stormwater permit regulations. Also, there are potential economic impacts (tourism, real estate values, etc.) if the City does not work to protect its healthy beach town reputation.

How is the Clean Ocean Program funded?
By a Clean Ocean utility fee charged to property owners. The fee is collected as a line item on the monthly utility bill for owners that get water service from the City. The fee is charged monthly but collected via a separate twice-yearly bill to San Clemente property owners that get water service from other providers (e.g. South Coast Water District or Santa Margarita Water District).

Why do property owners get charged the Clean Ocean Fee?
Developed and graded properties contribute runoff to the storm drain system (which includes pipes, channels, drain inlets and street gutters). This runoff contains or picks up pollution before it enters the storm drain, which the City must then address. Since providing storm drain and water quality services is like other utility services provided by the City (e.g. drinking water and sewer service), it is appropriate that property owners pay for the cost of this service.

How long will the continued fee be in effect? When will it end?
If approved by San Clemente property owners, the existing Clean Ocean Fee would be continued for an additional six and one-half (6.5) years, and would expire on June 30, 2020.

How much will the fee increase over the next 6.5 years?
The continued Clean Ocean Fee would be fixed and would not increase over the entire period.

Why are property owners voting on this fee?

Under the provisions of California Proposition 218, property owners must approve new property fees adopted by cities.

What is the change from the existing to the proposed Clean Ocean Fee?

Single Family Residential Monthly Fee		
	Current Fee	**Proposed New Fee**
Private street	$ 4.39	**$ 5.10**
Public street	$ 5.02	**$ 6.23**

Multi-Family Residential Monthly Fee		
	Current Fee (per residential unit)	**Proposed New Fee (per residential unit)**
Private street	$3.51	**$4.08**
Public street	$4.01	**$4.98**

Non-Residential (Commercial, Industrial, Business Park) Monthly Fee		
	Current Fee (per acre or fraction thereof)	**Proposed New Fee (per acre or fraction thereof)**
Private street	$43.90	**$51.00**
Public street	$50.20	**$62.30**
Note: Almost all non-residential streets within the City are public streets.		

Undeveloped, Graded Property Monthly Fee				
	Current Fee		**Proposed New Fee**	
	2 acres or less	*Each acre over 2 add:*	*2 acres or less*	*Each acre over 2 add:*
Private street	$2.20	$0.44	**$2.55**	**$0.51**
Public street	$2.51	$0.50	**$3.12**	**$0.62**
Note: There is no clean ocean fee charge for undeveloped, ungraded parcels.				

Note: Properties on private streets are charged a lower rate since the City doesn't provide street sweeping service on private streets.

How is the fee calculated?
The fee is based on a parcel's expected contribution of runoff, which is determined by an estimate of the impervious area on that parcel. Impervious areas include such things as buildings and pavement, which prevent or restrict storm water from getting into the soil and increase runoff from a parcel.

Why is the existing Clean Ocean Fee being proposed to be continued?
The fee funds a stormwater quality program that the State requires the City to implement. Since the fee was last approved, the State revised and adopted a new stormwater permit for the south Orange County area that contains more rigorous requirements. Also, the State recently adopted new requirements for bacteria pollution for which the City must comply.

What happens if continuation of the existing Clean Ocean Fee is not approved?
If the Clean Ocean Fee is not continued, the City will need to support the Clean Ocean Program with some other funding source. The most likely source would be the General Fund, which would result in about $2 million each year that would not be available for other needed projects and programs within the City.

How and when will the vote occur?
All record owners of property within the City that are directly subject to the proposed fee will receive an official mail-in ballot with a postage paid addressed return envelope. The ballots will be mailed to property owners on October 25, 2013. Return ballots are due on December 10, 2013.

How do I cast my vote?
Simply fill out the ballot and mail or deliver it to the San Clemente City Clerk by the due date noted on the ballot.

How do I get more information?
More information about the proposed fee continuation is available on the City's website at www.sccleanocean.org. You may also call the Environmental Programs Section at (949) 361-8204 or send an email to cleanwater@san-clemente.org.

What's the difference between storm drains and sewers – doesn't it all get treated?
Like most other cities, the City of San Clemente owns and operates a storm drain system, which is the network of channels and pipes that collect stormwater and urban runoff and discharges it into the ocean. Unlike sewer systems that send sewage to a treatment plant before being discharged, most storm drain systems, including the City's, were built to collect and convey runoff to prevent flooding but not to treat urban water runoff. Therefore, any pollutants that runoff carries into the storm drain system are discharged untreated along the City's shoreline.

Do other cities have a Clean Ocean Program?
They may call it something else, but all cities in the urbanized areas of Southern California are required by the State to implement stormwater and urban runoff programs to prevent discharges of pollution to creeks, rivers and the ocean.

How do we know that the Clean Ocean Program is working?
- The City records amounts of trash picked up by street sweepers and removed from underground treatment devices.
- Larger treatment projects include monitoring to compare water quality before and after treatment.
- The City tracks the number of enforcement actions and inspections to document these efforts.

Why should San Clemente property owners pay to clean up pollution from upstream cities?
Unlike most cities in Southern California, San Clemente's city boundary is very similar to the local watershed boundary. This means that San Clemente is a self-contained watershed, and that there are no upstream cities that contribute pollution through our local watershed. So the pollution in our storm drains comes from San Clemente properties, and not from out-of-town areas.

How can I help?
To learn about simple tips to help prevent urban runoff pollution, please visit www.sccleanocean.org or www.ocwatersheds.com.
To learn about potential volunteer opportunities (e.g. beach cleanups), please visit www.scwatersheds.com.

ATTACHMENT
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News

Palo Alto proceeds with storm water management fee increase

By **JACQUELINE LEE** | jlee1@bayareanewsgroup.com |
PUBLISHED: August 30, 2016 at 2:48 pm | UPDATED: August 31, 2016 at 7:56 am

PALO ALTO — Money from a proposed increase in storm water management fees would be spent more on operating costs than capital improvements, Palo Alto City Council decided on Monday, reversing a decision made earlier this year.

The council previously approved a resolution calling for a monthly fee of $13.65, up from $13.03.

The breakdown of the increased bill was going to be $6.62 as the base amount and $7.03 for capital improvements. Now, the allocation is reversed so that $7.48 is the base and $6.17 is for improvements.

City staff told council members that initial calculations were off because they were based on fiscal year 2016, rather than 2017, and more money is needed for operating costs.

A public protest hearing on the rate hike is set for Oct. 24. Property owners can file written opposition to the fee increase until then. If a majority does so, then the council has to terminate the fee increase process.

If there is no majority opposition, then the city will conduct a mail ballot election on the fee increase between Jan. 11 and Feb. 28.

If approved, the new fees would go into effect June 1 and generate about $6.9 million in revenue annually for the next 15 years.

In early 2015, the city identified about $37 million worth of capital improvements that are needed.

Property owners currently pay about $12.63 per month in storm drain bills.

Current fees will expire in June. If no action is taken to approve updated fees, then the rates will revert to $4.25, an amount property owners approved in 2005, which city leaders say is not enough to maintain operations.

Email Jacqueline Lee at jlee1@bayareanewsgroup.com or call her at 650-391-1334; follow her at twitter.com/jleenews.

Jacqueline Lee Jacqueline Lee is a reporter covering Palo Alto for the Bay Area News Group. Lee is an LA native and alum of USC Annenberg.

Follow Jacqueline Lee @jleenews

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ATTACHMENT
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Sewer and Storm Water Fees

The charts below provide information on Sewer Fees and Storm Water Fees in the City of Alameda.

SEWER SERVICE FEE, CITY OF ALAMEDA

	FY2016	FY2017 % Increase 3.0%	FY2018 % Increase 3.0%	FY2019 % Increase 3.0%	FY2020 % Increase 3.0%
Single Family ($/month)	**$23.93**	$24.65	$25.39	$26.15	$26.93
Multi-Family ($/month)	**$21.54**	$22.19	$22.86	$23.55	$24.26
Commercial Fixed Charge ($/month) (includes first 730 cubic feet)	**$21.54**	$22.19	$22.86	$23.55	$24.26
Flow-Based Rate ($ per Hundred cubic feet)	**$2.96**	$3.05	$3.14	$3.23	$3.33

STORM WATER FEE, CITY OF ALAMEDA

The Fee is based on the amount of pollution that the City estimates enters the municipal storm water system as a result of the installation or maintenance of impervious surfaces.
2,000 square feet of impervious surface = 1 Impervious Surface Unit (ISU)

The Fee is calculated according to the following formula:
Number of Impervious Surface Units **(ISU)**
multiplied by
Fee per Equivalent Residential Unit **(ERU)**

	Storm Water Fee
Typical Single Family Residential Parcel A typical residential parcel has 5,000 square feet of surface area. 40 percent, or 2,000 square feet, is comprised of impervious surface (1 ISU).	**$56.15** (1 Equivalent Residential Unit fee)
Condominium (per unit) A typical condo unit has 600 square feet of impervious surface area (0.3 ISU).	**$16.85** (0.3 x 1 ERU)

Other parcels with Impervious Surfaces are subject to the Fee based upon stated formula Fee: Number of ISUs **multiplied by** Fee per ERU.

DECLARATION OF SERVICE BY EMAIL

I, the undersigned, declare as follows:

I am a resident of the County of Sacramento and I am over the age of 18 years, and not a party to the within action. My place of employment is 980 Ninth Street, Suite 300, Sacramento, California 95814.

On December 22, 2017, I served the:

SWRCB and SDRWQCB Comments on the Test Claim, filed December 15, 2017

California Regional Water Quality Control Board, San Diego Region, Order No. R9-2013-0001, 14-TC-03
County of San Diego, Claimant

by making it available on the Commission's website and providing notice of how to locate it to the email addresses provided on the attached mailing list.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, and that this declaration was executed on December 22, 2017 at Sacramento, California.

Jill L. Magee
Commission on State Mandates
980 Ninth Street, Suite 300
Sacramento, CA 95814
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COMMISSION ON STATE MANDATES

Mailing List

Last Updated: 12/21/17

Claim Number: 14-TC-03

Matter: California Regional Water Quality Control Board, San Diego Region, Order No. R9-2013-0001

Claimant: County of San Diego

TO ALL PARTIES, INTERESTED PARTIES, AND INTERESTED PERSONS:

Each commission mailing list is continuously updated as requests are received to include or remove any party or person on the mailing list. A current mailing list is provided with commission correspondence, and a copy of the current mailing list is available upon request at any time. Except as provided otherwise by commission rule, when a party or interested party files any written material with the commission concerning a claim, it shall simultaneously serve a copy of the written material on the parties and interested parties to the claim identified on the mailing list provided by the commission. (Cal. Code Regs., tit. 2, § 1181.3.)

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